SYSTEM USER GUIDE



MiniMed™ 780G

Includes technology developed by dreamed diabetes ai

MiniMed™ 780G
SYSTEM USER GUIDE

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Glossary

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Safety and indications

1 Safety and indications

This user guide describes the operation of the MiniMed 780G system with smart device connectivity and SmartGuard technology. SmartGuard technology adjusts insulin delivery based on sensor glucose (SG) readings without the need to enter a BG reading for confirmation. The MiniMed 780G insulin pump operates in Manual mode when the SmartGuard feature is inactive.

The MiniMed 780G system with the Guardian 4 transmitter does not require finger sticks for calibration or to make diabetes treatment decisions. Treatment decisions should be made based on the combination of SG readings and trend arrows. For more information, see *Using SG to make treatment decisions, on page 117*.

Consult a healthcare professional before starting insulin pump therapy.

Using this guide

Use the table of contents at the beginning of the user guide and the index at the end of the user guide to locate specific information.

For the glossary, which has definitions of terms and acronyms used, see *page 299*.

Conventions

Convention	Definition
Select	Press ◎ to activate a screen item, accept a value, or initiate an action.
Select and hold	Press and hold ◎ to perform an action.
Press	Press and release a button.

Convention	Definition
Press and hold	Press and hold a button.
Bold text	Indicates screen items and buttons, such as "Select **Next** to continue."
X	Indicates a value that might appear differently on the pump screen.
Note	**Note:** A note provides helpful information.
Caution	**CAUTION:** A caution informs of a potential hazard which, if not avoided, might result in minor or moderate injury, or damage to the equipment.
WARNING	**WARNING: A warning informs of a potential safety hazard which, if not avoided, may result in serious injury or death. It may also describe potential serious adverse reactions.**

For instructions about setting up devices on the MiniMed 780G system, such as a sensor or infusion set, refer to the user guide for the related device.

Emergency kit

Keep an emergency kit available at all times to confirm that necessary supplies are ready. Tell a family member or friend where to find the emergency kit.

When traveling, test blood glucose (BG) more frequently to accommodate for changes in activity levels and meal times.

Include the following items in the emergency kit:

- Rapid-acting glucose tablets
- BG monitoring supplies

- Urine or blood ketone monitoring supplies
- Extra MiniMed infusion set and MiniMed reservoir
- Extra new AA lithium or alkaline batteries, or fully charged NiMH batteries
- Insulin syringe and rapid-acting U-100 insulin (with dosage instructions from a healthcare professional)
- Adhesive dressing
- Glucagon



WARNING: Do not use the Bolus Wizard feature to calculate a bolus for a period of time after giving a manual injection of insulin by syringe or pen. Manual injections are not accounted for in the active insulin amount. Using the Bolus Wizard feature too soon after a manual injection may result in over-delivery of insulin and may cause hypoglycemia. Consult a healthcare professional for how long to wait after a manual injection before using the Bolus Wizard feature.



WARNING: Do not use the SmartGuard feature for a period of time after giving a manual injection of insulin by syringe or pen. Manual injections are not accounted for when the SmartGuard feature is active. Using the SmartGuard feature too soon after a manual injection may result in over-delivery of insulin and may cause hypoglycemia. Consult a healthcare professional for how long to wait after a manual injection before using the SmartGuard feature.

User safety

Intended use

MiniMed 780G system

The MiniMed 780G insulin pump is indicated for use by patients age 7-80 years with Type 1 diabetes, whose total daily dose of insulin is 8 units per day or more.

The MiniMed 780G system is intended for the continuous delivery of basal insulin at selectable rates, and the administration of insulin boluses at selectable amounts. The system is also intended to continuously monitor glucose values in the fluid under the skin. The MiniMed 780G system includes SmartGuard technology, which can be programmed to provide an automatic adjustment of insulin delivery based on continuous glucose monitoring (CGM) and can suspend the delivery of insulin when the SG value falls below, or is predicted to fall below, predefined threshold values.

Contraindications

Pump therapy is not recommended for people whose vision or hearing does not allow for the recognition of pump signals, alerts, or alarms.

Insulin pump therapy is not recommended for persons who are unwilling to perform at least four BG meter readings per day.

The SmartGuard feature cannot be used for people who require less than eight units or more than 250 units of insulin a day.

Pump therapy is not recommended for people who are unwilling or unable to maintain contact with their healthcare professional.

Pump therapy is not recommended for people with a significant cognitive or physical impairment that affects their ability to safely operate the pump, including blindness, hearing impairment, or lack of physical dexterity.

Pump therapy is not recommended for children who are not under the care of a parent or caregiver who is capable of safely operating the pump for the patient.

Risks and side effects

Risks related to insulin administration and pump use

Risks related to insulin infusion and potential interruptions of insulin delivery include:

- Hypoglycemia
- Hyperglycemia
- Diabetic ketoacidosis
- Seizure
- Coma

- Death

Risks related to insulin pump infusion set

Risks related to insulin pump infusion set use include:

- Localized infection
- Skin irritation or redness
- Bruising
- Discomfort or pain
- Bleeding
- Irritation
- Rash
- Occlusions that may interrupt insulin delivery and lead to hyperglycemia and diabetic ketoacidosis

Follow the instructions in the provided user guides for the insertion and care of infusion sets. If an infusion site becomes irritated or inflamed, dispose of the infusion set in a sharps container, and select a different location to insert a new infusion set.

Risks related to sensor use

Risks related to sensor use include:

- Skin irritation
- Allergic reaction
- Bruising
- Discomfort
- Redness
- Bleeding
- Pain
- Rash
- Infection
- Raised bump
- Appearance of a small "freckle-like" dot where needle was inserted

- Fainting secondary to anxiety or fear of needle insertion
- Soreness or tenderness
- Swelling at insertion site
- Sensor fracture, breakage or damage
- Minimal blood splatter associated with sensor needle removal
- Residual redness associated with adhesive, tape, or both
- Scarring

Specific risks related to sensor use

Do not use continuous glucose monitoring if hydroxyurea, also known as hydroxycarbamide, is taken. Hydroxyurea is used to treat certain diseases, such as cancer and sickle cell anemia. Hydroxyurea use results in higher sensor glucose readings compared to blood glucose readings. Taking hydroxyurea while using continuous glucose monitoring can result in hypoglycemia caused by over-delivery of insulin, inaccurate or missed alarms and alerts, delay or loss of sensor-enabled insulin suspension, and substantially higher sensor glucose readings in reports than actual blood glucose readings.

Always check the label of any medication being taken to confirm if hydroxyurea or hydroxycarbamide is an active ingredient. If hydroxyurea is taken, consult a healthcare professional. Turn the Sensor feature off to disable continuous glucose monitoring. For more information, see *Deactivating the Sensor feature, on page 115*. Use additional blood glucose meter readings to verify glucose levels.

Taking medications that contain paracetamol or acetaminophen, including, but not limited to fever reducers and cold medicine, while wearing the sensor, may falsely raise sensor glucose readings and result in an over-delivery of insulin. The level of inaccuracy depends on the amount of paracetamol or acetaminophen active in the body and may be different for each person. If paracetamol or acetaminophen is taken, stop the use of the medication before using SG readings to make treatment decisions. Use additional BG meter readings to confirm glucose levels. While the SmartGuard feature is active, use the temp target feature if medication containing paracetamol or acetaminophen has been taken recently. Check the label of any medication to confirm whether paracetamol or acetaminophen is an active ingredient.

SG and BG values may differ. If symptoms do not match the SG value, use a BG meter to confirm glucose levels before making therapy decisions. Failure to confirm glucose levels when symptoms do not match the SG value can result in the infusion of too much or too little insulin, which may cause hypoglycemia or hyperglycemia. If SG values continue to be different from symptoms, consult a healthcare professional.

For persons seven to seventeen years of age, sensor insertion has been studied and is approved for the back of the upper arm and buttocks. Do not insert the sensor into any other location.

For persons eighteen years and older, sensor insertion has been studied and is approved for the abdomen and back of the upper arm. Do not insert the sensor into any other location.

Risks related to meter use

For the most current risks, see the User's Manual that came with the device.

Risks related to serter use

The serter contains small parts and may pose a choking hazard that can result in serious injury or death.

Side effects include discomfort and skin irritation at the insertion site.

Risks related to the MiniMed 780G system

- Hypoglycemia
- Hyperglycemia
- Diabetic ketoacidosis
- Seizure
- Coma
- Death

Removing the pump for temporary storage

If there is a need or desire to remove the pump, use the following guidelines:

- Write down the current basal rates and use the Save Settings feature. For more information, see *Saving the settings, on page 153*.
- Remove the battery. For more information, see *Storing the pump, on page 224*.

- If the pump is disconnected for less than one hour, an insulin adjustment may not be required. If the pump is disconnected for more than one hour, consult a healthcare professional to determine an alternate method of insulin delivery.

General warnings

Pump

- Do not use the pump in the presence of anesthetic mixtures that include oxidizing agents such as oxygen or nitrous oxide. Exposure to these conditions may damage the pump and result in serious injury.
- Always use the fingertip for blood samples when entering a BG meter reading into the pump. All BG values are used for calibration. Do not use blood samples from the palm for BG values entered into the pump. The palm has not been studied for use with the SmartGuard feature and the performance of the system using such blood samples is not known.
- SG and BG values may differ. If symptoms do not match the SG value, use a BG meter to confirm glucose levels before making therapy decisions. Failure to confirm glucose levels when symptoms do not match the SG value can result in the infusion of too much or too little insulin, which may cause hypoglycemia or hyperglycemia. If SG values continue to be different from symptoms, consult a healthcare professional.
- Do not rely on the pump tones or vibrations to navigate the pump screens or menus. Relying on pump tones or vibrations may result in incorrect menu or setting selection. Always view the pump screen when selecting menus and entering information into the system.
- Only use rapid-acting U-100 insulin (Humalog, NovoLog, and NovoRapid) prescribed by a healthcare professional for use with an infusion pump. Use of any other drug or medication in the reservoir can cause serious injury.
- Confirm that the infusion set is disconnected from the body before rewinding the pump or filling the infusion set tubing. Never insert the reservoir into the pump while the tubing is connected to the body. Doing so may result in an accidental infusion of insulin, which may cause hypoglycemia.
- Do not insert the reservoir before rewinding the pump. Doing so may result in an accidental infusion of insulin, and may result in hypoglycemia.

- Do not use the MiniMed 780G insulin pump or additional system devices next to other electrical equipment, which may cause interference. This includes mobile communication devices such as cell phones that are not paired with the MiniMed 780G system, GPS navigation systems, anti-theft systems, and any electrical equipment that has an output transmitter power greater than 1W. The recommended separation distance between the insulin pump and common RF emitters is 30 cm (12 inches). For more information about recommended separation distance guidelines between the insulin pump and common RF emitters, see *Guidance and manufacturer's declaration, on page 288*. Other electrical equipment that may compromise normal system operation has been contraindicated. For more information, see *Exposure to magnetic fields and radiation, on page 15*.
- Do not unscrew or retighten the tubing connector on the reservoir while the infusion set is connected to the body. Doing so may result in an accidental infusion of insulin, and may cause hypoglycemia.
- Do not use standard Luer sets with the MiniMed 780G system. Only use MiniMed reservoirs and infusion sets that are specifically designed for use with the MiniMed 780G system.
- Do not change or modify the MiniMed reservoir or the MiniMed infusion set. Modification of these components may cause serious injury, interfere with device operation, and void the warranty.
- Do not rely on preset pump alarms or reminders alone to check BG levels. Set additional reminders on other devices, such as a cell phone.
- Do not change or modify the internal RF transmitter or antenna. Doing so may interfere with the safe operation of the equipment.
- The MiniMed 780G system is approved for use with the Guardian 4 transmitter with Bluetooth wireless technology (MMT-7841). Use of a transmitter not approved for communication with the pump may cause damage to system components and may result in inaccurate SG readings.
- If other devices that employ radio frequencies are in use, such as cell phones that are not paired with the MiniMed 780G system, cordless phones, walkie-talkies, and wireless networks, they may prevent communication between the transmitter and the insulin pump. This interference does not cause any

incorrect data to be sent and does not cause any harm to devices. Moving away from, or turning off, these other devices may enable communication. Contact a local Medtronic support representative if RF interference continues.

- Special Precautions regarding Electromagnetic Compatibility (EMC): This body-worn device is intended to be operated within a residential, domestic, public or work environment, where common levels of radiated "E" (V/m) or "H" fields (A/m) exist. Technologies that emit these fields include: cellular phones that are not paired with the MiniMed 780G system, wireless technology, electric can openers, microwaves, and induction ovens. The MiniMed 780G system generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the provided instructions, may cause harmful interference to radio communications.
- Portable and mobile RF communications equipment can affect the operation of the MiniMed 780G system. If interference occurs, move away from the RF transmitter.
- The MiniMed 780G insulin pump can generate, use, and radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. If the MiniMed 780G insulin pump does cause interference to radio or television reception, try to correct the interference by one or more of the following measures:
    - Decrease the distance between the transmitter and the insulin pump to 1.8 meters (6 feet) or less.
    - Decrease the distance between the meter and the insulin pump to 1.8 meters (6 feet) or less.
    - Increase the separation between the transmitter and the device that is receiving/emitting interference.
- The safety of the MiniMed 780G system has not been studied in persons with impaired kidney function. Persons with kidney disease should consult a healthcare professional to determine if the potential benefits of pump therapy outweigh the risks.

- Monitor for diabetic retinopathy. During the beginning of insulin pump therapy, rapid improvement in glucose control and reduction in A1c may result in worsening of existing diabetic retinopathy. Use of the MiniMed 780G system has been associated with rapid improvement in glucose control. Monitor for diabetic retinopathy with retinal eye examinations and if necessary adequate treatment must be performed by your healthcare professional before beginning a treatment with the MiniMed 780G insulin pump.
- The safety of the MiniMed 780G system has not been studied in pregnant women, persons with type 2 diabetes, or in persons using other anti-hyperglycemic therapies that do not include insulin. Persons in these situations should consult a healthcare professional to determine if the potential benefits of pump therapy outweigh the risks.
- The safety of using the Suspend before low and Suspend on low features in patients who have no pump experience is not known. The Suspend before low and Suspend on low features should not be used if insulin pump settings have not been previously established. Insulin pump settings include basal rates, insulin to carb ratio, and insulin sensitivity factors. Consult a healthcare professional before using the Suspend before low or Suspend on low features.

Reservoir and infusion sets

See the user guides that came with the device for the most current warnings related to the reservoir and infusion set.

- If insulin, or any other liquid, gets inside the tubing connector, it can temporarily block the vents that allow the pump to properly fill the infusion set. This may result in the infusion of too little or too much insulin, and may result in hyperglycemia or hypoglycemia. If this occurs, start over with a new reservoir and infusion set.
- If a BG level reading is unexpectedly high during the infusion of insulin or if an occlusion alarm occurs, check the infusion set for clogs and leaks.

  If in doubt, change the infusion set in case the soft cannula is dislodged, crimped, or partially clogged. Consult a healthcare professional to create a plan for rapid insulin replacement in the event this occurs. Check BG to confirm that the appropriate amount of insulin has been administered.

- Only use reservoir and infusion sets manufactured or distributed by Medtronic Diabetes. The pump has been tested to operate when used with compatible reservoirs and infusion sets. Medtronic Diabetes cannot guarantee appropriate operation if the pump is used with reservoirs or infusion sets offered by third parties. Medtronic Diabetes is not responsible for any injury or pump malfunction that may occur in association with the use of incompatible components.

Sensor and serter

For the most current warnings, see the user guide that came with the device.

- Keep the sensor and serter away from children. These products contain small parts and may pose a choking hazard that may result in serious injury or death.
- A retractable needle is attached to the sensor, and minimal blood splatter may occur during insertion. For healthcare professionals and caregivers, cover the sensor with sterile gauze to minimize contact with blood. Keep as much distance as possible from the patient when removing the needle.
- Do not attempt to remove the sensor if the sensor is broken. While there is no evidence of a sensor breaking in a patient's body, sensor breakage can result in serious injury. If the sensor breaks while inserted, contact a healthcare professional for assistance to safely remove the sensor.
- Sensors are sterile and non-pyrogenic, unless the package has been opened or damaged. Do not use the sensor if the sterile package has been opened or damaged. Use of an unsterile sensor may cause site infection.
- Instructions for using the One-press serter (MMT-7512) are different from other Medtronic insertion devices. Failure to follow directions, or using a different serter, may result in improper insertion, pain, or injury.
- Keep the needle housing within sight at all times to avoid an accidental needlestick or puncture.
- Confirm that the sensor is securely placed in the serter to avoid improper insertion, pain, or minor injury.
- Watch for bleeding at the insertion site (under, around, or on top of the sensor). If bleeding occurs, do the following:

a. Apply steady pressure, using sterile gauze or a clean cloth placed on top of the sensor, for up to three minutes. The use of unsterile gauze can cause site infection.

b. If bleeding stops, connect the transmitter to the sensor. If bleeding does not stop, do not connect the transmitter to the sensor because blood can get into the transmitter connector, and may damage the device.

- If bleeding continues, causes excessive pain or discomfort, or blood is significantly visible in the plastic base of the sensor, do the following:

  a. Remove the sensor and continue to apply steady pressure until the bleeding stops. Discard the sensor in a sharps container.

  b. Check the site for redness, bleeding, irritation, pain, tenderness, or inflammation. Treat based on instructions from a healthcare professional.

  c. Insert a new sensor in a different location.

- The safety of sensor use in critically ill patients is not known. Sensor use in critically ill patients is not recommended.

Transmitter

See the user guide included with the device for the most current warnings related to transmitter use.

Do not allow children to put small parts in their mouth. This product poses a choking hazard for young children.

Meter

For the most current warnings, see the User's Manual that came with the device.

Always use the fingertip for blood samples when entering a BG meter reading into the pump. All BG values are used for calibration. Do not use blood sample from the palm for BG values entered into the pump. The palm has not been studied for use with the SmartGuard feature and the performance of the system using such blood samples is not known.

Exposure to magnetic fields and radiation

- Do not expose the pump, transmitter, or sensor to MRI equipment, diathermy devices, or other devices that generate strong magnetic fields (for example, x-ray, CT scan, or other types of radiation). Strong magnetic fields can cause the

system to malfunction, and result in serious injury. If the pump is exposed to a strong magnetic field, discontinue use and contact a local Medtronic support representative for further assistance.

Magnetic fields, and direct contact with magnets, may affect the accurate functioning of the system which may lead to health risks such as hypoglycemia or hyperglycemia.

- Remove the pump, sensor, transmitter, and meter before entering a room with x-ray, MRI, diathermy, or CT scan equipment. The magnetic fields and radiation in the immediate vicinity of this equipment can make the devices nonfunctional or damage the part of the pump that regulates insulin delivery, possibly resulting in over-delivery and severe hypoglycemia.
- Do not expose the pump to a magnet, such as pump cases that have a magnetic clasp. Exposure to a magnet may interfere with the motor inside the pump. Damage to the motor can cause the device to malfunction, and result in serious injury.
- Do not send the pump or transmitter through an x-ray scanning machine. The radiation can damage the pump components that regulate insulin delivery, and may result in over-delivery of insulin and hypoglycemia.

  All system components, including the pump, transmitter, and sensor, must be removed prior to being screened with a full-body scanner. To avoid system removal, request an alternative screening method, if necessary.
- Carry the Medical emergency card provided with the device when traveling. The Medical emergency card provides critical information about airport security systems and pump use on an airplane. Not following the guidance on the Medical emergency card may result in serious injury.

General precautions

Pump alarms do not notify the patient of leaks in the infusion set or degradation of insulin. If BG is out of range, check the pump and the infusion set to confirm that the necessary amount of insulin is being delivered.

Waterproof capabilities

- The pump is waterproof at the time of manufacture and when the reservoir and tubing are properly inserted. It is protected against the effects of being underwater to a depth of up to 3.6 meters (12 feet) for up to 24 hours.
- If the pump is dropped, hit against a hard object, or otherwise damaged, the waterproof characteristics of the outer casing of the pump may be compromised. If the pump is dropped or might be damaged, carefully inspect it to confirm that there are no cracks before exposing the pump to water.
- This waterproof capability rating applies only to the pump.
- If water may have entered the pump or other pump malfunction is observed, check BG and treat high BG as necessary using an alternative source of insulin. Contact a local Medtronic support representative for further assistance, and consult a healthcare professional about high or low BG levels or with any other questions about care.

Electrostatic discharge

- Very high levels of ESD can result in a reset of the pump's software and a pump error alarm. After clearing the alarm, confirm that the pump is set to the correct date and time, and that all other settings are programmed to the desired values. Following a pump reset, the SmartGuard feature will be unavailable for five hours to allow active insulin to be updated.
- For more information on pump alarms, see *Pump alarms, alerts, and messages, on page 233*. Contact a local Medtronic support representative with any problems entering pump settings.

Extreme temperatures

Exposure to extreme temperatures can damage the device. Avoid the following conditions:

- Temperatures above 40°C (104°F) or below 5°C (41°F).
- Insulin solutions freeze near 0°C (32°F) and degrade at temperatures higher than 37°C (98.6°F). In cold weather, wear the pump close to the body and cover it with warm clothing. In a warm environment, take measures to keep the pump and insulin cool.
- Do not steam, sterilize, autoclave, or otherwise heat the pump.

Skin care products

Some skin care products, such as lotion, sunscreen, and insect repellents, can damage the plastic in the pump case. After using skin care products, wash hands prior to handling the pump. If a skin care product comes into contact with the pump, wipe it off as soon as possible with a damp cloth and mild soap. For instructions on cleaning the pump, see *Cleaning the pump, on page 223*.

Infusion sets and sites, sensor, transmitter, and meter

Refer to the corresponding device user guide for all warnings, precautions, and instructions relating to the device. Failure to reference the corresponding device user guide can result in minor injury, or damage to the device.

Adverse reactions

Refer to the sensor user guide for adverse reactions related to sensor use. Failure to reference the sensor user guide may result in minor injury, or damage to the sensor.

Security precautions

The MiniMed 780G insulin pump system is designed with security features to help keep the system and the data secure. These security features in the insulin pump system are set in the factory and ready to use when the insulin pump is received. For example, when the pump communicates with other devices in the system, such as the BG meter, transmitter, or compatible mobile device, the data that it is sending and receiving is encrypted and protected by cyclic redundancy checks. This helps prevent other people from being able to see system data, or to interfere with insulin pump therapy.

To help keep the system secure, follow these instructions:

- Do not leave the insulin pump or the paired devices unattended.
- Do not share the pump, transmitter, or BG meter serial number.
- Do not connect the pump to any third-party devices not authorized by Medtronic.
- Do not use any software not authorized by Medtronic to control the system.
- Be attentive to pump notifications, alarms, and alerts because they may indicate that someone else is trying to connect to or interfere with the device.

- Disconnect the Blue Adapter from the computer whenever it is not being used.
- Use good cyber security practices; use anti-virus software and keep computer software up to date.
- Refer to the MiniMed Mobile App User Guide for information on how to keep the compatible mobile device safe to use with the Medtronic devices.

The pump only communicates with paired devices. The short time that it takes to pair the pump with other devices is a sensitive time for security. During this time, it is possible for an unintended device to pair with the pump. While Medtronic has designed security features into the system to prevent this, to keep the system safe during pairing always follow these instructions:

- Pair the transmitter, BG meter, or the compatible mobile device with the pump away from other people and devices.
- When the transmitter successfully pairs with the pump, the green LED on the transmitter stops blinking. If the green LED on the transmitter continues to blink for several minutes or more after it is successfully paired, it may have been paired with an unintended device. See *Unpairing the transmitter from the pump, on page 227* to delete the transmitter from the pump and then follow the steps to pair it again.
- After pairing the BG meter or the compatible mobile device with the pump, make sure that the BG meter or compatible mobile device indicates that pairing was successful.

Consult a healthcare professional if there are symptoms of severe hypoglycemia or diabetic ketoacidosis, or suspect that the insulin pump settings, or insulin delivery changed unexpectedly.

If there is a concern that someone else is trying to connect to or interfere with the device, stop using it and contact a local Medtronic support representative immediately.

Insulin guidelines

WARNING: Do not insert an insulin-filled reservoir into the pump, or connect an insulin-filled infusion set into the body, when training with the system. Doing so may result in the unintentional infusion of insulin, which may result in hypoglycemia. Start insulin therapy only when directed by a healthcare professional.

The MiniMed 780G system has been studied with, and is intended for use with, the following rapid-acting U-100 insulins:

- U-100 NovoLog
- U-100 Humalog
- U-100 NovoRapid

The use of any other insulin in the MiniMed 780G system has not been tested and is contraindicated for use with this device.

WARNING: Only use rapid-acting U-100 insulin (Humalog, NovoLog, and NovoRapid), as prescribed by a healthcare professional, in the MiniMed 780G system. Use of the incorrect type of insulin, or insulin with a greater or lesser concentration, may result in over-delivery or under-delivery of insulin, which may result in hypoglycemia or hyperglycemia. Consult a healthcare professional with any questions about the type of insulin that is compatible with the pump.

Consumables

The pump uses disposable, single-use, MiniMed reservoirs and infusion sets for insulin delivery.

WARNING: Only use reservoir and infusion sets manufactured or distributed by Medtronic Diabetes. The pump has undergone extensive testing to confirm appropriate operation when used with compatible reservoirs and infusion sets manufactured or distributed by Medtronic Diabetes. Medtronic Diabetes cannot guarantee appropriate operation if the pump is used with reservoirs or infusion sets offered by third parties and therefore Medtronic Diabetes is not responsible for any injury or malfunctioning of the pump that may occur in association with such use.

- **Reservoirs**–Use the MiniMed reservoir MMT-332A, 3.0 mL (300-unit) or MiniMed reservoir MMT-326A, 1.8 mL (180-unit).
- **Infusion sets**–Contact a healthcare professional for help in choosing a Medtronic Diabetes infusion set. Change the infusion set every two to three days per the infusion set manufacturer's instructions.

  The following table lists the compatible infusion sets. The MMT numbers may change if other compatible infusion sets become available.

Type	MMT number[a]
MiniMed Quick-set infusion set	MMT-386, MMT-387, MMT-394, MMT-396, MMT-397, MMT-398, MMT-399
MiniMed Silhouette infusion set	MMT-368, MMT-377, MMT-378, MMT-381, MMT-382, MMT-383, MMT-384
MiniMed Sure-T infusion set	MMT-862, MMT-864, MMT-866, MMT-874, MMT-876, MMT-884, MMT-886
MiniMed Mio infusion set	MMT-921, MMT-923, MMT-925, MMT-941, MMT-943, MMT-945, MMT-961, MMT-963, MMT-965, MMT-975
MiniMed Mio 30 infusion set	MMT-905, MMT-906
MiniMed Mio Advance infusion set	MMT-211, MMT-212, MMT-213, MMT-231, MMT-232, MMT-233, MMT-242, MMT-243, MMT-244

a. All MMT numbers include "a" versions. For example, MMT-386 and MMT-386a.

Other MiniMed 780G system devices

- **Accu-Chek Guide Link meter**–The MiniMed 780G pump is compatible with the Accu-Check Guide Link meter. The meter pairs with the pump, allowing the BG meter to send meter readings to the pump. This device may not be available in all countries.
- **Guardian 4 transmitter (MMT-7841)**–The transmitter pairs with the pump, collects data measured by the sensor, and wirelessly sends this data to monitoring devices. This device is required for CGM.
- **Guardian 4 sensor (MMT-7040)**–The sensor is a disposable, single-use device inserted just below the skin to measure glucose levels in interstitial fluid. This device is required for CGM. The Guardian 4 glucose sensor is the only sensor compatible with the Guardian 4 transmitter.

Accessories

The following accessories may be used with the MiniMed 780G system.

- **Pump clip**–The pump clip attaches to a belt and can be used to open the battery compartment.
- **Activity guard**–The activity guard helps to prevent the reservoir from being rotated or removed from the pump during physical activities.
- **MiniMed Mobile app (MMT-6101 for Android or MMT-6102 for iOS)**–The app provides a secondary display of insulin pump data and CGM, and uploads system data to CareLink software. The app can be installed on multiple mobile devices, but only one device can be paired with the pump at a time.
- **Blue Adapter**–The Blue Adapter uploads system data to CareLink software through a USB port on a computer. Refer to the CareLink software user guide for setup and operation of the Blue Adapter.

2

Pump basics

2 Pump basics

This chapter provides information about the basic features, buttons, and screens of the MiniMed 780G insulin pump.

Using the buttons



CAUTION: Do not use sharp objects to press the pump buttons. The use of sharp objects can damage the pump.

Note: The notification light flashes when the pump has an alarm or alert. The notification light is not visible unless it flashes.

The following table describes how to use the pump buttons.

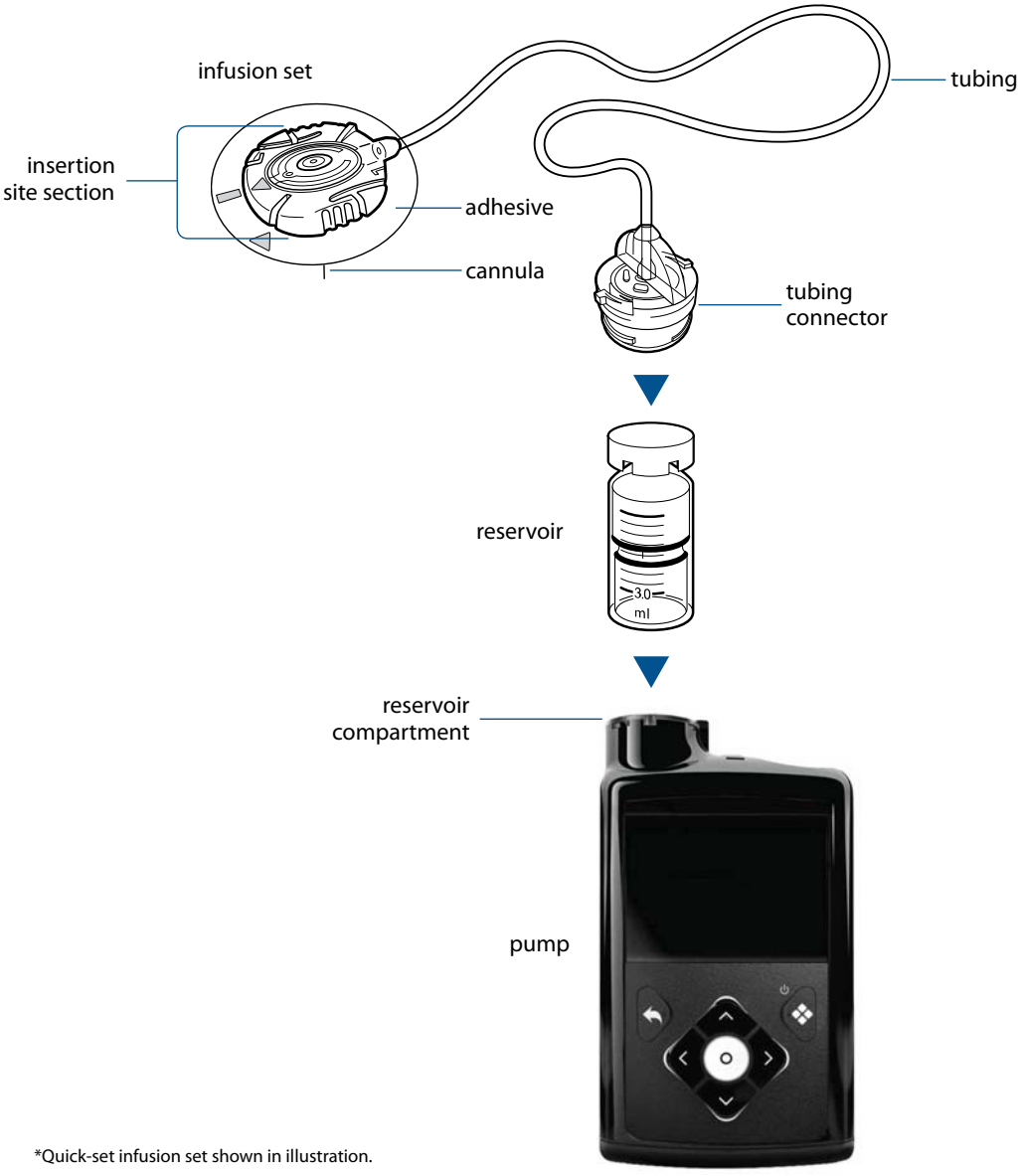
Button	Description
◎	Press this button to show the Menu screen from the Home screen, and to select the currently highlighted menu option.
^, ˇ, <, or >	Press these buttons to scroll up or down, to move left or right on certain screens, to select the icons on the Menu screen, and to increase or decrease the value of a setting.
↩	Press this button to go back to the previous screen. Press and hold this button to return to the Home screen.
❖	Press this button to access the Graph screen. Press and hold this button to put the pump in Sleep mode.

Sleep mode

The pump enters Sleep mode after two minutes to conserve battery power. Sleep mode does not affect insulin delivery. Press any button to wake up the pump. Press and hold ❖ for two seconds to manually enter Sleep mode.

Pump delivery system

The following diagram shows the parts of the pump delivery system, including the infusion set*, reservoir, and pump.



*Quick-set infusion set shown in illustration.

Infusion set

The infusion set consists of the following components:

- The tubing carries insulin from the reservoir into the body.

- The tubing connector attaches to the reservoir.
- The insertion piece attaches to the body.
- The cannula is a small, flexible tube inserted into the body. Some infusion sets use a small needle instead of a cannula.
- Adhesive holds the infusion set in place.

Change the infusion set according to the user guide provided with the infusion set.

Reservoir

The reservoir stores insulin for delivery and is inserted into the pump reservoir compartment.

Pump

Underneath the reservoir compartment, a piston pushes up on the bottom of the reservoir to move insulin into the tubing, through the cannula, and into the body.

The pump delivers small doses of insulin, as low as 0.025 units. The piston inside the pump must be rewound each time a newly filled reservoir is inserted into the reservoir compartment.

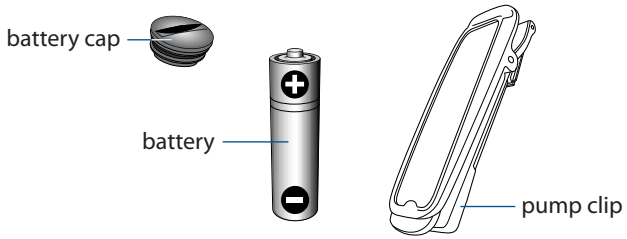
Inserting the battery

The pump requires one new AA (1.5 V) battery. For best results, use a new AA lithium (FR6) battery. The pump also accepts an AA alkaline (LR6) or a fully charged AA NiMH (HR6) nickel-metal hydride rechargeable battery.

CAUTION: Do not use a carbon zinc battery in the pump. Carbon zinc batteries are not compatible with the pump and can cause the pump to report inaccurate battery levels.

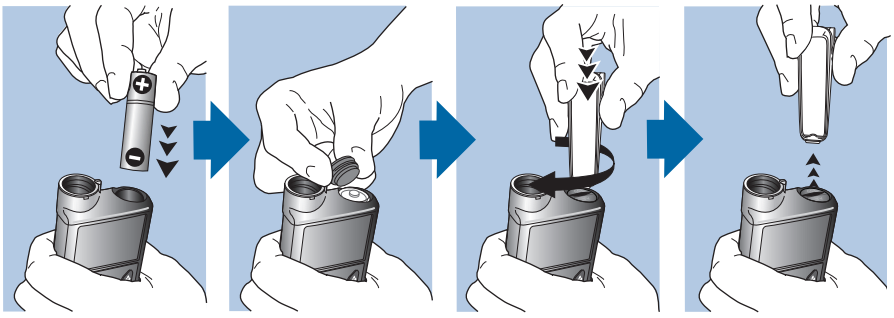
Note: Do not use cold batteries because the battery life may incorrectly appear low. Allow cold batteries to reach room temperature before they are inserted into the pump.

The battery cap is located in the pump box with the accessories.



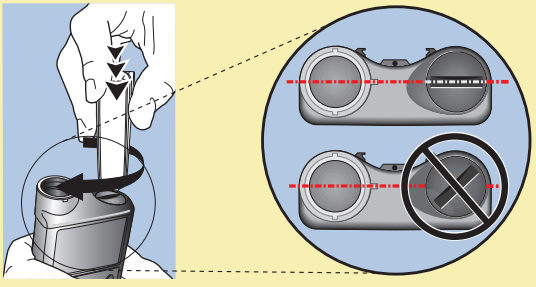
To insert the battery:

1. Insert a new or fully charged AA battery. Be sure to insert the negative end (–) first.



2. Place the battery cap onto the pump. Use the bottom edge of the pump clip or a coin to tighten the cap.

CAUTION: Do not overtighten or undertighten the battery cap. A battery cap that is too tight can cause damage to the pump case. A battery cap that is too loose can prevent detection of the new battery. Turn the battery cap clockwise until the cap slot is aligned horizontally with the pump case, as shown in the following example.



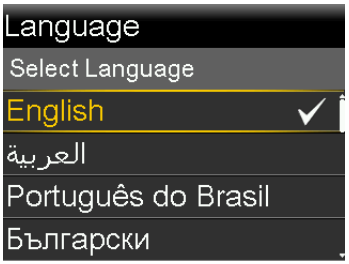
The first time a battery is inserted into the pump, the Startup Wizard begins. Any other time a battery is inserted into the pump, the Home screen appears and the pump resumes basal delivery.

Startup settings

The Startup Wizard appears after a battery is inserted for the first time. Use the Startup Wizard to set the language, time format, current time and date, and to rewind the pump. To re-enter these settings later, see *Pump issues, on page 215*.

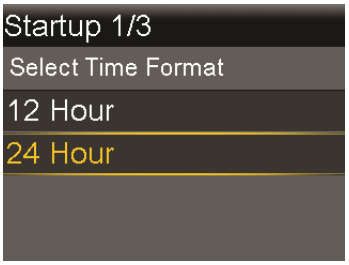
To use the Startup Wizard:

1. On the Select Language screen, select a language, and then press ◎.



   The Select Time Format screen appears.

2. Select a time format, and then press ◎.



3. Enter the current time, and then select **Next**.



The Enter Date screen appears.

4. Enter the current date, and then select **Next**.

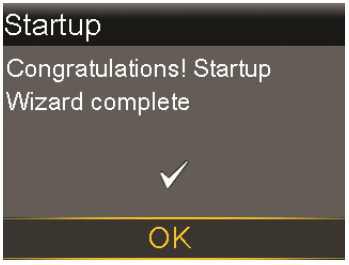


A "Rewinding" message appears. The piston returns to its start position in the reservoir compartment. This may take several seconds.



When rewinding is complete, a message appears to confirm the startup is complete.

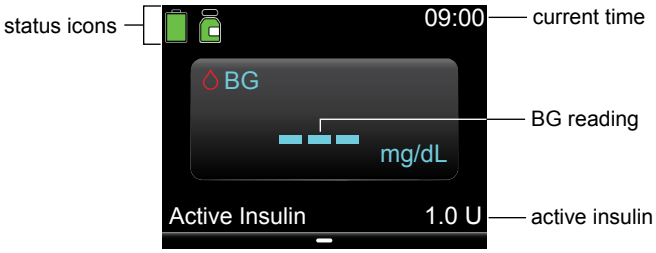
5. Select **OK** to go to the Home screen.



Home screen in Manual mode

The Home screen appears after the battery is changed, when the pump wakes from Sleep mode, and when another screen is not actively being used.

Note: This example shows the Home screen in Manual mode when the Sensor feature is turned off. For information about the Home screen when the Sensor feature is turned on, see *Home screen with CGM in Manual mode, on page 98*. For information about the Home screen with the SmartGuard feature, see *Home screen with the SmartGuard feature, on page 134*.



The following items appear on the Home screen:

Item	Description
Status icons	The status icons show a quick status of the pump system. For more information, see *Status icons, on page 34*.
Current time	For details on setting the time, see *Time and date, on page 149*.
BG readings	The current blood glucose (BG) reading is shown. BG is either entered manually or received from a paired Accu-Chek Guide Link meter.
Active insulin	Active insulin is the amount of bolus insulin that continues to lower BG levels. For more details on active insulin, see *Bolus Wizard settings, on page 58*.

Shortcuts from the Home screen

The following table describes shortcuts that can be used to quickly access certain pump functions. These shortcuts only work on the Home screen.

Shortcut	Description
^	Press this button to access the Status screen. When the Easy bolus feature is turned on, press and hold this button to start the Easy bolus. The MiniMed 780G pump must be in Manual mode and Sleep mode first.

Shortcut	Description
>	Press this button to access the Time in Range screen when the sensor is turned on.
⌄	Press this button to access the Bolus screen. The Bolus screen that appears varies depending on the bolus feature that is currently active.

Status icons

The status icons on the Home screen provide the current status of the pump system. For information on viewing detailed status screens, see *Status screen, on page 40*.

Icon name	Description
Battery	The color and fill level of the icon indicate the charge level of the pump battery. As the battery is used, the icon changes from solid green in the following order:  •  The battery is full. •  The battery is low. •  The battery can be used for less than 30 minutes and needs to be replaced.

Icon name	Description
Reservoir	The reservoir icon shows the fill status of the MiniMed reservoir MMT-332A, 3.0 mL (300-unit). • Approximately 85%–100% of the insulin remains in the reservoir. • Approximately 71%–84% of the insulin remains in the reservoir. • Approximately 57%–70% of the insulin remains in the reservoir. • Approximately 43%–56% of the insulin remains in the reservoir. • Approximately 29%–42% of insulin remains in the reservoir. • Approximately 15%–28% of the insulin remains in the reservoir. • Approximately 1%–14% of the insulin remains in the reservoir. • The amount of insulin remaining in the reservoir is unknown. **Note:** The icon fill level is based on the 3.0 mL reservoir. When a full 1.8 mL reservoir is used, the yellow icon for approximately 43%-56% is shown.
Connection	The connection icon shows the following information: • The sensor feature is on and communicating. • The sensor feature is on, but the transmitter is not communicating with the pump.
Temporary network connection	The temporary network connection icon shows when the pump is temporarily connected to a remote upload device.

Icon name	Description
Sensor status	The sensor status icon shows whether the sensor is warming up, active, a BG is required, or the sensor status is unavailable. These icons only appear when the Sensor feature is on. • When the sensor is working and no action is required for the sensor, the icon has a solid green circle around it. • When the icon turns red, a BG reading is required. • If sensor information is unavailable, the icon has a solid blue circle around a question mark. • This occurs when the pump is waiting for the sensor status to update, including warm-up and calibration.
Sensor life	The number on the sensor life icon indicates the number of days that remain in the life of the sensor. The icon appears on the Status screen and only when the sensor feature is turned on. After a new sensor is inserted, the icon is solid green. When one day remains in the life of the sensor, the icon turns red.  If the number of days that remain in the life of the sensor is not yet available, such as when the sensor is warming up, the sensor life icon appears with three dots.  If the number of days that remain in the life of the sensor is unknown, the sensor life icon appears with a question mark.
Block mode	The Block mode icon  shows that the pump is locked. For more information about Block mode, see *Block mode, on page 150*.

Icon name	Description
Suspend	The suspend by sensor icon indicates when insulin delivery is suspended due to a Suspend before low or Suspend on low event. For more information, see *The Suspend before low feature, on page 101* and *The Suspend on low feature, on page 103*. The suspend unavailable icon indicates that the Suspend before low or Suspend on low feature is unavailable. For more information, see *When the Suspend before low or Suspend on low features are unavailable, on page 105*.
Alert silence	The Alert silence icon indicates that the Alert Silence feature is turned on and some alerts will not make a sound or vibration. Sensor alerts can be silenced for a specific duration using the Alert silence feature. For more information, see *Silencing sensor alerts, on page 122*.

Note: Status icons provide limited information. For example, the reservoir icon may indicate the reservoir is low on insulin. The Status screen shows more detailed information about how many units are left. For more information about the status screens, see *Status screen, on page 40*.

Menu screen

Use the menu to go to screens that show various features and functions of the system. Press ◎ from the Home screen to go to the menu. The selected menu option appears in color. All other menu options appear in black and gray.

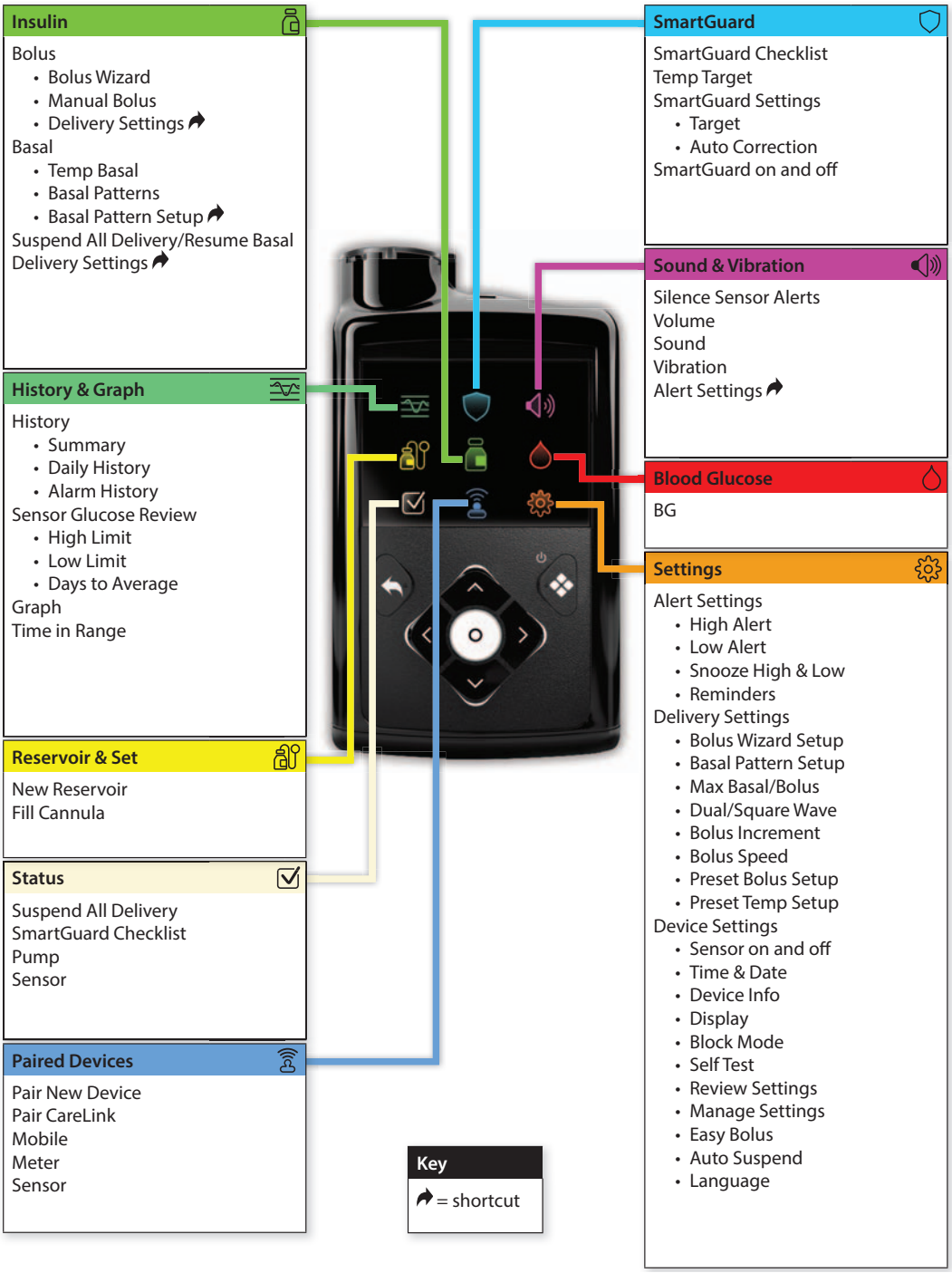


Use the menu to go to the following screens:

Menu selection	Menu icon	Description
Insulin		Deliver a bolus, set up and deliver basal insulin, suspend insulin delivery, and stop bolus during bolus delivery.
History & Graph		View history, sensor glucose review, graph, and time in range.
SmartGuard		Set up the SmartGuard feature.
Sound & Vibration		Set sound, vibrate, and volume options for notifications.
Reservoir & Set		Set up a new reservoir and infusion set, and fill a cannula.
Blood Glucose		Enter a BG value.
Status		View the status of the pump and other system features.
Paired Devices		Pair devices or CareLink software.
Settings		Set up device settings, delivery settings, and alert settings.

Menu map

The following diagram provides a map to the screens and features that are available from the Main menu.


Insulin
Bolus
• Bolus Wizard
• Manual Bolus
• Delivery Settings
Basal
• Temp Basal
• Basal Patterns
• Basal Pattern Setup
Suspend All Delivery/Resume Basal
Delivery Settings
History & Graph
History
• Summary
• Daily History
• Alarm History
Sensor Glucose Review
• High Limit
• Low Limit
• Days to Average
Graph
Time in Range
Reservoir & Set
New Reservoir
Fill Cannula
Status
Suspend All Delivery
SmartGuard Checklist
Pump
Sensor
Paired Devices
Pair New Device
Pair CareLink
Mobile
Meter
Sensor
SmartGuard
SmartGuard Checklist
Temp Target
SmartGuard Settings
• Target
• Auto Correction
SmartGuard on and off
Sound & Vibration
Silence Sensor Alerts
Volume
Sound
Vibration
Alert Settings
Blood Glucose
BG
Settings
Alert Settings
• High Alert
• Low Alert
• Snooze High & Low
• Reminders
Delivery Settings
• Bolus Wizard Setup
• Basal Pattern Setup
• Max Basal/Bolus
• Dual/Square Wave
• Bolus Increment
• Bolus Speed
• Preset Bolus Setup
• Preset Temp Setup
Device Settings
• Sensor on and off
• Time & Date
• Device Info
• Display
• Block Mode
• Self Test
• Review Settings
• Manage Settings
• Easy Bolus
• Auto Suspend
• Language
Key
= shortcut

Sound & Vibration screen

The sound and vibration options are set on the Sound & Vibration screen. Sensor alerts can also be temporarily silenced. For information about silencing alerts, see *Silencing sensor alerts, on page 122*. A status icon on the Home screen indicates when alerts are silenced. For more information, see *Status icons, on page 34*.

To adjust the sound and vibration settings:

1. From the Home screen, press ◎, and then select 🔊.
2. Adjust the volume:
   a. Select **Volume**.
   b. Press ◎.
   c. Press ∧, ∨, 〈, or 〉, and then press ◎.
3. Select **Sound**, and then press ◎ to turn the sound on or off.
4. Select **Vibration**, and then press ◎ to turn the vibration on or off.

Status screen

The Status screen provides access to information about the pump and information about the sensor, if applicable. The Status screen also provides the option to suspend all insulin delivery or resume basal insulin delivery.

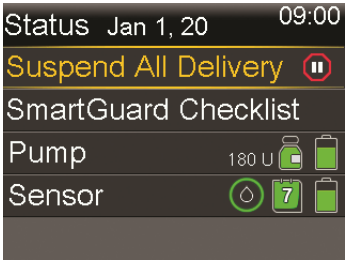
Use the Status screen to access the following screens or options:

Screen or option	Description
Stop Bolus	This option appears when a bolus delivery is in progress. Select **Stop Bolus** to stop the active bolus.
Suspend All Delivery or Resume Basal	This option indicates whether insulin delivery is currently suspended. Select **Suspend All Delivery** to suspend insulin delivery. Select **Resume Basal** to resume basal insulin delivery. For more information see *Suspending all insulin delivery and resuming basal insulin delivery, on page 52*.
SmartGuard Checklist screen	This screen shows a list of the required conditions before the pump can use the SmartGuard feature. For more information, see *SmartGuard Checklist, on page 131*.

Screen or option	Description
Pump status screen	This screen shows a detailed view of the pump status, the reservoir status, battery status, pump serial number, pump name, model number, and other pump details.
Sensor status screen	This screen appears when the sensor feature is enabled. The Sensor status screen includes sensor life, transmitter battery life, and shows the serial number and version number of the transmitter.

To view the status screens:

1. From the Home screen, press ◎, and then select ☑.



2. Press ∧ or ∨ to select a status screen, and then press ◎.

Viewing basal delivery information

To view the current basal rate:

1. From the Home screen, press ◎, and then select .
2. Select **Basal**.

   The current basal rate appears at the top of the screen.

To view basal patterns:

1. From the Home screen, press ◎, and then select .
2. Select **Basal Patterns**.

   The Basal Patterns screen shows a list of configured basal patterns and the 24-hour insulin total for each basal pattern. A check mark appears next to the active basal pattern.

3. To view details for a basal pattern, select the basal pattern.

   For more information about basal patterns, see *Basal patterns, on page 49*.

Settings covering a 24-hour period

Some pump functions allow settings to change over a 24-hour period.

The procedure in this section shows how to set multiple values over a 24-hour period. These steps apply to the following tasks:

- Setting up basal patterns.

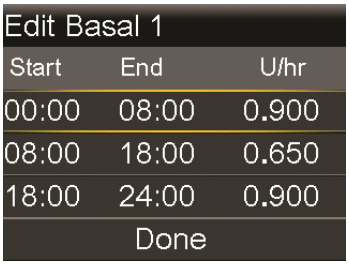
  See *Adding a new basal pattern, on page 49*.
- Setting up high SG settings.

  See *Setting up the High SG settings, on page 107*.
- Setting up low SG settings.

  See *Setting up the low SG settings, on page 109*.
- Setting up carb ratios, insulin sensitivities, and BG targets in the Bolus Wizard feature.

  See *Setting up the Bolus Wizard feature, on page 59*.

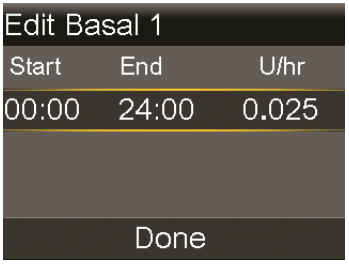
For example, in the screenshot below, a basal pattern is set to allow the rate of basal insulin to change depending on the time of day.



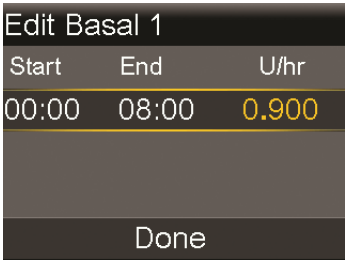
Note: The following procedure uses the screens from editing a basal pattern as an example.

To set up values over a 24-hour period:

1. On the appropriate settings screen, select the End time and enter the end time for the first time period. In this example, the first desired time period is 8 hours. The start time always begins at 00:00. To set an 8-hour period, the end time of 08:00 is entered.

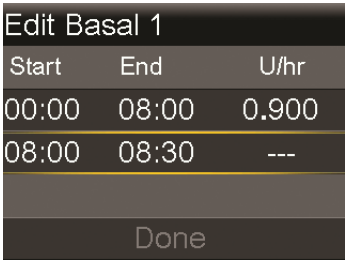


2. Enter the unit value for the first time period.

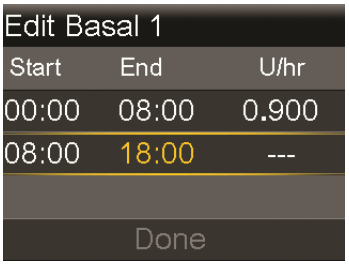


3. Press ◎.

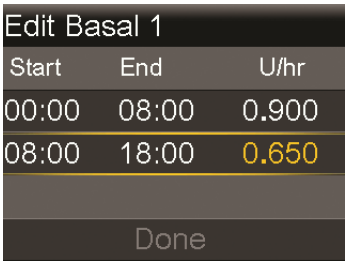
   The start time for the next time period appears.



4. Enter the end time for the next time period.

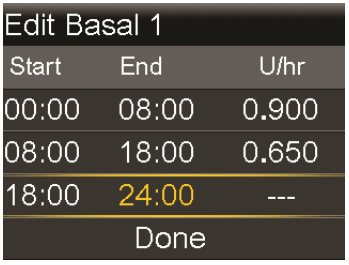


5. Enter the unit value for the next time period.

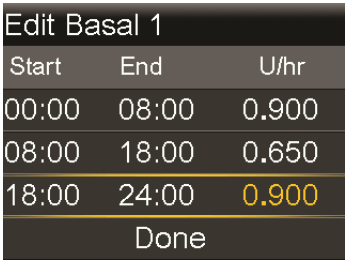


6. Press ◎.

   The start time for the next time period appears.



7. Repeat steps 3-5 for every desired time period until the end time of 24:00 is reached. This completes the 24-hour duration.



3

Setting up insulin delivery

3 Setting up insulin delivery

This chapter explains how to use different types of insulin delivery.

Setting up basal insulin

Basal insulin is the "background" insulin that the body needs throughout the day and night to maintain target BG readings when food is not eaten. Basal insulin accounts for approximately one half of daily insulin requirements. The MiniMed 780G insulin pump simulates a pancreas by delivering insulin continuously over 24 hours.

Basal insulin is delivered according to a basal pattern.

Basal rate

Basal rate is the specific amount of basal insulin that the pump continuously delivers each hour. While some people use one basal rate all day, others require different rates at different times of the day.

Basal rates are set in one or more basal patterns. Each basal pattern covers 24 hours. For specific information about basal patterns, see *Basal patterns, on page 49*.

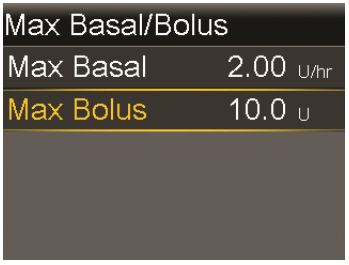
Max basal rate

The Max basal rate is the maximum amount of basal insulin that the pump can deliver per hour. Set the Max basal rate as indicated by a healthcare professional. It is not possible to set a basal rate, a temp basal rate, or a preset temp basal rate that would exceed the Max basal rate limit. After the basal patterns or preset temp basal rates are set, the Max basal rate cannot be lower than any of the existing basal rates. The Max basal rate can be set from 0 to 35 units per hour.

To set the Max basal rate:

1. From the Home screen, press ◎, and then select ⚙.
2. Select **Delivery Settings** > **Max Basal/Bolus**.

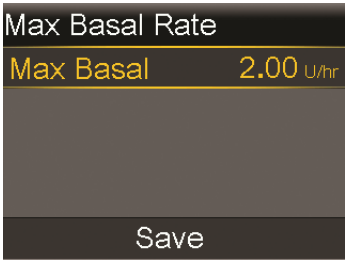
   The Max Basal/Bolus screen appears.



3. Select **Max Basal**.



4. To continue to the Max Basal Rate screen, select **Continue**.
5. Select **Max Basal**, and then set the maximum number of basal insulin units per hour.

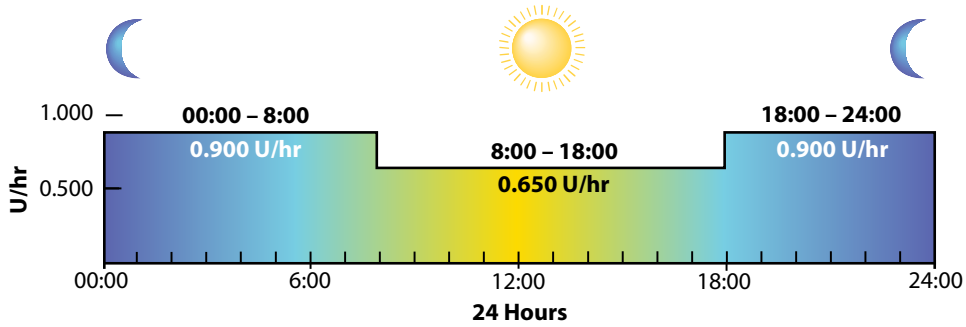


6. Select **Save**.

Basal patterns

The basal pattern determines the amount of basal insulin delivered throughout the day and night. A basal pattern is made up of one to 48 basal rates that are set to cover a full 24-hour period. Because basal insulin needs can vary, up to eight basal patterns can be set.

The following example represents one basal pattern with three basal rates set for three different time periods.



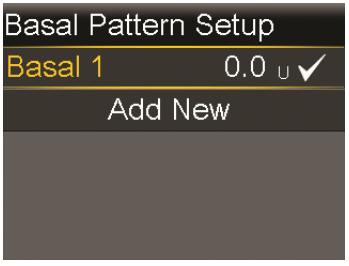
A healthcare professional determines the best basal rate.

Adding a new basal pattern

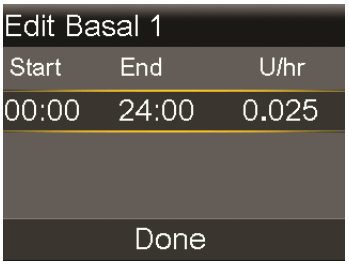
This procedure shows how to add a new basal pattern for the first time. To add an additional basal pattern, see *Adding an additional basal pattern, on page 186*.

To add a new basal pattern:

1. From the Home screen, press ◎, and then select ⚙.
2. Select **Delivery Settings** > **Basal Pattern Setup**.



3. Select **Basal 1**.
4. Select **Options**, and then select **Edit**.



5. For one basal rate, the End time does not need to change. Press ◎ on the 24:00.

> **Note:** For instructions on setting up multiple basal rates over a 24-hour period, see *Settings covering a 24-hour period, on page 42*.

6. Select **Done**.



Review the basal pattern. Press ↩ to return to the previous screen to make changes.

> **Note:** If ↩ is pressed and **Done** is not selected, the changes are not saved.

7. Select **Save**.

Temp basal rates

The temp basal feature helps set and start a temporary basal rate that can be used immediately to manage BG for short-term activities or conditions.

Preset temp basal rates can be set for recurring short term situations. For more information on Preset temp basal rates, see *Preset temp basal rates, on page 183*. The duration of the temp basal rate can range from 30 minutes to 24 hours. After

the temp basal rate delivery is completed or canceled, the programmed basal pattern resumes. The temp basal rates and preset temp basal rates can be defined using either a percentage of the current basal pattern or by setting a specific rate, as described in the following table:

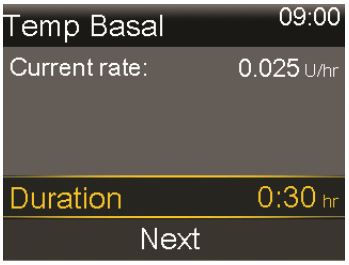
Temp basal rate type	Description
Percent	Percent delivers a percentage of the basal rates programmed in the active basal pattern for the duration of the temp basal rate. The temp basal amount is rounded down to the next 0.025 units if the basal rate is set at less than 1 unit per hour, or to the next 0.05 units if the basal rate is set at more than 1 unit per hour. Temp basal rates can be set to deliver from 0% to 200% of the scheduled basal rate. The percentage used is based on the largest basal rate scheduled during the temp basal rate duration and is limited by the Max basal rate.
Rate	Rate delivers a fixed basal insulin rate in units per hour for the duration of the temp basal rate. The amount set is limited by the Max basal rate.

Starting a temp basal rate

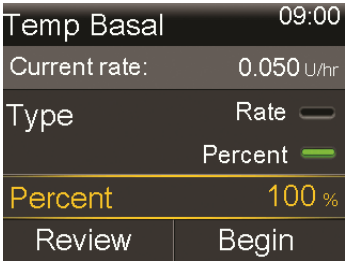
When a temp basal rate starts, basal delivery changes to the temp basal rate for the set duration. When the duration completes, the basal insulin automatically returns to the active basal pattern.

To start a temp basal rate:

1. From the Home screen, press ◎, and then select .
2. Select **Basal** > **Temp Basal**.
3. Set the **Duration**.



4. Select **Next**.
5. Select **Type** to select Rate or Percent.



6. Depending on the type selected, do one of the following:
   - Enter a percentage.
   - Enter a basal rate.

   Select **Review** to review the temp basal setting.
7. Select **Begin** to start the temp basal rate.

   The Temp Basal banner appears on the Home screen during delivery.



Suspending all insulin delivery and resuming basal insulin delivery

Use this feature to suspend all active basal and bolus insulin deliveries. A reminder that insulin is not being delivered occurs every 15 minutes. The pump will beep, vibrate, or both depending on the sound and vibration settings.

Note: The first reminder occurs 15 minutes after the pump display times out. If a button is pressed to wake up the pump, the reminder does not occur until 15 minutes after the pump display times out again. To adjust the timeout setting, see *Display options, on page 149*.

To continue basal insulin delivery, use the Resume Basal feature. The pump starts the programmed basal pattern but does not start any previously programmed bolus deliveries.

Note: To stop a bolus delivery without stopping the basal delivery, see *Stopping a normal bolus delivery, on page 66*.

WARNING: If insulin delivery is suspended during a bolus, check the pump daily history to determine the amount of insulin that was delivered, before insulin delivery is resumed. Bolus delivery and fill cannula do not restart when insulin delivery is resumed. If needed, program a new bolus or fill the cannula. Failure to resume basal insulin delivery can result in hyperglycemia and diabetic ketoacidosis.

WARNING: Do not rely solely on the sound or vibration notifications when using the sound or vibrate options. These notifications may not occur as expected if the speaker or vibrator in the pump malfunctions. A missed notification may result in the delivery of too much or too little insulin. This is most common when using the Easy bolus feature or when the pump is in manual suspend. Contact the local Medtronic support representative with any concerns.

To suspend all insulin delivery:

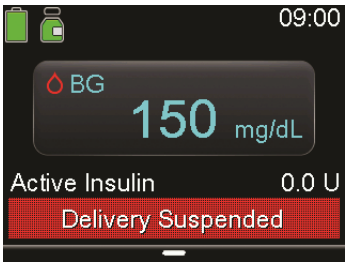
1. From the Home screen, press ◎, and then select .
2. Select **Suspend All Delivery**.

   A confirmation message appears.

3. Select **Yes** to suspend all insulin delivery.

   The pump functions are limited until insulin delivery is resumed.

   The Delivery Suspended banner appears on the Home screen while insulin is suspended.

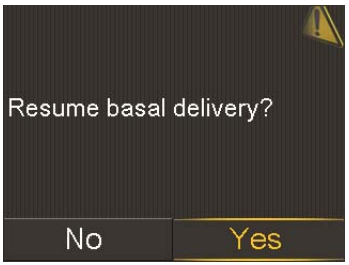


To resume basal insulin delivery:

1. While insulin delivery is suspended, from the Home screen press ◎, and then select .

2. Select **Resume Basal**.

   A confirmation message appears.



3. To resume basal insulin delivery, select **Yes**.

   If a temp basal was active when the pump was suspended, it resumes, provided the time is still within the duration set.

Note: If a bolus delivery that was in progress before delivery was suspended is needed, check the Daily History screen for the actual bolus units delivered and the intended bolus amount. Then set up a new bolus amount as needed. For details about using the Daily History screen, see *Daily History screen, on page 163*.

Entering a BG value

The system may request a BG reading to continue use. Additionally, a BG reading can be entered at any time, if desired.

The BG screen allows manual entry of a BG reading. Previously entered manual or meter BG readings do not appear on the BG screen. A BG reading received from a linked meter appears in a separate BG meter screen that requires confirmation.

To manually enter BG readings:

1. From the Home screen, press ◎, and then select 💧.
2. Enter a BG value.
3. Select **Save**.

To confirm a BG reading from a BG meter:

1. When the BG Meter screen with the message Confirm BG? shows, select **Yes** to confirm the BG meter value.

   The BG received message shows.

Setting up bolus delivery

A bolus is given for two reasons: to cover food that contains carbohydrates or to correct glucose levels that are above the target range.

About bolus deliveries

A bolus can be delivered using either the Manual bolus feature or the Bolus Wizard feature. Multiple types of bolus deliveries are also available, including normal bolus, Square Wave bolus, and Dual Wave bolus. The bolus type depends on individual insulin needs. Discuss these options with a healthcare professional to determine what is best. For details about the different types of bolus deliveries available, see *Bolus types, on page 191*.

Bolus delivery options

The following table describes how to deliver a bolus using the Bolus Wizard feature or Manual bolus feature.

Delivery method	Description
Bolus Wizard feature	Enter the BG meter value or the amount of carbs expected from a meal, or both. Then the Bolus Wizard feature calculates an estimated bolus amount based on the individual settings. The Bolus Wizard feature is only available in Manual mode. For details about using the Bolus Wizard feature, see *Bolus Wizard feature, on page 57*.
Manual bolus feature	Calculate and manually enter the bolus amount. For details about using the Manual bolus feature, see *Delivering a normal bolus using the Manual bolus feature, on page 65*.

Max bolus

The Max bolus setting limits the amount of insulin that can be delivered in a single bolus. The pump prevents single bolus insulin deliveries that exceed the Max bolus amount. The Max bolus can be set from 0 to 25 units. Set the Max bolus as indicated by a healthcare professional.

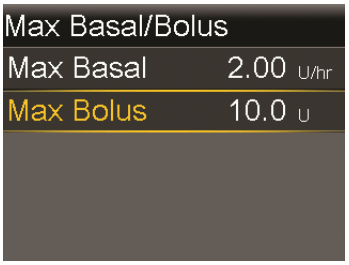
If the Max bolus is set up after the preset bolus deliveries are set, the Max bolus cannot be set lower than any of the existing preset bolus amounts.

The Max bolus setting applies to boluses delivered in Manual mode and delivered with the SmartGuard feature.

To set the Max bolus:

1. From the Home screen, press ◎, and then select ⚙.
2. Select **Delivery Settings** > **Max Basal/Bolus**.

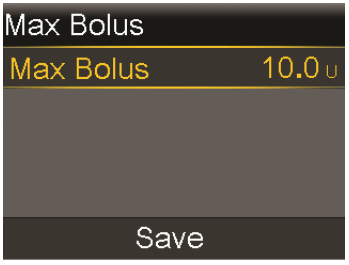
   The Max Basal/Bolus screen appears.



3. Select **Max Bolus**.



4. To continue to the Max Bolus screen, select **Continue**.
5. Select **Max Bolus**, and then set the maximum number of insulin units the pump can deliver in one bolus.



6. Select **Save**.

Bolus Wizard feature

The Bolus Wizard feature uses Bolus Wizard settings to calculate an estimated bolus amount based on the BG readings and carbs that are entered.

After the Bolus Wizard feature is set up, use a normal bolus to deliver a food bolus, a correction bolus, or a food plus correction bolus. For more information, see *Delivering a normal bolus with the Bolus Wizard feature, on page 64*.

The Bolus Wizard feature can also be used to deliver a Dual Wave bolus or a Square Wave bolus. For more information, see *Bolus types, on page 191*.

Bolus Wizard settings

To use the Bolus Wizard feature, consult a healthcare professional to determine the personal settings that should be used. The carb ratio, insulin sensitivity factor, BG target, and the active insulin time are needed to complete the setup. Always consult a healthcare professional before changes are made to the Bolus Wizard settings. The setup procedure begins on *page 59*.

Setting	Description
Carb Ratio	The carb ratio setting is used for food bolus calculations. The number of carb grams that are covered by 1 unit of insulin.
Insulin Sensitivity Factor	The insulin sensitivity factor setting is used to calculate correction bolus amounts. The insulin sensitivity factor is the amount that BG is reduced by 1 unit of insulin.
BG Target	The Bolus Wizard feature calculates the estimated bolus based on the BG target range. The high and low values set are the values to which the BG is corrected. To use a single target value rather than a range, set the same value for the high and low value of the BG target. If the BG reading is above the high target value, a correction dose is calculated. If the BG reading is below the low target value, a negative correction is calculated and subtracted from the food bolus.

Setting	Description
Active Insulin Time	Active insulin is the bolus insulin that has been delivered by the pump and is still working to lower glucose levels. The pump uses the active insulin time setting to determine if any active insulin is still in the body from prior boluses. This may help prevent hypoglycemia caused by overcorrection of high BG. The current active insulin amount appears on the Home screen and includes only the bolus insulin received. Consult a healthcare professional to get the active insulin time that best represents the insulin type used and the physiological insulin absorption rate.

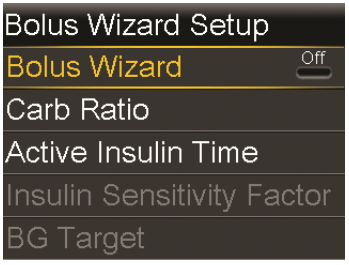
Setting up the Bolus Wizard feature

To use the Bolus Wizard feature to calculate a bolus, first turn on the Bolus Wizard feature and enter the Bolus Wizard settings.

To set up the Bolus Wizard feature:

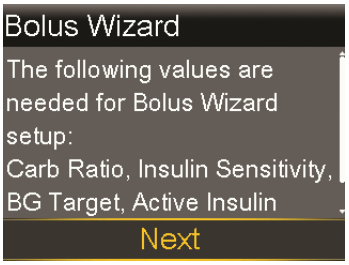
1. From the Home screen, press ◎, and then select ⚙.
2. Select **Delivery Settings** > **Bolus Wizard Setup**.

   The Bolus Wizard Setup screen appears.



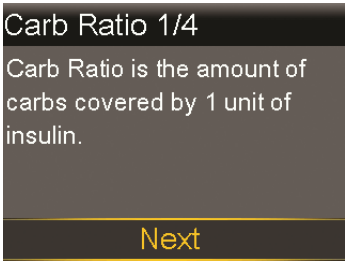
3. Select **Bolus Wizard** to turn on the feature.

   If this is the first time the Bolus Wizard feature has been turned on, the following screen appears.



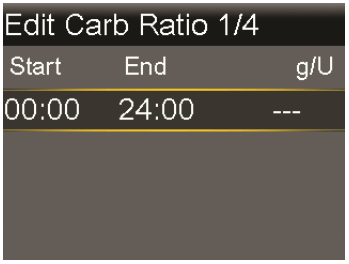
4. Confirm the values needed are ready to be entered, then select **Next**.

   The Carb Ratio 1/4 screen appears.



5. Select **Next**.

   The Edit Carb Ratio 1/4 screen appears.



6. To enter one carb ratio, enter the g/U, and then press ◎.



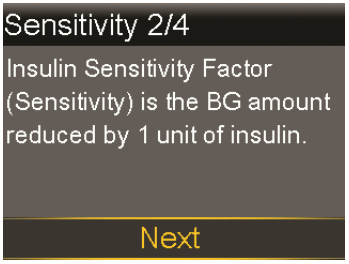
Note: For instructions on setting up more than one carb ratio over a 24-hour period, see *Settings covering a 24-hour period, on page 42*.

7. Select **Next**.



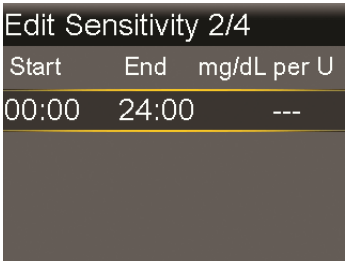
Note: If the values are outside of the value range, a message asks to confirm the settings.

The Sensitivity 2/4 screen appears.



8. Select **Next**.

   The Edit Sensitivity 2/4 screen appears.

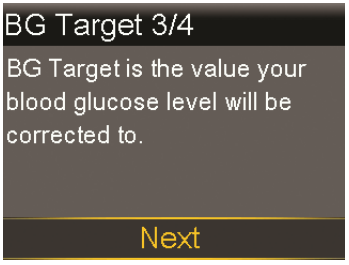


9. For one sensitivity factor, enter the mg/dL per U, and then press ◎.

> **Note:** For instructions on setting up more than one sensitivity factor over a 24-hour period, see *Settings covering a 24-hour period, on page 42*.

10. Select **Next**.

    The BG Target 3/4 screen appears.



11. Select **Next**.

The Edit BG Target 3/4 screen appears.

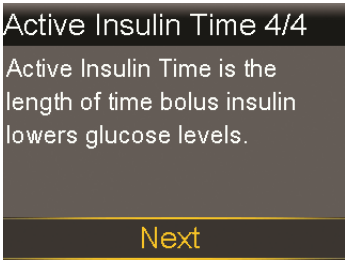


12. For one BG target range, enter the Lo and Hi target, and then press ◎.

> **Note:** For instructions on setting up more than one BG target range over a 24-hour period, see *Settings covering a 24-hour period, on page 42*.

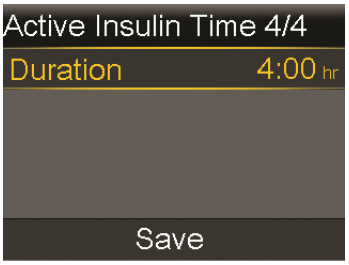
13. Select **Next**.

    The Active Insulin Time 4/4 screen appears.



14. Select **Next**.

    The Active Insulin Time 4/4 screen appears.



15. Enter the **Duration** of the active insulin time, and then press ◎.
16. Select **Save**.

The Bolus Wizard feature setup is now complete.

Turning the Bolus Wizard feature off

The Bolus Wizard feature can be turned off at any time. The Bolus Wizard settings remain in the pump. When the Bolus Wizard feature is turned off, the Bolus Wizard menu selection does not appear on the Bolus screen, and the insulin sensitivity factor or BG target settings can not be edited from the Bolus Wizard Setup screen.

To turn the Bolus Wizard feature off:

1. From the Home screen, press ◎, and then select ⚙.
2. Select **Delivery Settings** > **Bolus Wizard Setup**.
3. Select **Bolus Wizard** to turn the feature off.



WARNING: Do not use the Bolus Wizard feature to calculate a bolus for a period of time after giving a manual injection of insulin by syringe or pen. Manual injections are not accounted for in the active insulin amount. Therefore, the Bolus Wizard feature may ask to deliver more insulin than needed. Too much insulin can cause hypoglycemia. Consult a healthcare professional for how long to wait after a manual injection of insulin before the active insulin calculation of the Bolus Wizard feature can be relied on.

Normal bolus

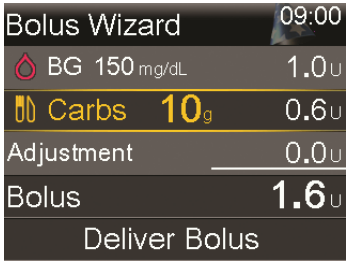
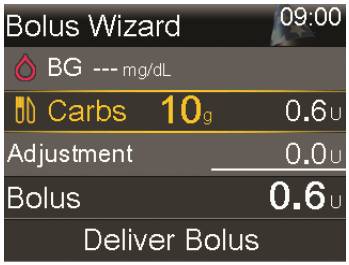
A normal bolus provides a single immediate dose of insulin. Use a normal bolus to cover food intake or to correct a high BG meter reading.



Note: The pump can deliver a normal bolus while a Square Wave bolus or the Square portion of a Dual Wave bolus is being delivered.

Delivering a normal bolus with the Bolus Wizard feature

The Bolus Wizard screen shows the most recent BG reading, if available. The table indicates the different ways that the Bolus Wizard screen shows the BG reading.

Bolus Wizard screen	Glucose reading information
	The icon indicates that a recent BG meter reading is used by the Bolus Wizard feature to calculate a correction bolus.
	The BG appears as dashes when no BG is available for the Bolus Wizard feature to calculate a correction bolus.

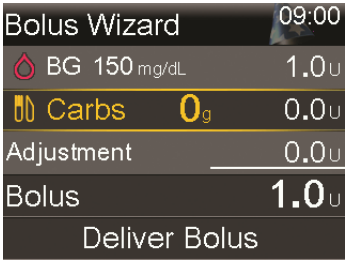
To deliver a normal bolus using the Bolus Wizard feature:

1. For a correction bolus or a food bolus with a correction, use the BG meter to check BG.

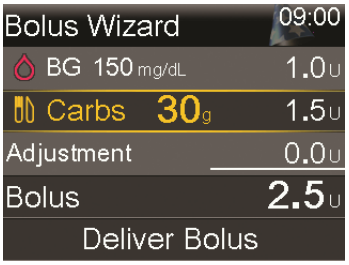
> **Note:** For more information on how to manually enter the BG meter reading, see *Entering a BG value, on page 55*.

2. From the Home screen, press ◎, and then select .
3. Select Bolus > Bolus Wizard.

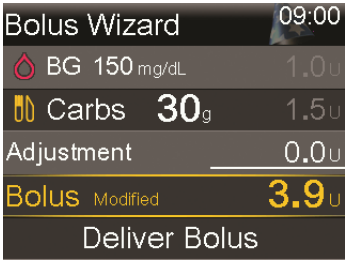
The Bolus Wizard screen appears.



4. For a food bolus, select **Carbs** to enter the carb count of the meal. For a correction bolus where no food was eaten, leave the carbs value at 0.
5. The calculated bolus appears in the Bolus field.



If a change to the bolus amount is needed, select **Bolus** and modify the bolus amount.



6. Select **Deliver Bolus** to start the bolus.

   The pump beeps or vibrates and a message appears when the bolus starts. The Home screen shows the bolus amount as it is being delivered. The pump beeps or vibrates when bolus delivery is complete.

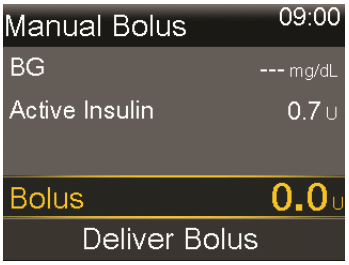
Delivering a normal bolus using the Manual bolus feature

The following procedure describes how to deliver a normal bolus using the Manual bolus feature.

To deliver a normal bolus using the Manual bolus feature:

1. From the Home screen, press ◎, and then select .
2. Do one of the following:
   - Select **Bolus** if the Bolus Wizard feature is turned off.
   - Select **Bolus** > **Manual Bolus** if the Bolus Wizard feature is turned on.

   The Manual Bolus screen appears.



3. Select **Bolus** to set the bolus delivery amount in units.
4. Select **Deliver Bolus** to start the bolus.

Stopping a normal bolus delivery

These procedures describe how to stop a normal bolus.

WARNING: Always press ◎, select , and then select Stop Bolus to stop bolus insulin delivery. Do not use the Suspend All Delivery feature to stop bolus insulin. The Suspend All Delivery feature stops both basal insulin and bolus insulin delivery. Failure to resume basal insulin delivery could result in too little insulin, which may cause high blood glucose.

Note: To stop all insulin delivery, use the Suspend All Delivery feature (press ◎, select , and then select **Suspend All Delivery**). For more information on using the Suspend All Delivery feature, see *Suspending all insulin delivery and resuming basal insulin delivery, on page 52*.

To stop a normal bolus delivery:

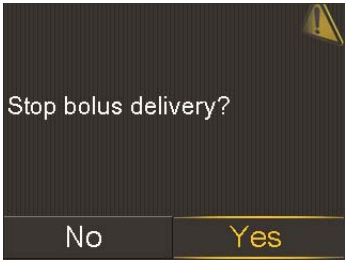
1. While the pump delivers a normal bolus, press ◎ and then select .

   The Insulin menu appears.



2. Select **Stop Bolus**.

   A message appears confirming if bolus delivery should be stopped.



3. Select **Yes** to confirm.

   The Bolus Stopped screen appears and shows the amount of bolus delivered, and the original bolus amount set up.



4. Select **Done**.

Note: The delivered amount can be viewed in the insulin delivery history screen after the procedure is closed. For more information, see *Daily History screen, on page 163*.

4

Reservoir and infusion set

4 Reservoir and infusion set

This chapter provides information about setting up the reservoir and infusion set.

Setting up the reservoir and infusion set

Confirm that the time and date on the pump are correct before insulin is used with the pump for the first time. For information about how to change the time and date on the pump, see *Time and date, on page 149*. Consult a healthcare professional to determine the appropriate pump settings before insulin is used with the pump.

The following items are needed:

- MiniMed 780G insulin pump
- vial of rapid-acting U-100 insulin
- MiniMed reservoir
- MiniMed-compatible infusion set and its user guide



WARNING: Do not use the pump to deliver insulin for the first time until the active insulin has been cleared. If the pump has been used for training with bolus delivery before insulin is used, the active insulin value may be inaccurate. This may result in inaccurate insulin delivery, and serious injury. For details, see *Clearing the active insulin, on page 154*.

Note: Different infusion sets may have different instructions for insertion into the body. All the procedures in the sections within this chapter must be followed in order to change the reservoir and infusion set.

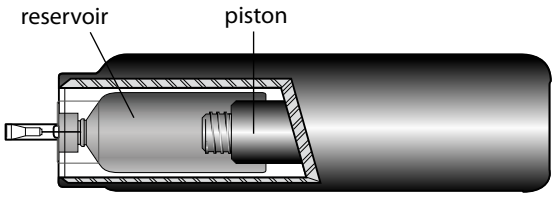
Removing the reservoir and rewinding the pump

If this is the first time a reservoir is inserted into the pump, proceed to the pump rewind instructions. For more information about the reservoir see the reservoir user guide.

WARNING: Always confirm that the infusion set is disconnected from the body before rewinding the pump or filling the infusion set tubing. Never insert the reservoir into the pump while the tubing is connected to the body. Doing so may result in an unintentional infusion of insulin, and may cause hypoglycemia.

When the pump rewinds, the piston in the reservoir compartment returns to its starting position and allows a new reservoir to be placed into the pump.

The piston is located in the reservoir compartment of the pump. It engages the reservoir and pushes insulin through the tubing.

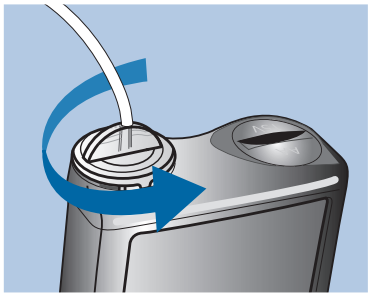


To remove the reservoir:

1. Wash hands with soap and water.
2. Remove the infusion set by loosening the adhesive and pulling away from the body.

Note: For instructions on how to remove the infusion set from the body refer to the user guide that came with the infusion set.

3. If the optional activity guard is attached to the reservoir compartment on the pump, remove it now.
4. Turn the tubing connector a half-turn counter-clockwise, and then remove the reservoir and the connector from the pump.

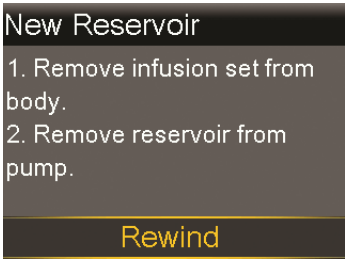


5. Dispose of the used reservoir and infusion set according to local regulations, or contact a healthcare professional for disposal information.

To rewind the pump:

1. From the Home screen, press ◎, and then select .
2. Select **New Reservoir**.

   The New Reservoir screen appears.



   If an infusion set is still connected to the body, remove it now. For instructions on how to remove the infusion set from the body, refer to the user guide that came with the infusion set.

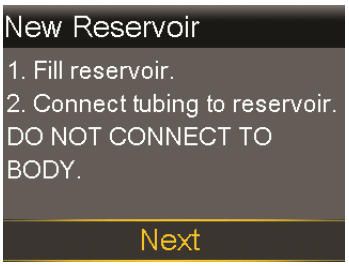
   If the reservoir is still in the pump, remove it now. For instructions on how to remove the reservoir, see *Removing the reservoir and rewinding the pump, on page 72*.

3. Select **Rewind**.

A "Rewinding" message appears as the piston in the reservoir compartment returns to its start position.



Another message appears when the pump finishes rewinding, and then the New Reservoir screen appears.



The reservoir may now be filled and connected to the infusion set tubing connector. Follow the steps in the next section to complete these actions before selecting **Next** on the pump screen.

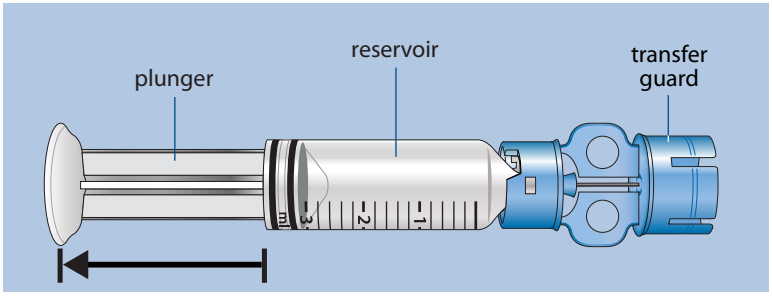
Filling the reservoir and connecting it to the infusion set tubing

WARNING: Always allow the insulin to reach room temperature before use. Cold insulin may cause air bubbles in the reservoir and tubing, which may result in inaccurate insulin delivery.

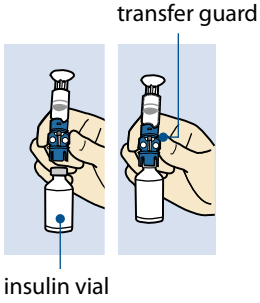
The following procedures must be performed in the order presented.

To fill the reservoir and connect it to the infusion set tubing:

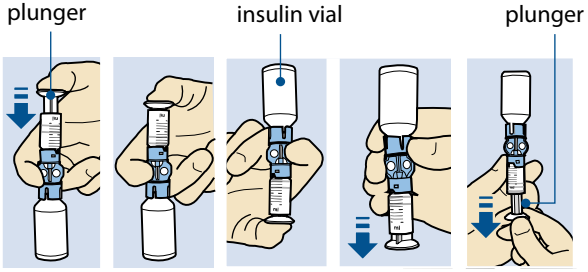
1. Remove the reservoir from the package and fully extend the plunger.



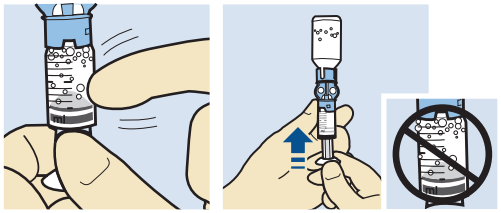
2. Swab the top of the insulin vial with alcohol (not shown).
3. Without pushing down on the plunger, firmly press the blue transfer guard onto the vial.



4. Push and hold the plunger down. This pressurizes the vial. While still holding down the plunger rod, flip the vial over so the vial is on top. Release the hold on the plunger rod and pull the plunger down to fill the reservoir with insulin.

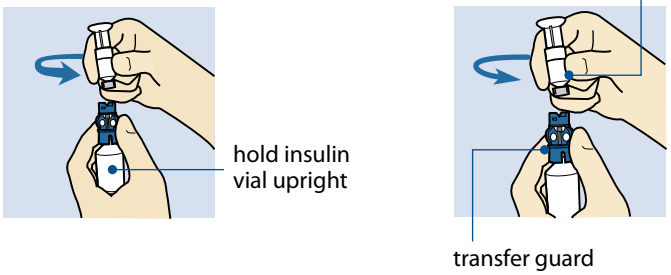


5. Gently tap the side of the reservoir to make any air bubbles rise to the top of the reservoir. Push the plunger up to move the air into the vial.

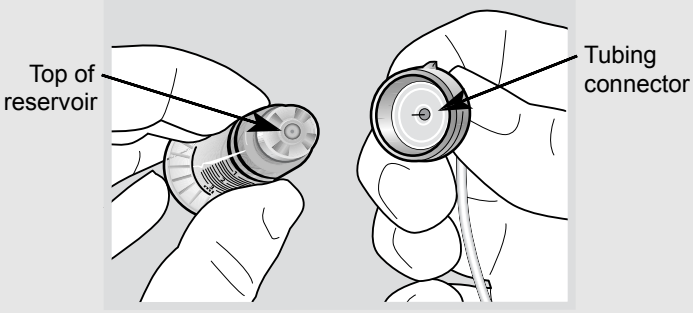


6. If needed, slowly pull the plunger back down to the amount of insulin needed.

7. To avoid getting liquid on the top of the reservoir, flip the vial over so that it is upright. Turn the reservoir counter-clockwise, then pull straight up to remove the reservoir from the transfer guard.

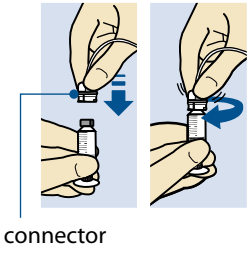


WARNING: Do not use the reservoir or infusion set if any liquid gets on the top of the reservoir or inside the tubing connector, as shown in the image. Liquid may temporarily block the vents. This may result in the delivery of too little or too much insulin, which may cause hyperglycemia or hypoglycemia. If any liquid gets on the top of the reservoir or inside the tubing connector, start over with a new reservoir and infusion set.



The reservoir is now ready to be connected to the infusion set tubing.

8. Follow the instructions in the infusion set user guide to access the infusion set tubing.
9. Place the infusion set tubing connector onto the reservoir. Turn the connector clockwise, pressing gently against the reservoir until it slides in. Push in and continue turning the connector until the reservoir and the connector lock together with an audible click.



10. If any air bubbles are present, tap the side of the reservoir to force the air bubbles to the top of the reservoir. Then remove the air bubbles by pushing up on the plunger until insulin is seen in the tubing.

11. Without pulling, turn the plunger counter-clockwise to remove it from the reservoir.
12. Select **Next** from the New Reservoir screen on the pump display.

> **Note:** The backlight may have turned off. Press any button to turn the screen back on.

The New Reservoir screen appears and indicates that the reservoir is ready to be placed into the pump.



Follow the steps in the next section to complete this action before selecting Next on the pump screen.

Placing the reservoir into the pump and filling the tubing with insulin

Do not place the reservoir into the pump until training has been received.

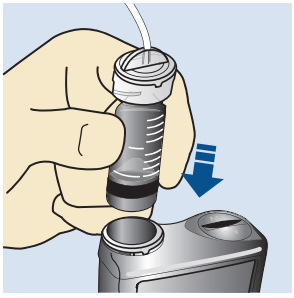
> **WARNING: Always rewind the pump before placing a new reservoir. Failing to rewind the pump may result in an unintentional infusion of insulin, which may cause hypoglycemia.**

> **WARNING: Always confirm that the infusion set is disconnected from the body before rewinding the pump or filling the infusion set tubing. Never place the reservoir into the pump while the tubing is connected to the body. Doing so may result in an unintentional infusion of insulin, which may cause hypoglycemia.**

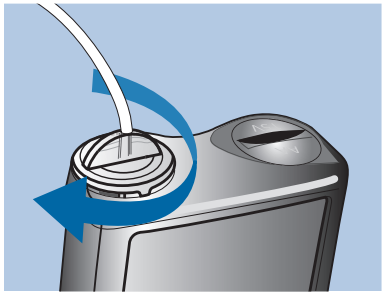
To place the reservoir into the pump and fill the tubing with insulin:

1. Confirm that the pump has been rewound. For more information, see *Removing the reservoir and rewinding the pump, on page 72*.
2. Place the filled reservoir into the reservoir compartment of the pump.

> **Note:** If the pump is being used for the first time, remove the red shipping cap from the reservoir compartment.



3. Turn the tubing connector clockwise until the connector is locked. The tubing connector should be aligned horizontally with the top of the pump.



4. Select **Next** from the New Reservoir screen.

   The Load Reservoir screen appears.



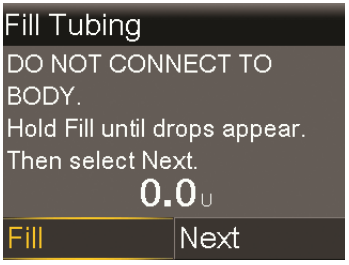
5. Select and hold **Load** until a checkmark appears on the screen and the pump beeps or vibrates.



Note: If ↩ is pressed after the loading process begins, a Loading incomplete alarm occurs.

6. Select **Next**.

   The Fill Tubing screen appears.



7. Select and hold **Fill** on the Fill Tubing screen. The pump beeps 6 times.

   The pump continues to beep as it fills the tubing, and the amount of insulin used appears on the screen.

WARNING: Always check the tubing for air bubbles. Continue to press Fill until no bubbles remain in the tubing. Air bubbles may result in inaccurate insulin delivery.

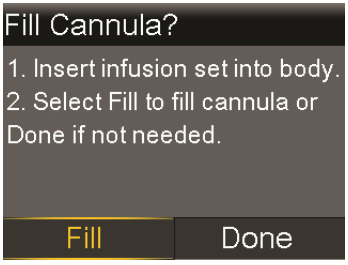
8. Stop holding **Fill** when insulin droplets form on the tip of the infusion set needle.

Note: The location of the infusion set needle may be different depending on the type of infusion set being used.

Note: If the Max Fill reached alarm occurs, it means more than 30 units of insulin were used to fill the tubing. For more information on the Max Fill reached alarm, see *Pump alarms, alerts, and messages, on page 233*.

9. Select **Next** on the Fill Tubing screen.

The Fill Cannula? screen appears.



Do not proceed with filling the cannula until after the infusion set has been inserted. Follow the steps in the next section to insert the infusion set into the body before proceeding with the steps on the pump screen.

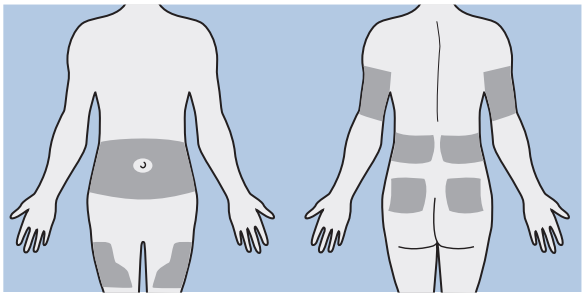
Note: If an infusion set with a steel cannula is used, the cannula does not need to be filled, and **Done** may be selected.

Inserting the infusion set into the body

Always refer to the infusion set user guide and the serter user guide, if needed, for instructions about how to insert an infusion set into the body.

WARNING: Do not remove the reservoir from the pump while the infusion set is connected to the body. Doing so may result in the delivery of too little or too much insulin, which may cause hyperglycemia or hypoglycemia.

The approved areas for infusion set insertion are shaded in the following example. Avoid the 5.0 cm (2-inch) area around the navel to help ensure a comfortable infusion site and to help with adhesion.



CAUTION: Do not use the same infusion set insertion site for an extended period of time. This may cause the site to become overused. Rotate the infusion set insertion sites regularly.

CAUTION: Always change the infusion set as indicated by the infusion set user guide. Using the same infusion set for an extended period of time may cause infusion set occlusion or site infection.

After the infusion set is inserted into the body follow the steps in the following section to fill the cannula.

Filling the cannula

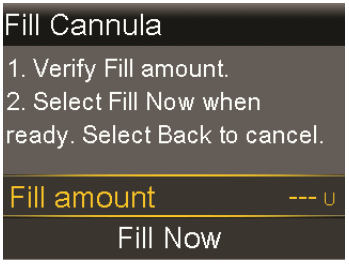
Filling the soft cannula with insulin is required after the infusion set is inserted into the body and the introducer needle is pulled out. The insulin amount required to fill the cannula depends on the type of infusion set used. Refer to the user guide that came with the infusion set for more information.

WARNING: Never leave the pump on the Fill Cannula? screen. Insulin delivery is suspended while on the Fill Cannula? screen. Always finish filling the cannula or return to the Home screen, to avoid continued insulin delivery suspension. Prolonged suspension of insulin delivery may cause hyperglycemia.

To fill the cannula:

1. Select **Fill** on the Fill Cannula? screen.

   The Fill Cannula screen appears.



2. Confirm that the Fill amount is correct for the infusion set used, then do one of the following:

   - If the Fill amount is correct, press ⌄ to select **Fill Now** and then press ◎.
   - If the Fill amount is incorrect, press ◎. Change to the correct amount and press ◎. Then select **Fill Now**.

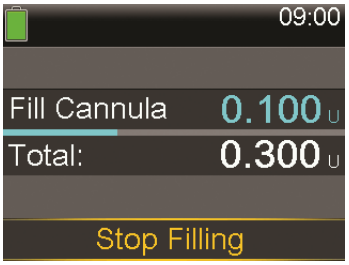
Note: The pump will remember the Fill amount used last. Always confirm that the Fill amount is correct.

The screen shows the units of insulin being filled into the cannula. The pump beeps or vibrates when the delivery is complete. After the cannula is filled, the Home screen appears.

Note: Use the following procedure only when it is necessary to stop filling the cannula.

To stop filling the cannula:

1. Select **Stop Filling** to stop filling the cannula.



2. Select **Yes**.

   The Fill Stopped screen appears.



3. Select **Done**.

Disconnecting the infusion set

Refer to the infusion set user guide for instructions on how to disconnect the infusion set.

Reconnecting the infusion set

Refer to the infusion set user guide for instructions on how to reconnect the infusion set.

5

Paired devices

5 Paired devices

This chapter explains how to pair the MiniMed 780G insulin pump with compatible devices.

Setting up the Accu-Chek Guide Link meter

The MiniMed 780G insulin pump with smart device connectivity can pair only with an Accu-Chek Guide Link meter to automatically receive blood glucose (BG) readings. If the Accu-Chek Guide Link meter is not paired with the pump, enter BG readings manually. The pump beeps, vibrates, or simultaneously beeps and vibrates when the pump receives a BG reading. Confirm the BG reading and deliver a bolus, if necessary. If a BG reading is not confirmed within 12 minutes, the BG will not be stored. If the BG reading is outside the range of 70 mg/dL to 250 mg/dL, an alert appears. Follow instructions from a healthcare professional to treat low BG or high BG.

To pair the pump and meter, use the following items:

- MiniMed 780G insulin pump with smart device connectivity
- Accu-Chek Guide Link meter



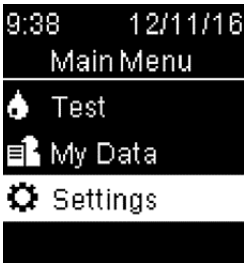
Note: The Accu-Chek Guide Link meter may not be available in all countries. It is recommended to use an ISO 15197 compliant blood glucose meter, where available. Please consult a healthcare professional to discuss options.

Pairing the pump and meter

The MiniMed 780G insulin pump with smart device connectivity can pair with up to four Accu-Chek Guide Link meters.

To prepare the meter to pair with the pump:

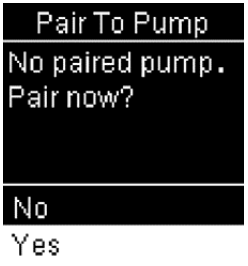
1. Press the **OK** button on the meter to turn on the meter.
2. Select **Settings**.



3. Select **Wireless**.



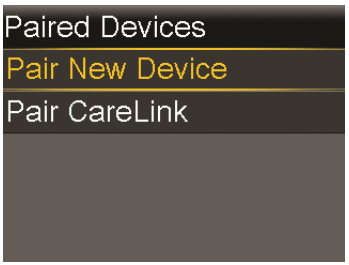
4. Select **Yes** if the confirmation screen appears on the meter screen. Or, if the confirmation screen does not appear, select **Pairing**.



   The meter serial number appears on the meter screen. The meter is now ready to pair with the pump.

To prepare the pump to pair with the meter:

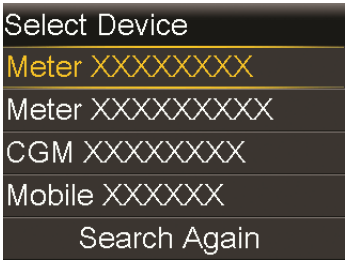
1. From the Home screen, press ◎, and then select .
2. Select **Pair New Device**.



The Searching... screen appears. After the pump is done searching, the Select Device screen appears.

3. Select the meter that matches the serial number that displays on the meter screen.

   If the correct serial number does not appear, select **Search Again**.



4. If the serial numbers shown on the pump screen and meter screen match, select **Confirm**.



Press if the serial number is incorrect.

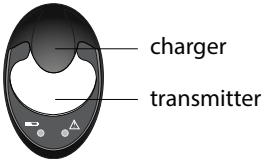
If the connection is successful, a "Pairing successful!" message appears on the pump. A "Paired with pump" message with the serial number of the pump appears on the meter screen. If a Device not found alert appears, see *Pump alarms, alerts, and messages, on page 233* for more information.

Pairing the pump and transmitter

The pump and transmitter must be paired to use the sensor. When paired, the pump and transmitter communicate with each other through a wireless connection. Only one transmitter can be paired with the pump. If a transmitter is already paired with the pump, delete the transmitter, and then continue. For instructions on how to delete a transmitter from the pump, see *Unpairing the transmitter from the pump, on page 227*.

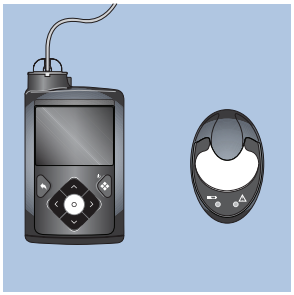
To pair the pump and transmitter:

1. Attach the transmitter to the charger. Fully charge the transmitter. Keep the transmitter attached to the charger.

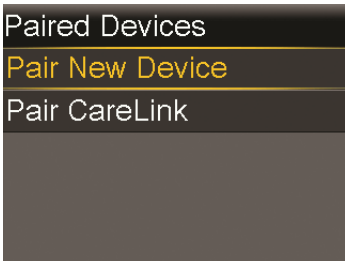


Note: Both lights on the charger are off when the transmitter is fully charged. For more information, see the transmitter user guide.

2. From the Home screen, press ◎, and then select .
3. Place the transmitter (still attached to the charger) next to the pump.



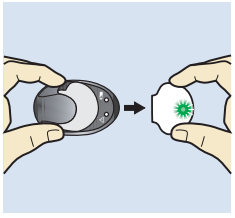
4. Select **Pair New Device**.



The Searching... screen appears.

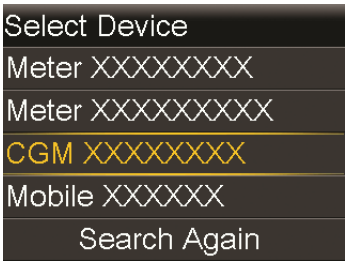
Note: The search process can take up to 20 seconds.

5. Remove the transmitter from the charger. The transmitter light flashes 10 times and turns off.

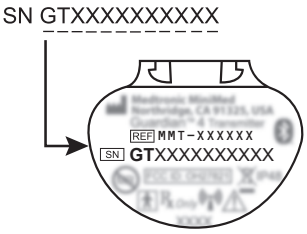


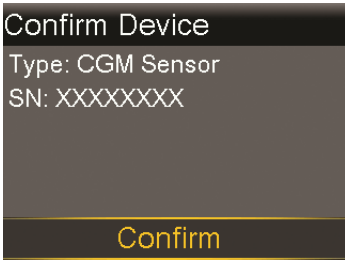
The Select Device screen appears with a list of available devices.

6. Select the CGM device that matches the serial number indicated on the back of the transmitter.



7. If the transmitter serial number on the pump screen matches the serial number on the back of the transmitter, select **Confirm**.





Press ↩ if the serial number is incorrect.

If the connection is successful, a "Pairing successful!" message appears on the pump. When the transmitter is communicating with the pump, the sensor feature is turned on and appears on the Home screen. For information on using the sensor with the transmitter, see *Connecting the transmitter to the sensor, on page 114*. If a Device not found alert appears, see *Pump alarms, alerts, and messages, on page 233* for more information.

MiniMed Mobile app

The MiniMed Mobile app is an optional accessory that is compatible with the MiniMed 780G system. The app provides a secondary display that allows the user to view CGM and pump data. A compatible smartphone is required for the app to function. The app is available for both iOS and Android platforms. Consult the MiniMed Mobile app user guide for installation instructions.

Uploading device data to CareLink software

Upload system data to CareLink software with the MiniMed Mobile app or the Blue Adapter. Follow the instructions found on the CareLink software to upload system data with the Blue Adapter. Refer to the MiniMed Mobile app user guide for instructions to upload MiniMed 780G system data to CareLink software with the app.

To prepare the pump to upload to CareLink software:

1. From the Home screen, press ◎, and then select .
2. Select **Pair CareLink**.

   Follow instructions on the CareLink uploader to complete steps.

6

Continuous glucose monitoring

6 Continuous glucose monitoring

This chapter explains how to enter sensor settings and set up continuous glucose monitoring (CGM). CGM requires these items:

- MiniMed 780G insulin pump
- SG settings provided by a healthcare professional
- Guardian 4 sensor
- Guardian 4 transmitter

CGM overview

CGM is an SG monitoring tool that uses a glucose sensor to continuously measure the amount of glucose in interstitial fluid. CGM helps manage blood glucose in these ways:

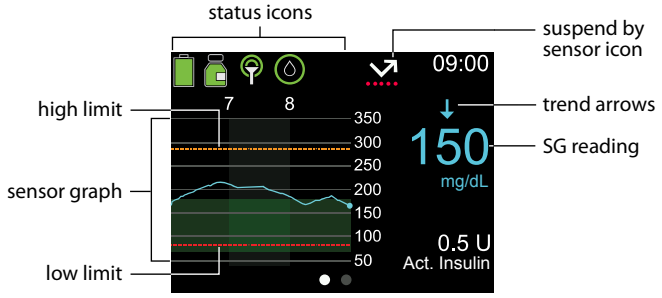
- It tracks and displays SG readings throughout the day and night.
- It shows the effects that diet, exercise, and medication can have on glucose levels.
- It provides additional tools, such as alerts, to help prevent high and low glucose levels.
- It measures glucose in the interstitial fluid, while a meter measures glucose in the blood. SG readings and meter readings may not be the same.

The sensor does not require calibration for use with the system. However, every BG reading provided to the pump is used to calibrate the sensor.

Home screen with CGM in Manual mode

When the Sensor feature is active, the Home screen displays a real-time graph that shows SG information.

Note: To see the Home screen while the SmartGuard feature is active, see *Home screen with the SmartGuard feature, on page 134*.



For more information about the icons that appear on the Home screen with CGM in Manual mode, see *Status icons, on page 34*.

SG alert settings

An SG alert occurs when an SG reading changes at a particular rate, reaches a specified high or low limit, or before a high or low limit is reached. The pump can also be set to suspend insulin delivery before or when a low limit is reached.

High SG settings

High SG settings provide alerts under the following conditions:

- When SG rises rapidly (Rise Alert).
- When SG approaches the high limit (Alert before high).
- When SG reaches the high limit (Alert on high).

The following graph shows the types of high SG settings.



High SG alert settings

High glucose setting	Description
High limit	The high limit is used as a basis for some high SG settings. The high limit can be set from 100 to 400 mg/dL, for up to eight different time segments.
Alert before high	This setting provides an alert when SG is predicted to reach the high limit, raising awareness of potential high SG.
Time before high	This setting determines how long an Alert before high occurs before the high limit may be reached. It can be set between 5 and 30 minutes.
Alert on high	This setting provides an alert when SG reaches or exceeds the high limit.
High SG alert	This setting provides an alert when SG is at 250 mg/dL or higher for 3 hours. This is a fixed setting and cannot be changed.
Rise Alert	This setting provides an alert when glucose is rising rapidly, such as after a meal or if a bolus is missed. Set the rise rates to match the trend arrows, as shown below, or to a custom rise rate. • ↑ - SG is rising at a rate of 1 mg/dL per minute or more. • ↑↑ - SG is rising at a rate of 2 mg/dL per minute or more. • ↑↑↑ - SG is rising at a rate of 3 mg/dL per minute or more. • **Custom** - SG is rising at a custom rate, set from 1.0 mg/dL to 5.0 mg/dL per minute.

High glucose setting	Description
Rise Limit	This setting determines when a Rise Alert occurs.

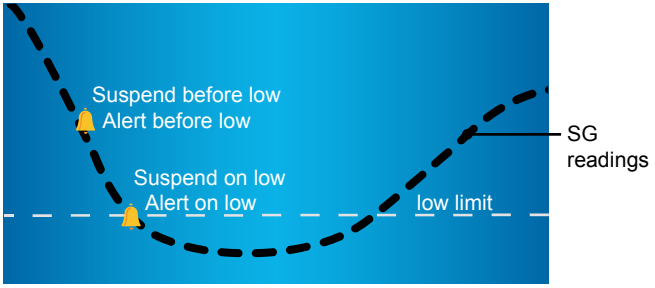
To set up high SG settings, turn the sensor on and then see *Setting up the High SG settings, on page 107*.

Low SG settings

Low SG settings alert or suspend insulin delivery when SG either approaches or reaches the low limit.

Note: The MiniMed Mobile app may be used to view the sensor graph on a mobile device. Always read and acknowledge all alarms and alerts on the pump. If the pump simultaneously generates more than one alarm or alert, only one of the alarms or alerts appears on the mobile device.

The following graph shows the available low SG settings.



Low SG alert and suspend settings

WARNING: The Suspend before low and Suspend on low features are not intended to treat low BG. Suspending insulin delivery when SG is low may not bring BG back to the target range for several hours, which may cause hypoglycemia. If symptoms do not match the SG value, use a BG meter to confirm glucose levels before making therapy decisions.

For information about how to program low SG settings in Manual mode, see *Setting up the low SG settings, on page 109*. The sensor must be turned on before low SG settings can be programmed.

Low limit

The low limit is used as a basis for some low SG settings. The low limit can be set from 50 mg/dL to 90 mg/dL, for up to eight different time segments.

The Low SG alarm appears when SG readings reach or fall below 54 mg/dL. This is a fixed setting and cannot be changed. When the alarm appears, it shows the SG reading next to the Low SG alarm.

The Suspend before low feature

The Suspend before low feature stops insulin delivery when SG is approaching the low limit. This feature can help minimize the amount of time spent with low glucose.



WARNING: Do not use the Suspend before low feature without first reading the information in this user guide and receiving training from a healthcare professional. The Suspend before low feature temporarily suspends insulin delivery for a maximum of two hours. Under some conditions of use, the pump can suspend insulin delivery again, resulting in under-delivery. Prolonged under-delivery of insulin may increase the risk of hyperglycemia and diabetic ketoacidosis. Always be aware of symptoms. If symptoms don't match SG readings, confirm SG with a BG meter reading.

The Suspend before low feature is turned off by default. Consult a healthcare professional before the Suspend before low feature is used.

If the Suspend before low feature is turned on, Alert on low is automatically turned on. Enabling Alert before low is optional.

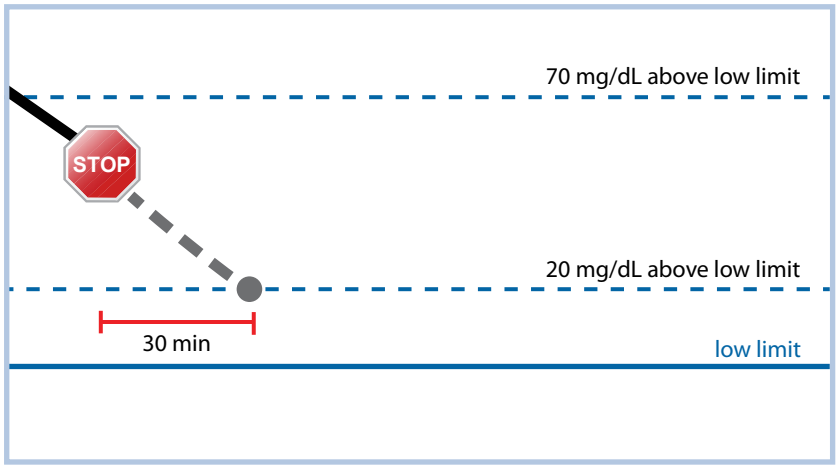
- If Alert before low is off, a Suspend before low alert occurs, but the pump does not beep or vibrate when insulin delivery is suspended.
- The Suspend before low and Suspend on low features cannot be on at the same time. When either feature is on, the Resume basal alert can be activated.

Suspend before low conditions

When a Suspend before low event occurs, insulin delivery is suspended. A Suspend before low event occurs if both of the following conditions are met:

- SG reading is at the low limit or is within 70 mg/dL above the low limit.
- SG is predicted to reach or fall below a level that is 20 mg/dL above the low limit within approximately 30 minutes.

The following image is an example of what can happen during a Suspend before low event.



Responding to a Suspend before low event

After the Suspend before low alert is cleared, the suspend by sensor icon flashes and "Suspended before low" appears on the Home screen. If SG reaches the low limit, an Alert on low occurs.

When a Suspend before low event occurs, insulin delivery can be suspended for a minimum of 30 minutes or up to a maximum of two hours. Basal insulin delivery can be manually resumed at any time. For details, see *Manually resuming basal insulin delivery during a Suspend before low or Suspend on low event, on page 112*. After 30 minutes, basal insulin delivery resumes if both of the following conditions are met:

- SG is at least 20 mg/dL above the low limit.
- SG is predicted to be more than 40 mg/dL above the low limit within 30 minutes.

If the Suspend before low alert is not cleared within two hours, the pump resumes insulin delivery and displays a Basal delivery resumed alert.

Alert before low

Alert before low provides an alert when SG is predicted to reach the low limit, and increases awareness of potential low SG.

The Alert before low feature works as follows:

- If Alert before low is on, and both suspend features are off, Alert before low occurs 30 minutes before the low limit is reached.
- If the Suspend on low feature is on and Alert before low is on, Alert before low occurs 30 minutes before the low limit is reached.
- If the Suspend before low feature is on and Alert before low is on, a Suspend before low alert occurs when insulin delivery is suspended. For details, see *The Suspend before low feature, on page 101*.

The Suspend on low feature

The Suspend on low feature stops insulin delivery when SG readings reach or fall below the low limit. When a Suspend on low event occurs, insulin delivery is suspended. This feature is for situations when a person cannot respond to a low glucose condition and can help minimize the amount of time spent with low glucose.

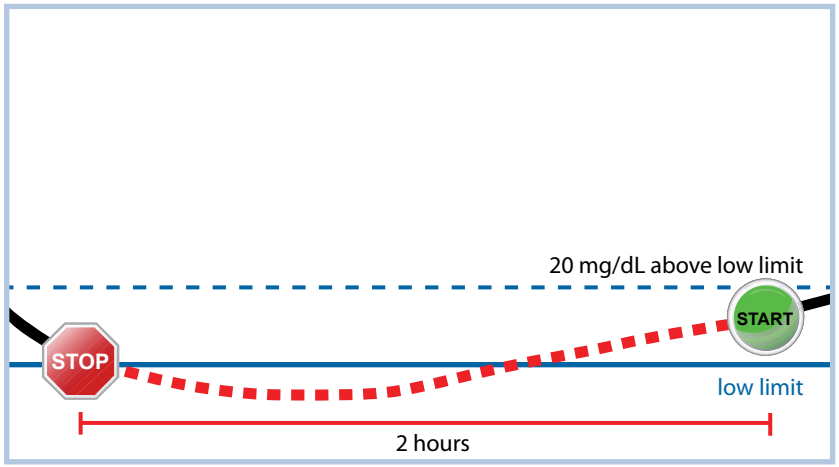


WARNING: Do not use the Suspend on low feature without first reading the information in this user guide and receiving training from a healthcare professional. The Suspend on low feature temporarily suspends insulin delivery for a maximum of two hours. Under some conditions of use, the pump can suspend insulin delivery again, resulting in under-delivery. Prolonged suspension of insulin delivery may increase the risk of serious hyperglycemia, ketosis, and ketoacidosis.

The Suspend on low feature is off by default. Consult a healthcare professional for guidance before the Suspend on low feature is used.

When the Suspend on low feature is on, Alert on low is activated automatically. For more information, see *Alert on low, on page 106*.

The following image is an example of what can happen during a Suspend on low event.



Responding to a Suspend on low event

After the Suspend on low alarm is cleared, the suspend by sensor icon flashes and "Suspended on low" appears on the Home screen.

When a Suspend on low event occurs, a pump alarm occurs and insulin delivery remains suspended for a minimum of 30 minutes, up to a maximum of two hours. Insulin delivery can be resumed manually at any time. For details, see *Manually resuming basal insulin delivery during a Suspend before low or Suspend on low event, on page 112*. After 30 minutes, basal insulin delivery resumes under the following conditions:

- SG is at least 20 mg/dL above the low limit.
- SG is predicted to be more than 40 mg/dL above the low limit within 30 minutes.

If the Suspend on low alarm is not cleared within two hours, the pump resumes insulin delivery and displays an emergency message.

When the Suspend before low or Suspend on low features are unavailable

After a Suspend before low or Suspend on low event, both features are inactive for a period of time to help prevent prolonged suspension of insulin delivery. Insulin delivery is suspended for a maximum of two hours. Insulin delivery can be manually suspended at any time. For details, see *Suspending all insulin delivery and resuming basal insulin delivery, on page 52*.

When the Suspend before low and the Suspend on low features are unavailable, the suspend by sensor icon on the Home screen appears with a red X .

Response to Suspend before low or Suspend on low events	Duration that the Suspend before low or Suspend on low feature is unavailable
The alert is cleared within two hours and the pump stays suspended for the maximum two-hour suspend time.	The feature is unavailable for 30 minutes after basal insulin delivery resumes.
The alert is cleared within two hours and insulin delivery automatically resumes due to rising SG levels.	The feature is unavailable for 30 minutes after basal insulin delivery resumes.
The alert is cleared within two hours and basal insulin delivery is manually resumed.	The feature is unavailable for 30 minutes after basal insulin delivery resumes.
The alert is not cleared within 2 hours.	Basal insulin delivery automatically resumes and the feature is available.
The alert is cleared within 30 minutes after basal insulin delivery is automatically resumed.	The feature is unavailable for the remaining time left in the 30 minutes after basal insulin delivery resumed.
The alert is cleared between 30 minutes and four hours after basal insulin delivery is resumed.	The feature is available.
The alert is not cleared.	The feature is unavailable for four hours after basal delivery automatically resumes.

Alert on low

The Suspend before low and the Suspend on low features automatically activate Alert on low. When Alert on low is on, the pump displays an alert when SG reaches or falls below the low limit. If insulin delivery is suspended and the alert is not cleared, an emergency message appears.

Automatically resuming basal insulin delivery after a Suspend before low or Suspend on low event

If insulin delivery is suspended by either the Suspend before low or the Suspend on low feature, basal insulin delivery automatically resumes under one of the following conditions:

- If insulin delivery is suspended for a minimum of 30 minutes and SG readings are at least 20 mg/dL above the low limit and expected to be more than 40 mg/dL above the low limit within 30 minutes
- After a maximum of two hours

Resume basal alert

The Resume basal alert indicates when basal insulin is resumed automatically. When basal insulin delivery resumes and the Resume basal alert is off, a message appears indicating that basal insulin delivery has resumed.

If basal insulin delivery resumes after the maximum suspend time of two hours, an alert appears even if the Resume basal alert is off.

To set up the Resume basal alert, see *Setting up the low SG settings, on page 109*.

Setting up CGM

Turning on the Sensor feature

The Sensor feature must be on before SG alerts can be set up and SG levels can be monitored.

To turn on the Sensor feature:

1. From the Home screen, press ◎, and then select ⚙.
2. Select **Device Settings** > **Sensor**.
3. Select **Sensor** to turn the feature on or off.

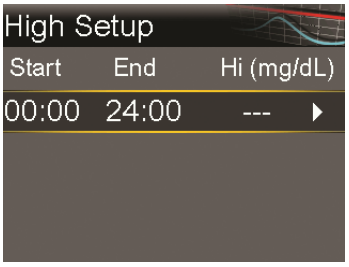
Setting up the High SG settings

For details about high SG settings, see *High SG settings, on page 98*.

To set up the high SG settings:

1. From the Home screen, press ◎, and then select ⚙.
2. Select **Alert Settings** > **High Alert**.

   The High Setup screen appears.



3. Select the time segment. The end time flashes.

   The start time of the first time segment is always 00:00. Up to eight time segments can be set, each with a different high limit. All the time segments must add up to a 24-hour period.
4. Set the End time.
5. Set the high limit, from 100 mg/dL to 400 mg/dL, in increments of 5 mg/dL.
6. Select the arrow to the right of the End time to select the high alerts for the time segment.

   A screen appears and shows the high alerts for the selected time segment.



7. Set the following alerts, as desired:
   a. Select **Alert before high** to receive an alert before the high limit is reached.

b. Set the **Time before high** option between 5 to 30 minutes to receive an alert before the high limit is reached.

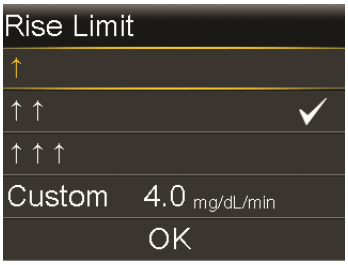
c. Select **Alert on high** to receive an alert when the high limit is reached.

d. Select **Rise Alert** to receive an alert when SG is rising quickly.

8. If Rise Alert is on, perform the following steps to set up the Rise Limit. Otherwise, proceed to step 9.

   a. Scroll down and select **Rise Limit**.

      The Rise Limit screen appears.



   b. Select one, two, or three arrows for the rise rate, or enter a custom rate.

Arrow selection	Minimum rate that SG is rising when an alert occurs.
↑	SG is rising at a rate of 1 mg/dL per minute or more.
↑↑	SG is rising at a rate of 2 mg/dL per minute or more.
↑↑↑	SG is rising at a rate of 3 mg/dL per minute or more.



Note: These arrows appear on the Home screen to indicate the rate at which SG is rising.

   c. To enter a custom rate, select **Custom**, enter the Rise Limit on the Custom Limit screen, and then select **OK**.

   d. Select **OK** again to confirm the Rise Limit settings.

9. Select **Next**.

10. If necessary, enter the remaining time segments to complete the 24-hour period.

Note: For instructions on setting up more than one high limit over a 24-hour period, see *Settings covering a 24-hour period, on page 42*.

11. Select **Done**.
12. Review the high SG settings and select **Save**.

To change the high SG settings:

1. From the Home screen, press ◎, and then select ⚙.
2. Select **Alert Settings** > **High Alert**.

   The High Setup screen appears.
3. Select **Edit**.
4. Select and adjust the time segment.
5. Select any alert setting to make adjustments, or to turn the setting on or off.
6. Select **Next**.
7. Select **Done**.
8. Review the high SG settings and select **Save**.

High Snooze

The High Snooze feature sets the amount of time before a high alert repeats. The pump shows the high alert again if the high alert condition still exists after the specified snooze time.

To set the High Snooze:

1. From the Home screen, press ◎, and then select ⚙.
2. Select **Alert Settings** > **Snooze High & Low**.

   The Snooze screen appears.
3. Select **High Snooze** and enter a time in 5-minute increments from 5 minutes to 3 hours.
4. Select **Save**.

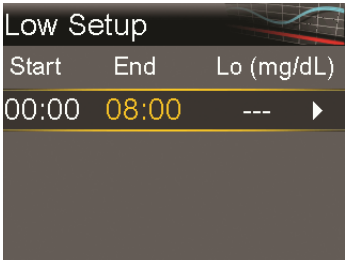
Setting up the low SG settings

For information about the low SG settings, see *Low SG settings, on page 100*.

To set up the low SG settings:

1. From the Home screen, press ◎, and then select ⚙.
2. Select **Alert Settings** > **Low Alert**.

   The Low Setup screen appears.



3. Select the time segment. The end time flashes.

   The start time of the first time segment is always 00:00. Up to eight time segments can be set, each with a different low limit. All the time segments must add up to a 24-hour period.
4. Set the End time.
5. Set the low limit, from 50 mg/dL to 90 mg/dL, in increments of 5 mg/dL.
6. Select the arrow to the right of the End time to select the low SG settings for the time segment.

   A screen appears and shows the available settings for the selected time period.



7. Set the following alerts, as desired:
   a. Select **Suspend before low** to set the pump to suspend insulin delivery before the low limit is reached.

b. Select **Alert before low** to receive an alert before the low limit is reached.

c. Select **Suspend on low** to set the pump to suspend insulin delivery when SG reaches or falls below the low limit.

d. Select **Alert on low** to receive an alert when SG reaches or falls below the low limit.

e. Select **Resume basal alert** to receive an alert when basal insulin delivery resumes during a suspend event. When this alert is off, the Basal delivery resumed message still appears.



Note: The Suspend before low and the Suspend on low features cannot both be on during the same time segment.

8. Select **Next**.
9. If necessary, enter the remaining time segments to complete the 24-hour period.



Note: For instructions on setting up more than one low limit over a 24-hour period, see *Settings covering a 24-hour period, on page 42*.

10. Select **Done**.
11. Review the low SG settings, and select **Save**.

To change the low SG settings:

1. From the Home screen, press ◎, and then select ⚙.
2. Select **Alert Settings** > **Low Alert**.

   The Low Setup screen appears.
3. Select **Edit**.
4. Select and adjust the time segment.
5. Select any alert setting to make adjustments, or to turn the setting on or off.
6. Select **Next**.
7. Select **Done**.

8. Review the low SG settings, and select **Save**.

Low Snooze

The Low Snooze feature sets the amount of time before a low alert repeats. The pump shows the low alert again if the low alert condition still exists after the specified snooze time.

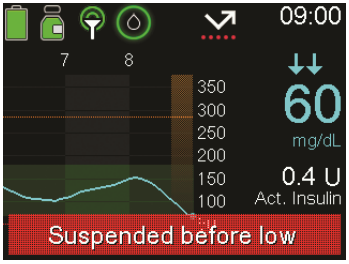
To set the Low Snooze:

1. From the Home screen, press ◎, and then select ⚙.
2. Select **Alert Settings** > **Snooze High & Low**.

   The Snooze screen appears.
3. Select **Low Snooze** and enter a time in 5-minute increments from 5 minutes to 1 hour.
4. Select **Save**.

Manually resuming basal insulin delivery during a Suspend before low or Suspend on low event

When the pump suspends insulin due to a Suspend before low or Suspend on low event, the Home screen shows which feature is active.



Basal insulin delivery automatically resumes when certain conditions are met. Basal delivery can be manually resumed at any time.

To manually resume basal delivery:

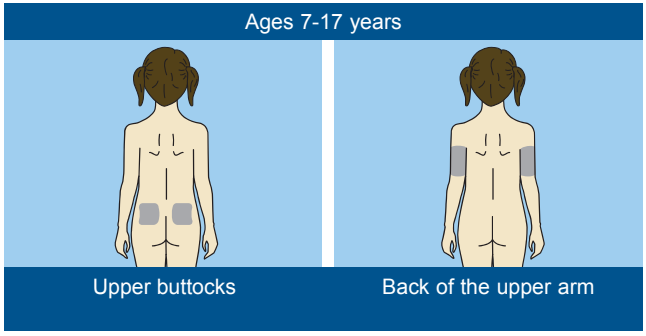
1. From the Home screen, press ◎, and then select 🔓.
2. Select **Resume Basal**.
3. Select **Yes** to resume basal insulin delivery.

Inserting the sensor

Choose an insertion site that has an adequate amount of subcutaneous fat. The Guardian 4 sensor has been studied and is approved for use in the following sensor insertion sites by persons of the following ages:

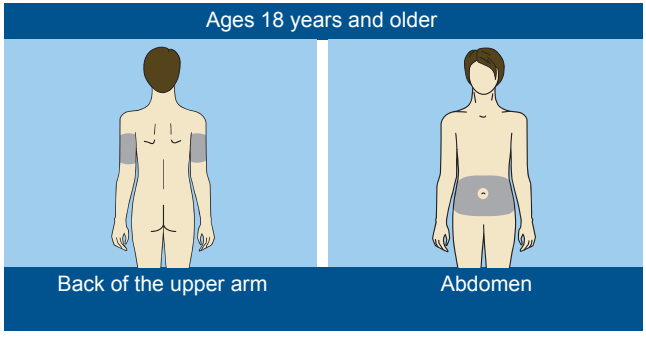
Refer to the sensor user guide for instructions on how to insert the sensor.

Approved Age	Sensor Insertion Site
7-17	Arm and Buttocks
18 and older	Abdomen and Arm





Insertion on abdomen for ages 7-17 years has not been evaluated for accuracy.





Insertion on upper buttocks for ages 18 years and older has not been evaluated for accuracy.

Note: Assistance will likely be needed for sensor insertion into the back of the upper arm and into the buttocks. Some users found it difficult to insert the sensor into their arm and buttocks by themselves.

Connecting the transmitter to the sensor

Refer to the transmitter user guide for instructions on how to connect the transmitter to the sensor.

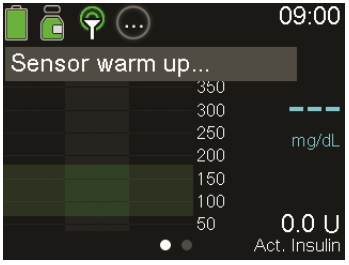
Starting the sensor

After the sensor is inserted and paired with the transmitter, the pump will display a Start New Sensor screen.

To start a new sensor:

1. Select **Start New Sensor** when it appears on the pump screen.

   The "Sensor warm up..." message appears.



Note: It may take up to five minutes for the "Sensor warm up..." message to appear. The warm up period lasts two hours.

2. Select **OK**.

   The "Sensor warm up..." message appears on the Home screen until the sensor warm up is complete.

   After the warm up is complete, the pump begins receiving SG readings.

Reconnecting the sensor

If the transmitter is removed from a sensor while the sensor is inserted in the body, the pump detects when the transmitter is reconnected to the sensor and a "Sensor connected" message appears.

To reconnect a sensor:

1. Select **Reconnect Sensor**.

   The "Sensor warm up..." message appears.

   Note: It may take up to five minutes for the "Sensor warm up..." message to appear. The warm up period lasts two hours.

2. Select **OK**.

   The "Sensor warm up..." message appears on the Home screen until the sensor warm up is complete.

   After the warm up is complete, the pump begins receiving SG readings.

Deactivating the Sensor feature

The Sensor feature may be turned off at any time. When the transmitter is disconnected from the sensor, turn off the Sensor feature to avoid a sensor alert. The Sensor feature must be turned on again before settings can be changed.

To deactivate the Sensor feature:

1. From the Home screen, press ◎, and then select ⚙.
2. Select **Device Settings** > **Sensor**.
3. Select **Sensor**.
4. Select **Yes** to turn off the sensor feature.

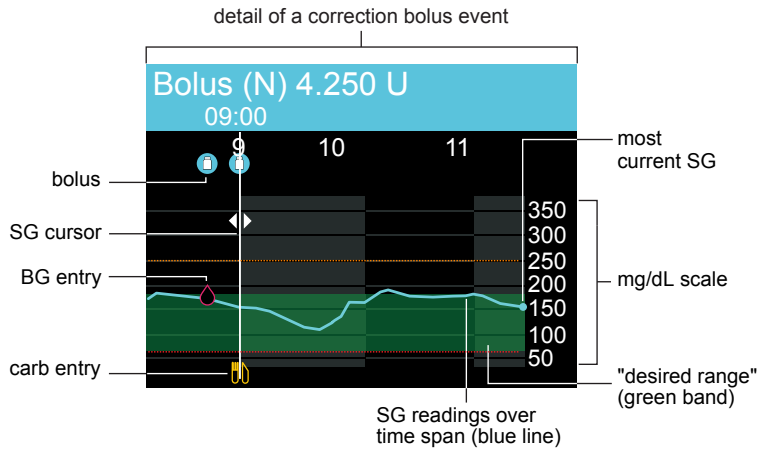
Using CGM

CGM can help identify SG trends and provide notifications when SG falls or rises rapidly. Use the following information to interpret historical SG readings and to silence sensor alerts, when necessary.

WARNING: SG and BG values may differ. If symptoms do not match the SG value, use a BG meter to confirm glucose levels before making therapy decisions. Failure to confirm glucose levels when symptoms do not match the SG value can result in the infusion of too much or too little insulin, which may cause hypoglycemia or hyperglycemia. If SG values continue to be different from symptoms, consult a healthcare professional about how to use SG values to help manage diabetes.

The sensor graph when using CGM

The sensor graph provides current SG reading information that is transmitted to the pump. If the MiniMed Mobile app is in use, the sensor graph can be viewed on a mobile device.



The sensor graph includes the following information:

- The most recent SG reading.
- Historical SG readings for the last 3-hour, 6-hour, 12-hour, or 24-hour periods.
- High and low SG limits.
- Carb entries.
- Boluses delivered during the time period displayed on the graph.
- Suspend events caused by Suspend before low or Suspend on low.
- BG entries.

There are several reasons why an SG reading may not appear on the graph:

- A recently inserted sensor is still warming up.
- A recently reconnected sensor is not ready.
- An error condition or a sensor-related alert is occurring. For a list of sensor alerts, see *CGM (sensor) alarms, alerts, and messages, on page 251*.

To view the sensor graph:

1. From the Home screen, press the ❖ button.

   A full-screen view of the 3-hour graph appears.
2. Press ^ to navigate to the 6-hour, 12-hour, and 24-hour graphs.
3. Press < to view SG readings and event details.
4. To exit the full-screen view, press ↩, or press the ❖ button again.

Using SG to make treatment decisions

After experience is gained using CGM, SG readings can be used to make treatment decisions. Treatment decisions should be made based on all the information available, including the following:

- Sensor glucose readings
- Trend arrows
- Glucose target ranges
- Active insulin
- Active alerts
- Recent activities such as medication, exercise, etc.

Before SG is used to make treatment decisions

Before SG is used to make treatment decisions, consult a healthcare professional to do the following:

- Develop a diabetes management plan
- Determine personalized glucose target ranges

Use BG meter readings to make treatment decisions and confirm SG readings when first learning to use CGM.

When to use BG meter readings instead of SG readings

In the following conditions, use BG meter readings instead of SG readings to make treatment decisions.

Condition	Treatment decision
A medication containing paracetamol or acetaminophen has been taken.	Discontinue the use of the medication before using SG values to make treatment decisions. Medication that contains paracetamol or acetaminophen used to reduce fevers or treat cold and flu symptoms can falsely raise SG readings.
There is doubt that SG readings are correct.	Confirm the SG values with a BG meter reading before the SG readings are used to make treatment decisions.
The Bolus Wizard feature is used.	Enter a BG meter reading to calculate a bolus with the Bolus Wizard feature.
An Enter BG now alert appears.	Clear the alert and enter the BG meter reading before using SG values to make treatment decisions.
A BG required alert appears.	Clear the alert and enter a BG meter reading before using SG values to make treatment decisions.
The SG values are different from the symptoms.	Use a BG meter to confirm glucose levels before making therapy decisions. If SG values continue to be different from symptoms, consult a healthcare professional.
The most recent SG reading is unavailable.	SG readings are unavailable in the following conditions: • A new sensor is started. • A Sensor Updating notification appears. • The sensor requires calibration. Use a BG meter reading for treatment decisions until SG readings are available again.

Using CGM information

The following CGM information can help make treatment decisions:

- Most recent SG reading
- Sensor trend graph
- Trend arrows
- Alerts

- Active insulin

The trend graph indicates how SG may have recently changed. The trend arrows indicate the rate at which the most recent SG readings are rising or falling. Glucose readings may trend up or down during certain activities, such as eating, giving a bolus, or when exercising. These icons appear only when the sensor feature is turned on.

- ↑ or ↓: SG has been rising or falling at a rate of 20-40 mg/dL over the last 20 minutes, or 1-2 mg/dL per minute.
- ↑↑ or ↓↓: SG has been rising or falling at a rate of 40-60 mg/dL over the last 20 minutes, or 2-3 mg/dL per minute.
- ↑↑↑ or ↓↓↓: SG has been rising or falling at a rate of more than 60 mg/dL over the last 20 minutes, or more than 3 mg/dL per minute.

Consider any active insulin that is available. Active insulin may cause sensor glucose to decrease and can affect treatment decisions. For more information about active insulin, see *Bolus Wizard settings, on page 58*.

Consult a healthcare professional to develop a strategy for using CGM information to help manage diabetes and before adjusting bolus amounts in Manual mode.

Use the following table as guidance when making treatment decisions.

SG and Arrows Displayed	**Low glucose**	**Target glucose**	**High glucose**
No SG and no arrows	Take a BG meter reading to make treatment decisions.	Take a BG meter reading to make treatment decisions.	Take a BG meter reading to make treatment decisions.

SG and Arrows Displayed	Low glucose	Target glucose	High glucose
SG reading and no arrows	 It may be necessary to eat a snack or fast-acting carbohydrate.	 Evaluate any recent bolus, the active insulin amount, and any meal taken. Watch for changes in SG.	 Consider taking a correction bolus. When in Manual mode, the Bolus Wizard feature can help determine if a bolus is recommended based on BG and active insulin. When using the SmartGuard feature, and the Auto correction feature is off, the SmartGuard bolus feature will determine a recommended correction bolus. When using the SmartGuard feature, and the Auto correction feature is on, watch and wait.

SG and Arrows Displayed	Low glucose	Target glucose	High glucose
SG reading and ↓, ↑↑, or ↑↑↑ The more arrows that appear, the faster SG is rising.	 Monitor SG readings, consider symptoms, and wait to see if SG returns to the target.	 Evaluate the active insulin amount. Additional insulin may be necessary if a bolus was not already delivered with a recent meal or snack.	 Consider taking a correction bolus. When in Manual mode, use the Bolus Wizard feature to calculate a bolus using a BG reading, and adjust the bolus amount based on the rising SG value. It is not recommended to deliver boluses too close together. When using the SmartGuard feature, and the Auto correction feature is off, the SmartGuard bolus feature will determine a recommended correction bolus. When using the SmartGuard feature, and the Auto correction feature is on, watch and wait.

SG and Arrows Displayed	Low glucose	Target glucose	High glucose
SG reading and ↓, ↓↓, or ↓↓↓ The more arrows that appear, the faster SG is falling.	 It may be necessary to eat a snack or fast-acting carbohydrate.	 Evaluate the active insulin amount. It may be necessary to eat a snack or fast-acting carbohydrate. When using the SmartGuard feature, watch and wait.	 Evaluate the active insulin amount. Evaluate any recent activity. When in Manual mode, use the Bolus Wizard feature to calculate a bolus using a BG reading, and adjust for a falling SG value. It is not recommended to deliver boluses too close together. Monitor SG readings, consider symptoms, and wait to see if SG returns to the target.

Note: Always consider symptoms of high or low glucose before making treatment decisions based on SG.

Silencing sensor alerts

The Alert silence feature silences sensor alerts for a set period of time. When using this option, the Alert silence icon appears on the Home screen. The system still displays any alerts that occur, but there is no sound or vibration if they are silenced. This information can be reviewed in the Alarm History screen.

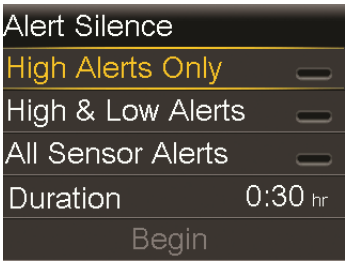
Note: The Alert silence feature does not silence the SmartGuard exit alert, the High SG alert, or the Low SG alarm for when SG reaches 54 mg/dL or below. These notifications are based on set SG thresholds and cannot be silenced.

The following table describes the sensor alerts that are silenced with each option.

Option	Silences these alerts
High Alerts Only	Alert on high, Alert before high, and Rise Alert
High & Low Alerts	Alert on high, Alert before high, Rise alert, Alert on low, Alert before low, Suspend before low, and Resume basal alert **Note:** Alert on low cannot be silenced if the Suspend before low or Suspend on low features are turned on.
All Sensor Alerts	All of the alerts listed previously for High & Low Alerts, as well as the following: • All calibration alerts, reminders, or error messages that may result from entering a BG reading • All alerts related to sensor insertion, including alerts about sensor warm-up, changing the sensor, sensor expiration, sensor errors, connection issues. • All alerts related to the transmitter, including transmitter battery alerts and connection issues

To silence sensor alerts:

1. From the Home screen, press ◎, and then select 🔊.
2. Select **Silence Sensor Alerts**.



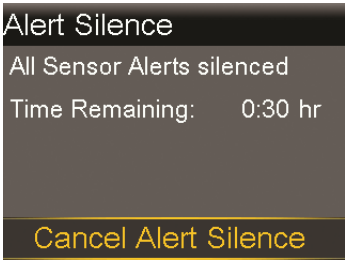
3. Select **High Alerts Only**, **High & Low Alerts**, or **All Sensor Alerts**. Refer to the previous table for details about the alerts silenced with each selection.

> **Note:** Silencing **All Sensor Alerts**, prevents the sound and vibration of most alerts related to SG readings, the sensor, and the transmitter. The Low SG alarm, for when SG reaches 54 mg/dL or below, the SmartGuard exit alert, and the High SG alert cannot be silenced.

4. Set the **Duration**. The duration can be set in 15-minute increments from 30 minutes to 24 hours.
5. Select **Begin**.

To cancel Alert Silence:

1. From the Home screen, press ◎, and then select 🔊.
2. Select **Alert Silence**.



3. Select **Cancel Alert Silence**.

7

SmartGuard

7 SmartGuard

This chapter provides information about how to set up and start using the SmartGuard feature. The SmartGuard feature uses SG readings provided by the Guardian 4 transmitter and Guardian 4 sensor to automatically adjust insulin delivery.

Introduction

The SmartGuard feature uses meal information, sensor glucose (SG), and SmartGuard target values to control basal insulin delivery. It also can automatically deliver a correction bolus to help correct a high SG reading. The MiniMed 780G insulin pump requires a minimum of eight units and a maximum of 250 units per day to operate using the SmartGuard feature.

Note: The Auto correction feature uses SG readings to determine bolus insulin doses. Auto correction boluses are delivered without user acknowledgment. The accuracy of SG readings can be lower than the accuracy of BG readings, which are checked with a BG meter. If a BG reading is not provided when delivering a bolus in the SmartGuard feature then an SG reading will be used.

The SmartGuard feature is designed to maximize the amount of time that glucose levels stay in the range of 70 mg/dL to 180 mg/dL. The following table describes features that the system uses to maximize time in range.

Feature name	Description
SmartGuard target: 100 mg/dL, 110 mg/dL, or 120 mg/dL	Consult a healthcare provider to determine which SmartGuard target to use to maximize time in range. The default setting is 100 mg/dL.
Auto Basal	When using the SmartGuard feature, basal insulin is automatically delivered based on SG readings and recent insulin delivery needs.
Target for Auto correction bolus based on SG: 120 mg/dL	The MiniMed 780G system may deliver a bolus automatically, as frequently as every five minutes, if the SmartGuard feature determines that a correction bolus is necessary. The default setting for Auto correction is set to On.
Temp Target: 150 mg/dL	A temp target can be set for events such as exercise or other times when less insulin is needed. If a temp target is used for exercise, consider starting it one to two hours before beginning the exercise. Auto correction boluses are not delivered while a temp target is active.



Note: When using the SmartGuard feature, meal boluses are still required.

The SmartGuard feature requires accurate sensor measurements and carb information to deliver insulin for meals. This insulin therapy requires the use of the Bolus feature to deliver boluses to cover meals.

Auto Basal

When the SmartGuard feature is active, the basal insulin dose is calculated using SG values from the sensor. The automatic delivery of insulin is called Auto Basal.

Auto Correction

The pump may deliver a bolus automatically when the SmartGuard feature determines it is needed for correction, to maximize the time in range, between 70 mg/dL and 180 mg/dL. Because this is an automated bolus, no action is required. The Home screen shows when an Auto Correction bolus occurs.

Giving a bolus when the SmartGuard feature is active

A meal bolus can be delivered while using the SmartGuard feature. For more information, see *Delivering a bolus in the SmartGuard feature, on page 136*.

Preparing to set up the SmartGuard feature

The SmartGuard feature requires a 48-hour warm-up period before activation. This warm-up period begins at midnight after the pump starts delivering insulin and it does not require sensor use. During the warm-up period, the pump collects and processes data for use by the SmartGuard feature.

To prepare the pump for the SmartGuard feature:

1. Cancel any active Temp Basal rates. See *Canceling a temp basal or preset temp basal, on page 186*.
2. Confirm that insulin delivery is not suspended. See *Suspending all insulin delivery and resuming basal insulin delivery, on page 52*.
3. Set the carb ratio. See *Changing the carb ratio, on page 194*.
4. Review the high and low limit settings. High and low limit settings apply when in Manual mode and when using the SmartGuard feature. See *SG alert settings, on page 98* for details.
5. Enter a new BG reading.



WARNING: Do not use the SmartGuard feature if the pump has been used in the last three days to practice button pressing, or if insulin that was programmed into the pump was not the user's actual insulin delivery. Doing so may result in the delivery of too little or too much insulin, which can cause hyperglycemia or hypoglycemia. The SmartGuard feature uses the recent delivery history on the pump to determine the Auto Basal delivery amount. After pump training, the active insulin and the total daily doses must be cleared from the pump before using the SmartGuard feature. Use the Clear Active Insulin option in the Manage Settings menu to clear both active insulin and the total daily dose.

Consider the following when SG values are used to make treatment decisions in the SmartGuard feature.

- If a BG required alert occurs, enter a BG meter reading.
- Do not enter an SG reading when the system requests a BG reading.
- Bolus amount cannot be adjusted when delivering a bolus in the SmartGuard feature. If SG readings do not match with symptoms, enter a BG value from a BG meter reading.

Setting up the SmartGuard feature

The SmartGuard feature requires 48-hours of insulin delivery before the feature can be used. This warm up period begins at the first midnight after delivery has started. For more information, see *Preparing to set up the SmartGuard feature, on page 129*.

To set up the SmartGuard feature:

1. From the Home screen, press ◎, and then select ⛉.
2. Select **SmartGuard** to turn the feature on or off.



Note: Certain additional requirements must be met before the SmartGuard feature activates. For more information, see *SmartGuard Checklist, on page 131*.

3. Select **SmartGuard Settings** and enter the following information:
   - Select the SmartGuard target: 100 mg/dL, 110 mg/dL, or 120 mg/dL.
   - Confirm that **Auto Correction** is on to activate automatic correction boluses.



Note: The Auto correction feature is turned on by default. When this setting is on, the pump automatically delivers correction boluses to help correct a high SG reading. For information, see *Delivering a bolus in the SmartGuard feature, on page 136*.

4. Select **Save**.

Conditions to activate the SmartGuard feature

If the pump is turned off for more than two weeks and is turned back on, the pump requires 48 hours before the SmartGuard feature activates.

If the pump has been off for two weeks or less and is turned back on, a five-hour warm-up period is required before the SmartGuard feature activates.

If the SmartGuard feature is on but inactive, the SmartGuard Checklist screen indicates the requirements needed to activate the SmartGuard feature. See *SmartGuard Checklist, on page 131*.

The system requires five hours for the SmartGuard active insulin amount to update. This update time begins under the following conditions:

- The pump is turned on for the first time.
- A complete pump reset caused by a loss of power or a software error.
- When the insulin is resumed after being manually suspended for four hours or longer.

SmartGuard active insulin information is valid until one of the conditions listed above occurs, which restarts the five-hour update time. The SmartGuard feature is unavailable during this time.

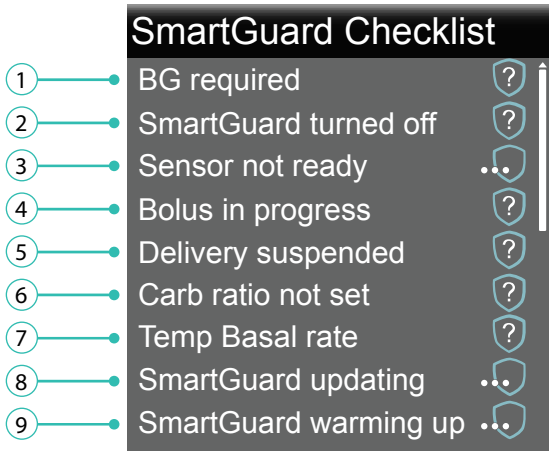
Suspend before low and Suspend on low features while using the SmartGuard feature

When the SmartGuard feature is active, the Suspend before low and the Suspend on low features are unavailable and automatically turn off. If the SmartGuard feature becomes inactive, the Suspend before low and the Suspend on low features return to the state they were in before using the SmartGuard feature. For information about turning on the Suspend before low or the Suspend on low feature, see *Low SG settings, on page 100*.

SmartGuard Checklist

The SmartGuard Checklist screen indicates the requirements necessary to start or continue using the SmartGuard feature. For more information, see *Staying in the SmartGuard feature, on page 142*.

The following table shows what to do when the wait icon or the question icon appear by items on the SmartGuard Checklist screen.



Line	Item	Instructions
1	Calibration required	Enter a new BG meter reading.
	BG required	Enter a new BG meter reading.
	Wait to calibrate	The system requires a BG reading and will ask when it is ready.
2	SmartGuard turned off	Turn on the SmartGuard feature.

Line	Item	Instructions
3	Sensor not ready	• Confirm that the pump has a transmitter ID entered in Paired Devices > Sensor. Example: GT6133333M Make sure the pump is paired with a transmitter. For more information, see *Pairing the pump and transmitter, on page 90*. • Check the Home screen. If  displays, move the pump and transmitter closer together. If after 30 minutes the pump and transmitter are still not communicating, a Lost sensor signal alert appears. Check that the sensor is still inserted in the skin and the transmitter and sensor are still connected. Move the pump closer to the transmitter. • If SG is outside of the 50 to 400 mg/dL range, the SmartGuard feature is unavailable.
	Sensor off	Turn on the sensor feature in Settings > Device Settings.
4	Bolus in progress	Wait until the bolus is complete or stop the bolus before the SmartGuard feature can be used.
5	Delivery suspended	If insulin delivery is suspended, the SmartGuard feature cannot be used. Treat low BG as instructed by a healthcare professional.
6	Carb ratio not set	Enter a carb ratio in the Bolus Wizard feature or in the Bolus Wizard Setup screen.
7	Temp Basal rate	Stop the temp basal rate delivery before the SmartGuard feature can be used or wait until the temp basal rate delivery is complete.

Line	Item	Instructions
8	SmartGuard updating ...	If SmartGuard active insulin is updating, it will take up to five hours to complete. Wait for the update time to end before the SmartGuard feature can activate.
9	SmartGuard warming up ...	Wait for the SmartGuard feature to gather insulin delivery history and determine the basal rate.

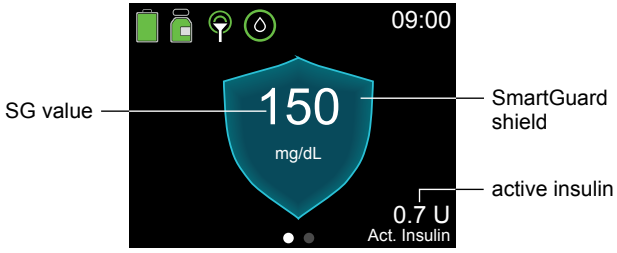
To view the SmartGuard Checklist:

1. From the Home screen, press ◎, and then select ⛉.
2. Select **SmartGuard Checklist**.

Home screen with the SmartGuard feature

When the pump is using the SmartGuard feature, the Home screen displays a shield with the current SG level.

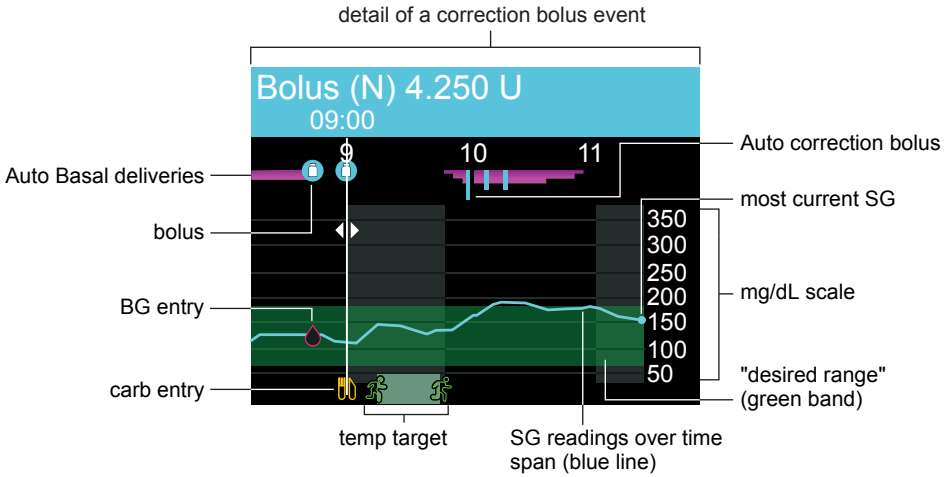
Note: When the SmartGuard feature first activates, the value in the shield shows the entered BG reading until the first SG reading is received from the sensor.



Using the SmartGuard feature

The sensor graph with the SmartGuard feature

The sensor graph with the SmartGuard feature shows historical SG readings provided by the sensor.



The SmartGuard feature sensor graph includes the following information:

- When a location on the graph is selected, specific details of the SG or event appear, such as a correction bolus.
- Historical SG readings are displayed for the last 3-hour, 6-hour, 12-hour, or 24-hour periods. They appear as a blue line across the screen.
- Boluses are shown as white vials inside blue circles.
- Carb entries are shown as yellow knife and fork symbols. These represent any bolus amounts that include a carb entry.
- BG entries appear as red drop symbols.
- Magenta bands across the top represent Auto Basal deliveries provided by the SmartGuard feature.
- Blue vertical bars at the top represent Auto correction boluses delivered by the SmartGuard feature.
- A time change event appears as a white clock symbol.
- Temp target is shown as green runners.

To view the sensor graph:

1. From the Home screen, press the ❖ button to display the SG graph.

   A full-screen view of the 3-hour graph appears.

2. Press ^ to navigate to the 6-hour, 12-hour, and 24-hour graphs.

3. Press < to view SG readings and event details.
4. To exit the sensor graph, press ↩ or press the ❖ button again.

Entering a BG value in the SmartGuard feature

The pump may require a BG value to continue using the SmartGuard feature.

There are two ways to enter a BG value when using the SmartGuard feature. Manually enter a BG value or enter a BG value using the compatible Accu-Chek Guide Link meter. For more information on manually entering a BG, see *Entering a BG value, on page 55*.

Delivering a bolus in the SmartGuard feature

A current BG or SG reading is used to determine the bolus amount. A carb amount can be entered for a food bolus.



WARNING: Do not use the SmartGuard feature for a period of time after giving a manual injection of insulin by syringe or pen. Manual injections are not accounted for when the SmartGuard feature is on. Using the SmartGuard feature after a manual injection may result in over-delivery of insulin. Too much insulin may cause hypoglycemia. Consult a healthcare professional for how long to wait after a manual injection before resuming the SmartGuard feature.

If the BG or SG is under 120 mg/dL, or if the bolus is zero after the pump accounts for active insulin, or if the SmartGuard feature estimates current basal delivery is sufficient, no correction is recommended.

A paired Accu-Chek Guide Link meter sends BG readings directly to the pump. Confirm the BG reading for use in the SmartGuard feature. If an Accu-Chek Guide Link meter is not used, the BG value must be manually entered on the BG screen.



Note: Do not use a BG meter reading for use in the SmartGuard feature if more than 12 minutes have passed since the last BG meter reading was taken. That BG meter reading and the corresponding bolus amount may no longer be accurate.

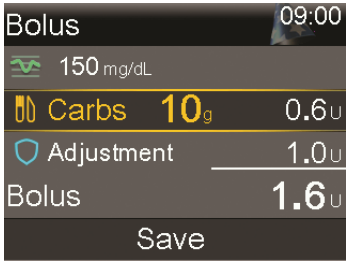
WARNING: SG readings are used to calculate meal boluses or correction boluses when delivering a bolus in the SmartGuard feature. Sensor glucose is not the same as blood glucose. Sensor performance may occasionally vary from sensor to sensor and in different situations for a sensor, such as on the first day of use.

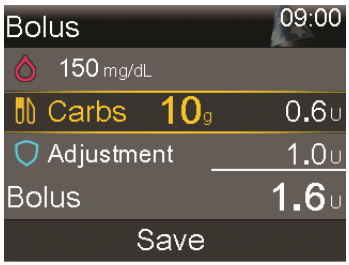
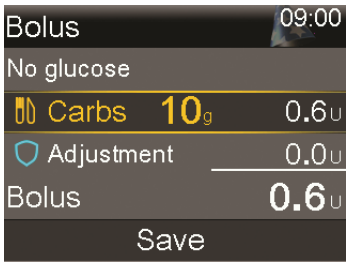
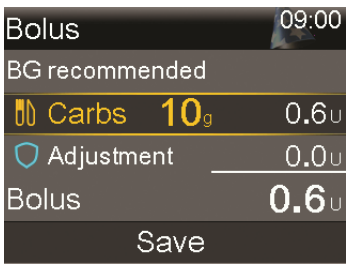
When SG readings are used for meal boluses and for correction boluses, there is a risk of both hypoglycemia and hyperglycemia. If an SG reading is much lower than a BG reading would be at that time, there is a risk of hyperglycemia, because the amount of insulin delivered could be smaller. If an SG reading is much higher than a BG and there are symptoms of feeling low, but the SG reading is not low, and if there are symptoms of a severe hypoglycemic event, a severe hyperglycemic event, or diabetic ketoacidosis, a BG meter reading is needed.

This can also occur when SG readings are used when the Auto correction feature is turned on. For example, when an SG reading is much higher than a BG reading at that time, there is a risk of hypoglycemia, because the amount of insulin delivered could be larger.

If there are symptoms of feeling low, but the SG reading is not low, and if there are symptoms of a severe hyperglycemic event or diabetic ketoacidosis, a BG meter reading is needed.

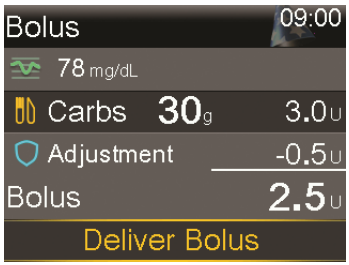
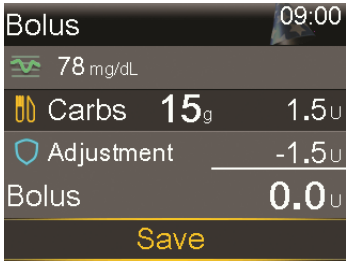
The following table describes how glucose readings are shown on the pump.

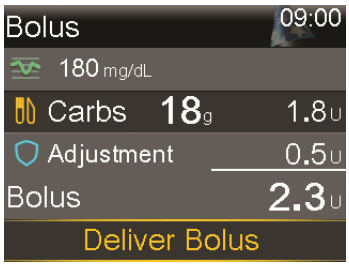
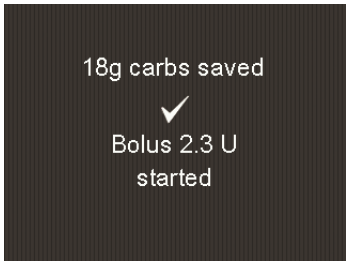
Bolus screen	Glucose reading information
	The icon indicates there is no recent BG value available, but an SG value is available.

Bolus screen	Glucose reading information
	A BG value is available to calculate a correction bolus. The correction bolus is included in the **Adjustment**.
	There are no BG or SG values available.
	The BG recommended message indicates that neither a BG nor an SG reading is available to calculate a correction bolus. **Note:** If SG shows on the Home screen, but does not show on the Bolus screen, the system determined that the SG value is not optimal to use to calculate a correction bolus. Enter a BG if a correction bolus is desired.

Bolus adjustments in the SmartGuard feature

The SmartGuard feature calculates a bolus based on the current BG or SG reading and carbs, and may make an additional adjustment to the bolus.

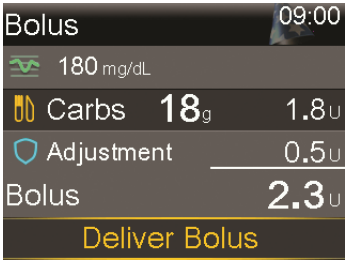
Bolus adjustment	Example screens
The bolus amount is adjusted down if the SmartGuard feature predicts a risk of hypoglycemia after the meal. Carbs are saved for use in future bolus adjustment calculations.	 
If the bolus amount is adjusted down to 0.0 for the bolus, no bolus is delivered. Carbs are saved for use in future bolus adjustment calculations.	 

Bolus adjustment	Example screens
The bolus amount is adjusted up if a correction bolus is calculated based on high glucose and low active insulin. Carbs are saved for use in future bolus adjustment calculations.	 

To deliver a bolus with the SmartGuard feature:

1. From the Home screen, press ◎, and then select .
2. Select **Bolus**.
3. Enter a carb amount, if desired.

   The screen indicates the amount of the calculated bolus.



4. Select **Deliver Bolus**.

   A screen appears briefly to indicate the bolus delivery has started. The Home screen appears and shows the progress of the bolus delivery.



Note: To stop a bolus, press ◎ from the Home screen, select , and then select **Stop Bolus**.

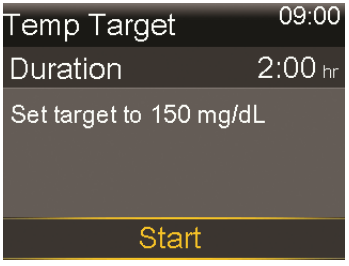
Setting a temp target

A temporary target (temp target) of 150 mg/dL can be set for events such as exercise or other times when less insulin is needed. Consult a healthcare professional before using a temp target.

Note: The Auto correction feature is inactive during an active temp target. It resumes after the temp target completes.

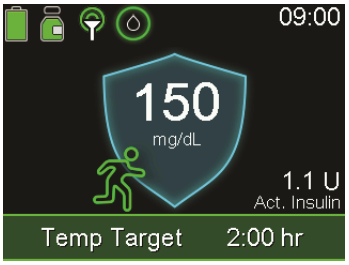
To set a temp target:

1. From the Home screen, press ◎, and then select .
2. Select **Temp Target** to turn the feature on or off.



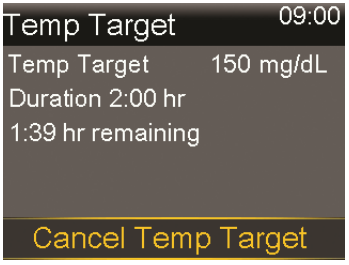
3. Set the duration, from 30 minutes to 24 hours, in 30-minute increments.
4. Select **Start**.

   The screen shows a Temp Target Started message, and then changes to the Home screen, where a banner shows the remaining temp target time.



To cancel a temp target:

1. From the Home screen, press ◎, and then select ⛉.

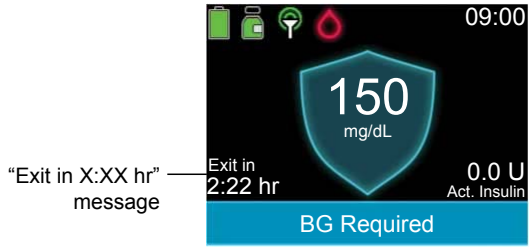


2. Select **Cancel Temp Target**.

Staying in the SmartGuard feature

When the pump requires an action to stay in the SmartGuard feature, it delivers insulin at a fixed basal rate for up to a maximum of four hours.

The message "Exit in X:XX hr" appears on the Home screen, showing the time remaining before the pump enters Manual mode. The basal rate delivered during this time is based on insulin delivery history and represents a delivery rate that minimizes the risk of hypoglycemia in situations when SG values are temporarily unavailable. The pump provides a notification of any required actions.



The pump resumes using SG readings for basal insulin delivery when certain conditions are met. The following table describes these conditions and the notification and required action to resume using SG readings for basal insulin delivery.

Condition	Notification and action
The SmartGuard feature has reached the time limit for minimum delivery. The minimum delivery time is three to six hours, depending on the reason.	A SmartGuard min delivery alert appears. Enter a BG.
The SmartGuard feature has been delivering basal insulin at its maximum limit for seven hours.	A SmartGuard max delivery alert appears. Check the SmartGuard Checklist to determine the required steps. Enter a BG.
SG readings may be lower than actual glucose values.	A BG required alert appears. Enter a BG.
No SG data has been received for more than five minutes.	• If SG data is not available, three dashes appear on the screen in place of the SG data. If the loss of SG data is intermittent, no action is required. • If an action is required, an alert appears such as a Lost sensor signal alert or the Enter BG now alert. Follow the instructions on the screen.



Note: To stay in the SmartGuard feature when changing the sensor, be sure the sensor warmup completes within four hours of the last available SG reading.

Exiting the SmartGuard feature

The SmartGuard feature may stop functioning under the following conditions:

- The SmartGuard feature is turned off.
- The pump is delivering basal insulin based on insulin delivery history, and not SG readings, for four hours. See *Staying in the SmartGuard feature, on page 142*.

- All insulin delivery has been manually suspended and has not resumed for four hours.
- The sensor feature is turned off or the transmitter is disconnected.

The SmartGuard feature can be turned off at any time. For more information, see *Setting up the SmartGuard feature, on page 130*.

Returning to the SmartGuard feature after an exit

The pump indicates any required actions on the Home screen, after an exit from the SmartGuard feature. In the example below, a BG entry is needed. Once the BG is entered, the pump resumes using the SmartGuard feature.



While in Manual mode, resume using the SmartGuard feature by meeting all requirements in the SmartGuard Checklist. For more information, see *SmartGuard Checklist, on page 131*.

The SmartGuard feature can be resumed under the following conditions:

- The SmartGuard feature is turned on.
- The sensor is providing SG readings.
- A bolus is not in progress.
- A temp basal rate is not in progress.
- The 48-hour warm-up is complete.
- The SmartGuard feature is not in a five-hour warm-up period.
- A new BG reading is entered.

If any of these conditions are not met, the SmartGuard feature cannot restart.

Using Block mode with the SmartGuard feature

Block mode lets caregivers lock the pump to restrict access to critical pump features. While the pump is locked, Auto Basal delivery is active, and Auto correction boluses can occur if the feature is turned on. BG readings received from the Accu-Chek Guide Link meter can be confirmed. For more information on Block mode, see *Block mode, on page 150*.

Alert silence feature

The Alert silence feature silences SG alerts for a set period of time. For more information, see *Silencing sensor alerts, on page 122*.

8

General settings

8 General settings

This chapter provides information about common tasks for various settings.

Time and date

Confirm that the time and date are always set correctly on the MiniMed 780G insulin pump. Incorrect time and date settings can affect basal insulin delivery and the accuracy of pump history. Change the time or the date to match the time zone or daylight saving time. After the time and date are changed, the pump adjusts all settings automatically.

To change the time and the date:

1. From the Home screen, press ◎, and then select ⚙.
2. Select **Device Settings** > **Time & Date**.
3. Select and change the **Time**, **Time Format**, or **Date** as necessary.
4. Select **Save**.

Display options

The brightness of the pump screen can be controlled from the Display Options screen. The duration the backlight is on can also be adjusted.

To adjust the display options:

1. From the Home screen, press ◎, and then select ⚙.
2. Select **Device Settings** > **Display**.

3. Select **Brightness** to adjust the brightness of the screen. A level from 1 to 5 can be set, or select **Auto** for the screen to automatically adjust to the current environment.
4. Select **Backlight** to adjust the timeout for the backlight on the pump screen. Select 15 seconds, 30 seconds, 1 minute, or 3 minutes.
5. Select **Save**.



Note: The brightness and backlight can affect the life of the battery. Use a lower brightness level setting, and set the backlight timeout to 15 or 30 seconds to help the battery last longer.

Block mode

Block mode lets caregivers lock the pump to restrict access to critical pump features. While the pump is in Block mode, the pump automatically locks two minutes after the screen goes dark from inactivity.



WARNING: Always monitor the pump while it is locked. The pump can still be manually suspended while locked using the shortcut to the Status menu, which could result in hyperglycemia and ketoacidosis.

The following are examples of functions that are blocked while the pump is locked:

- Deliver a bolus
- Start a new basal pattern
- Start a new temp basal delivery
- Change settings

The following are examples of important functions that remain available while the pump is locked:

- Previous bolus and basal deliveries continue normally
- Stop a bolus delivery using the shortcut to the Status menu
- Suspend and resume insulin delivery using the shortcut to the Status menu
- Receive SG and BG readings

- Clear alarms and alerts

To turn Block mode on or off:

1. From the Home screen, press ◎, and then select ⚙.
2. Select **Device Settings** > **Block Mode**.
3. Select **Block Mode** to turn the feature on or off.
4. Select **Save**.

   The pump is in Block mode, but it is not yet locked.

To lock the pump:

1. Press and hold ❖ to manually enter Sleep mode.

   The pump locks when it goes to sleep. While the pump is locked, 🔒 appears on the Home screen.

To unlock the pump:

1. Press any button to wake up the pump.
2. Press ◎.

   The Screen locked message appears.
3. Press and hold ❖.

Note: When the pump goes to sleep it will lock again.

Self Test

The **Self Test** option can be used for maintenance or to confirm the pump is operating properly. Self test is additional to the routine tests that run independently while the pump operates.

Note: Insulin delivery is suspended for up to two minutes while the pump runs a self test.

The **Self Test** option includes the following tests. Observe the pump during these tests.

Test	Description
Display	The display turns on for up to 45 seconds.
Notification light	The notification light turns on for three seconds, and then it turns off.
Vibration	Two vibration tones are generated.
Tone	An alert tone, an Easy bolus step tone, and an alarm tone are generated.

To run the self test:

1. From the Home screen, press ◎, and then select ⚙.
2. Select **Device Settings** > **Self Test**.

   A message confirms self test is in progress.

   Self test takes up to two minutes to complete. During that time, the display briefly turns white, the notification light blinks, the pump vibrates and then beeps.

   If self test does not detect a problem, the Device Settings screen appears. If a problem is detected, a message appears with more information.

   If an error message appears or the pump does not perform as indicated during the test, contact a local Medtronic support representative.

Manage Settings

The Manage Settings screen includes the following options:

- **Save Settings**
- **Restore Settings**
- **Clear All Settings**
- **Clear Active Insulin**
- **Settings History**

For information on how to use these options, see the procedures in this section.

Saving the settings

The Save Settings option saves a record of the settings to restore the settings at a later date, if necessary.

To save the current settings:

1. From the Home screen, press ◎, and then select ⚙.
2. Select **Device Settings** > **Manage Settings**.
3. Simultaneously press and hold ❯ and ↩ until the Manage Settings screen appears.
4. Select **Save Settings**.

   If these are the first settings saved, a message confirms that the settings are saved.

   If the settings have been saved previously, a screen asks to replace the previous settings with the current settings. Select **Yes** to accept. Select **No** to cancel.

Restoring the settings

The **Restore Settings** option replaces the current pump settings with the last settings that were saved. The **Restore Settings** option is available only if settings were previously saved.

To restore the previous settings:

1. From the Home screen, press ◎, and then select ⚙.
2. Select **Device Settings** > **Manage Settings**.
3. Simultaneously press and hold ❯ and ↩ until the Manage Settings screen appears.
4. Select **Restore Settings**.

   A screen asks to confirm.
5. Select **Yes** to accept. Select **No** to cancel.

Clearing the settings

The **Clear All Settings** option erases the current settings and returns them to the factory defaults. After the settings are cleared, the Startup Wizard appears so pump settings can be re-entered. The settings must be entered to continue using the pump.

The Clear All Settings option does not delete paired devices, such as the transmitter or meter.



CAUTION: Do not clear the pump settings unless directed by a healthcare professional. If pump settings are cleared they must be re-programed as directed by a healthcare professional.

To clear all settings:

1. Disconnect the pump from the body.
2. From the Home screen, press ◎, and then select ⚙.
3. Select **Device Settings** > **Manage Settings**.
4. Simultaneously press and hold › and ↩ until the Manage Settings screen appears.
5. Select **Clear All Settings**.

   A screen asks to confirm.
6. Select **Yes** to continue. Select **No** to cancel.

   After the settings are cleared, the Startup Wizard appears. For more details on entering the startup settings, see *Startup settings, on page 31*.

Clearing the active insulin

Use the **Clear Active Insulin** option to use the pump with insulin for the first time. This option clears the TDD and any active insulin values that the pump has tracked.

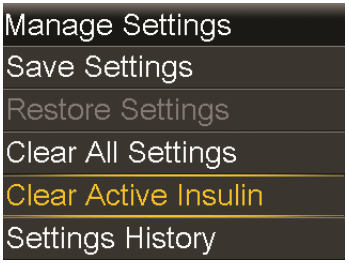
After the existing insulin values are cleared, it sets the active insulin value to zero. If bolus delivery was practiced with the pump prior to using the pump with insulin, the active insulin must be cleared. Clearing active insulin confirms that the Bolus Wizard feature has an accurate active insulin amount for bolus calculations.

Active insulin can be cleared only once. After the active insulin is cleared, this option is no longer available.

To clear the active insulin:

1. From the Home screen, press ◎, and then select ⚙.
2. Select **Device Settings** > **Manage Settings**.
3. Simultaneously press and hold ❯ and ↩ until the Manage Settings screen appears.

   The Manage Settings screen appears. If the active insulin has never been cleared, the **Clear Active Insulin** option appears.



> **Note:** If the **Clear Active Insulin** option does not appear on the Manage Settings screen, the active insulin has already been cleared.

4. Select **Clear Active Insulin**.

   A screen asks to confirm.
5. To clear the active insulin, select **Clear**. If the active insulin should not be cleared, select **Cancel**.

   A message confirms that the active insulin is cleared.

Viewing the pump setting history

The **Settings History** option shows a history of activities performed through the Manage Settings screen, such as when pump settings were saved, restored, or cleared.

To view the pump setting history:

1. From the Home screen, press ◎, and then select ⚙.

2. Select **Device Settings** > **Manage Settings**.
3. Simultaneously press and hold ❯ and ↩ until the Manage Settings screen appears.
4. Select **Settings History**.

Auto suspend

Auto suspend is a safety feature that stops all insulin delivery and sounds an alarm if a button is not pressed within a specified period of time. Consult a healthcare professional about how to best use this feature.

Auto suspend continues to work if the SmartGuard feature is active.

To set up auto suspend:

1. From the Home screen, press ◎, and then select ⚙
2. Select **Device Settings** > **Auto Suspend**.
3. Select **Alarm**.
4. Select **Time** and enter the number of hours.
5. Select **Save**.

Language

The language that the pump uses to show information can be updated after the startup.

To change the language:

1. From the Home screen, press ◎, and then select ⚙.

   A checkmark indicates which language is active.
2. Select **Device Settings** > **Language**.
3. Select a language.

   A screen asks to confirm.
4. Select **Yes** to accept. Select **No** to cancel.

9

History and graph

9 History and graph

This chapter provides information about how to read historical data in the MiniMed 780G system.

Introduction

The History screens provide details about personal therapy history in the MiniMed 780G insulin pump. The SG Review and Graph screens are available if the sensor feature is turned on. The Time in Range screen shows the percent of time glucose levels are between 70 mg/dL and 180 mg/dL.

History & Graph menu

The History & Graph menu provides information about insulin delivery, blood glucose (BG) meter readings, sensor glucose (SG) readings, and any alarms and alerts received.

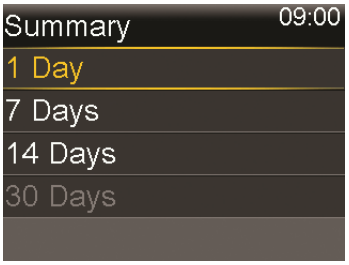
History

Summary screen

The Summary screen displays information about past insulin deliveries, SG readings, and meter readings. Historical details can be viewed for a single day or for multiple days.

To view the Summary screen:

1. From the Home screen, press ◎, and then select .
2. Select **History** > **Summary**.



3. Select the desired time period for the Summary screen.

   The Summary screen appears and displays information for the number of days selected.



4. Scroll down to view the entire screen. In the **1 Day** view, use the < and > buttons on the pump to view the history of a specific day.

Understanding the Summary screen

The Summary screen separates information into the following categories:

- Time in range information
- Insulin delivery overview
- Bolus Wizard
- Bolus in the SmartGuard feature
- BG
- Sensor
- Low management mode

Summary screen: Time in SmartGuard and Time in range information

The following table describes the Time in SmartGuard, Time in Target Range, Time below range, and Time above range portions of the Summary screen.

Name	Description
Time in SmartGuard	number of hours / percent of time in the SmartGuard feature

Name	Description
Time in Target Range	number of hours / percent of time in target range (70 mg/dL to 180 mg/dL)
Time below range	number of hours / percent of time below target range (below 70 mg/dL)
Time above range	number of hours / percent of time above target range (above 180 mg/dL)

Summary screen: insulin delivery overview

If **1 Day** view is selected, the values are shown for that day. If multiple days are selected, the values shown are an average of the values for the selected number of days.

Name	Description
TDD	Total daily dose of insulin units.
Basal	• Insulin units devoted to basal delivery. • Percentage of insulin devoted to basal delivery.
Bolus	• Insulin units devoted to bolus delivery. • Percentage of insulin devoted to bolus delivery.
Total Carbs	Daily carbohydrate amount, in grams.

Summary screen: Bolus Wizard

If **1 Day** view is selected, the values are shown for that day. If multiple days are selected, the values shown are an average of the values for the selected number of days.

Name	Description
Carb entry	• Total insulin units delivered using the Bolus Wizard feature with food amount or with food and glucose correction. • Number of times the Bolus Wizard feature delivered a food bolus or a food plus correction bolus.

Name	Description
Glucose correction only	• Total insulin units delivered using the Bolus Wizard feature or a bolus with BG correction amount only. • Number of times the Bolus Wizard feature delivered a correction bolus.

Summary screen: SmartGuard

If 1 Day view is selected, the values are shown for that day. If multiple days are selected, the values shown are an average of the values for the selected number of days.

Name	Description
Auto Correction	Total insulin units delivered by the Auto correction feature.
Bolus	• Total insulin units delivered using the Bolus Wizard feature in the SmartGuard feature with a food amount. • Number of times the Bolus Wizard feature in the SmartGuard feature delivered a food bolus.

Summary screen: BG

The pump is only compatible with the Accu-Chek Guide Link meter.

Name	Description
BG	Total number of BG meter readings, including readings from an Accu-Chek Guide Link meter and BG meter readings entered manually.
Average BG	Average BG meter readings.
BG Std. Dev.	Standard deviation of BG meter readings.
Low BG	Lowest BG meter reading.
High BG	Highest BG meter reading.

Summary screen: sensor

The sensor portion appears if a sensor has been used at least once.

Name	Description
SG Average	Average SG reading.

Name	Description
SG Std. Dev.	Standard deviation of the SG readings.

Summary screen: low management mode

For information about the Suspend before low and Suspend on low features, see *Low SG settings, on page 100*.

Name	Description
Suspend before low	The average number of Suspend before low events per day.
Suspend on low	The average number of Suspend on low events per day.
Time suspended by sensor	The average duration (amount of time) suspended as a result of Suspend before low or Suspend on low events per day.

Daily History screen

Actions performed on the pump can be viewed on the Daily History screen for the selected day. The list shown on the screen provides further details and shows the most recent action first.



To view the Daily History screen:

1. From the Home screen, press ◎, and then select .
2. Select **History** > **Daily History**.

   A list of dates appears.
3. Select a specific date. A list appears with any pump actions or events entered on the specified day.
4. Select any item in the list to open the Detail screen and view more information about the selected action or event.

Alarm History screen

Select a specific day to view the history of alarms and alerts that occurred on the selected day. The list provides further details and shows the most recent alarm or alert first.

To view the Alarm History screen:

1. From the Home screen, press ◎, and then select .
2. Select **History** > **Alarm History**.

   A list of dates appears.
3. Select a specific date. A list appears showing any alarms or alerts that occurred on the specified day.
4. Select any alarm or alert in the list to open the Detail screen and view more information about the selected alarm or alert.

SG Review screen

Pair the pump with a sensor to view a graph of SG history based on high and low limits entered. Information can be viewed for one day or refer to an average of SG data over multiple days.

High and low limits set in the SG Review screen are only used to view SG data. These limits are not the same as the high and low glucose limits used for SG alerts. Changing the limits in the SG Review screen will not affect the high and low glucose limits used for the SG alerts.

To review the SG history:

1. From the Home screen, press ◎, and then select .
2. Select **Sensor Glucose Review**.

   The SG Review screen appears. The high and low limits that appear are either the values entered for the last SG Review, or the default values of 180 mg/dL for the high limit and 70 mg/dL for the low limit.

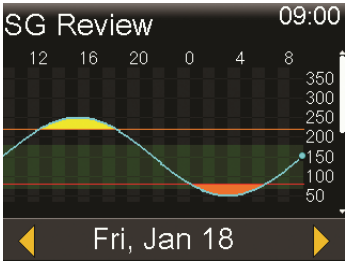


3. Enter the High Limit and Low Limit for the SG data review.

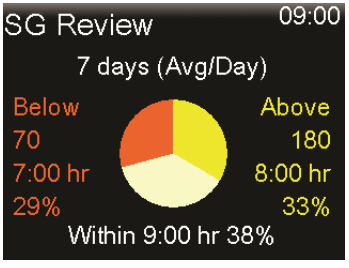
   There must be a minimum of 20 mg/dL difference between the High Limit and the Low Limit.

4. Enter the number of days of SG history to average, and select **Next**.

   If only one day is entered, the graph shows details about when the SG was above, below, or within the specified limits. Use the arrow keys to see the data for specific dates. Press ⌄ to see information about the time that SG was above, within, or below range. A message appears and states there is no data available if no data was saved.

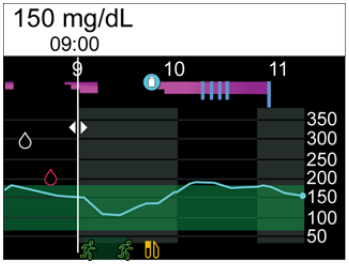


   If multiple days are entered, the pie chart shows the average percentage of time that the SG was above, below, or within the specific limits over an average of multiple days. Scroll down to view a graph of the SG data. A message appears and states there is no data available if no data was saved.



Graph screen

The graph shows information about the SG readings and trends, BG entries, auto correction bolus deliveries, and bolus entries. The below screen is an example of the graph screen using the SmartGuard feature.



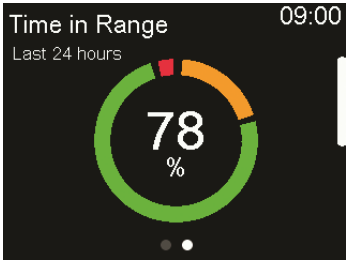
To view the Graph screen:

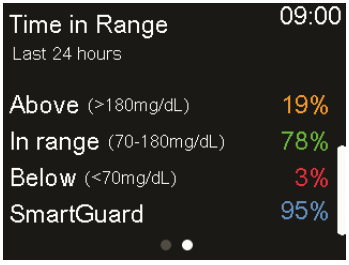
1. Press ❖, or select **Graph** on the History & Graph screen.

Time in Range screen

Time in range is the percentage of time SG is between 70 mg/dL and 180 mg/dL. These values cannot be changed. Use the Time in Range screen to see how much time is spent below, above, and within range in the last 24 hours.

When using CGM, the following information can be viewed:





To view the Time in Range screen:

1. From the Home screen, press ◎, and then select .
2. Select **Time in Range**.

10

Notifications and reminders

10 Notifications and reminders

This chapter describes how to use reminders. It also covers the general behavior of the most common and the most serious notifications and how to resolve them.

Notifications in the MiniMed Mobile app

If the MiniMed Mobile app is used, alarms, alerts, and messages can be viewed on the paired mobile device. For information about how to set the notification preferences in the app, see the MiniMed Mobile app user guide. For a table that describes the meaning, consequences, reasons, and resolutions for the most common or serious notifications, see *Pump alarms, alerts, and messages, on page 233*.



WARNING: Do not rely on the MiniMed Mobile app to view all alerts. Alerts will not appear on the MiniMed Mobile app during reservoir set up. Some alerts may only appear on the pump. In some cases, alerts could be sent to the MiniMed Mobile app after they appear on the pump. Relying on the MiniMed Mobile app for all alerts could result in an alert being missed, which may lead to hypoglycemia or hyperglycemia.

Reminders

There are several specific reminders that prompt a specific action. Personal reminders can be used for any purpose.

Personal reminders

Up to six personal reminders can be set, along with the specific reminders for BG meter readings and medication.

To create a new Personal reminder:

1. From the Home screen, press ◎, and then select ⚙.
2. Select **Alert Settings** > **Reminders** > **Personal**.
3. Select **Add New**.

   The Select Name screen shows the available reminders.
4. Select a reminder.

   An edit screen appears for the selected reminder.
5. Enter the time the reminder should occur.
6. Select **Save**.

   The Personal reminder occurs at the specified time each day unless it is edited or deleted.

To edit, rename, or delete an existing Personal reminder:

1. From the Home screen, press ◎, and then select ⚙.
2. Select **Alert Settings** > **Reminders** > **Personal**.
3. Select a reminder.
4. Do any of the following:
   - Select **Reminder** to turn the reminder on or off.
   - Select **Edit** to change the time of the reminder.
   - Select **Rename** to assign a different name to the reminder. When the Select Name screen appears, select any available name from the list.
   - Select **Delete** to delete the reminder.

Bolus BG Check reminder

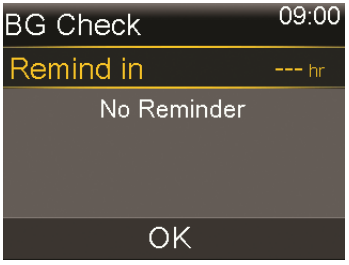
The Bolus BG Check reminder notifies when BG needs to be checked after a bolus delivery. After a bolus is started, the BG Check screen appears and the timer must be set for the reminder. The timer counts down from the time the bolus was started.

To turn on or turn off Bolus BG Check reminders:

1. From the Home screen, press ◎, and then select ⚙.
2. Select **Alert Settings** > **Reminders** > **Bolus BG Check**.
3. To turn the reminder on or off, select **Reminder**.
4. Select **Save**.

To use a Bolus BG Check reminder if a bolus is being delivered:

1. If the Bolus BG Check reminder is on, the BG Check screen appears each time a bolus is started.



2. Enter a time between 30 minutes and 5 hours and select **OK**. If no reminder is necessary after the bolus delivery, select the dashes without adding a time, and select **OK**.

Missed Meal Bolus reminder

Missed Meal Bolus reminders can be set up around typical meal times. Up to 8 reminders can be set.

To create a new Missed Meal Bolus reminder:

1. From the Home screen, press ◎, and then select ⚙.
2. Select **Alert Settings** > **Reminders** > **Missed Meal Bolus**.
3. Select **Add New**.

4. Select **Start Time** and enter a time.
5. Select **End Time** and enter a time.
6. Select **Save**.

To turn on or off, edit, or delete existing Missed Meal Bolus reminders:

1. From the Home screen, press ◎, and then select ⚙.
2. Select **Alert Settings** > **Reminders** > **Missed Meal Bolus**.
3. Select a reminder.
4. Change any of the following:
   - Select **Reminder** to turn this reminder on or off.
   - Select **Edit** to change the time of this reminder.
   - Select **Delete** to delete this reminder.

Low Reservoir reminder

Set a Low Reservoir reminder to occur when the insulin level in the reservoir reaches a specified number of units and again when half of those units have been used.

Note: The number of units that remain in the reservoir can be found on the Pump status screen. For more information, see *Status screen, on page 40*.

WARNING: Always check the amount of insulin left in the reservoir when the Low reservoir alert occurs. Confirm that the MiniMed 780G insulin pump has sufficient insulin. The insulin level in the reservoir can reach a low level during a bolus delivery or fill cannula delivery. If this occurs, the Low reservoir alert displays. If the pump does not have sufficient insulin, under-delivery of insulin can occur, which may cause hyperglycemia.

To set up the Low Reservoir reminder:

1. From the Home screen, press ◎, and then select ⚙.

2. Select **Alert Settings** > **Reminders** > **Low Reservoir**.
3. Select **Units** to enter the number of units. Set a value from 5 to 50 units.
4. Select **Save**.

Set Change reminder

The Set Change reminder tracks the time between infusion set changes and provides a reminder to change the infusion set.

To turn on or off, or edit the Set Change reminder:

1. From the Home screen, press ◎, and then select ⚙.
2. Select **Alert Settings** > **Reminders** > **Set Change**.
3. Select **Reminder** to turn the reminder on or off.
4. Select **Time** and choose the number of days needed for the reminder.
5. Select **Save**.



WARNING: When changing the Set Change reminder, do not set a duration greater than what is indicated on the infusion set labeling. If the infusion set is labeled for three days then the reminder must only be set to two or three days.

Calibration reminder

When using a sensor, the Calibration reminder indicates when calibration is needed. For example, if the reminder is set to 4 hours, a Calibration expires message appears 4 hours before a BG meter reading is required for calibration.

This feature is not applicable when using the Guardian 4 sensor. If the Calibration reminder is turned on when using the Guardian 4 sensor, a reminder will not appear.

Alarms, alerts, and messages

The pump has a sophisticated safety network. If this safety network detects anything unusual, it communicates this information in the form of notifications. Notifications include alarms, alerts, and messages. When more than one

notification is received, and there are multiple messages to view, a small white flap appears on the notification icon in the upper-right corner of the screen . When the first notification is cleared, the next notification becomes visible. A white triangle in the lower right corner means that ∨ must be pressed to continue.

Note: The notification light flashes when the pump has an alarm or alert.

Note: Promptly address all notifications and confirmations that appear on the pump screen. The notification will remain on the pump screen until it is cleared. When responding to a message, there may be times when another message appears.

WARNING: When a Critical pump error alarm occurs, the following screen appears and the pump siren goes off:

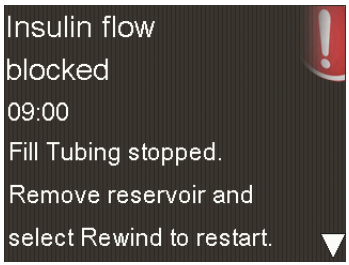


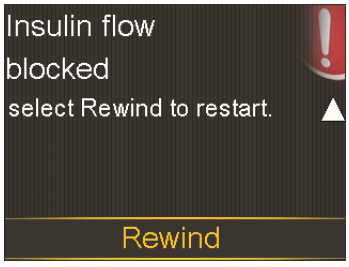
Immediately disconnect the pump and discontinue use. Contact a local Medtronic support representative.

Insulin delivery is still required when the pump is removed. Consult a healthcare professional to determine an alternate method of insulin delivery while the pump is removed.

Alarms

An alarm warns of a condition that requires immediate attention. Stopped insulin delivery and low glucose levels are the most common reasons for alarms.





WARNING: Always address alarms immediately when they occur. Ignoring an alarm can result in hyperglycemia or hypoglycemia.

When an alarm occurs:

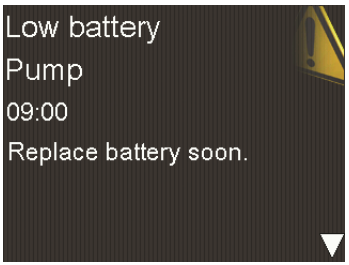
Display: The pump displays a notification with a red icon and instructions.

Notification light: The red notification light blinks twice, followed by a pause, in a continuous repeating pattern.

Audio: Depending on the sound and vibration settings, the pump emits an alarm tone, a continuous three-pulse-and-pause vibration pattern, or both the alarm tone and vibration.

The underlying problem that triggered the alarm must be resolved. In most cases, press ⌄ and then make a selection to clear the alarm. Sometimes the underlying problem is not resolved when the alarm is cleared. The alarm repeats until the underlying problem is fixed. If the alarm condition is not resolved after 10 minutes, the alarm tone escalates to a loud emergency siren.

Alerts



Alerts indicate that a situation may require attention. When an alert occurs, check the pump screen to see if any action is required.

When an alert occurs:

Display: The pump displays a notification with a yellow icon and instructions.

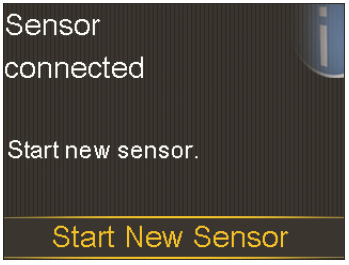
Notification light: The red notification light on the pump blinks once, followed by a pause, then blinks once again in a continuous repeating pattern.

Audio: Depending on the sound and vibration settings, the pump beeps, vibrates in a continuous three-pulse-and-pause pattern or does both.

To clear an alert, press ✓ and then make a selection. The pump beeps every 5 minutes or every 15 minutes, depending on the alert, until the alert is resolved. Some alerts will also escalate to a loud emergency siren after 10 minutes.

Note: If an alert occurs when the pump is on a screen other than the Home screen, the alert message may only appear after the pump returns to the Home screen.

Messages



A message is a notification that shows the status of the pump or displays when a decision needs to be made.

When a message occurs:

Display: The pump displays a notification with a blue icon and instructions.

Notification light: The red notification light on the pump does not blink.

Audio: Depending on the sound and vibration settings, the pump emits a tone, a one-pulse-only vibration, or it emits a tone and a one-pulse-only vibration. To clear a message, press ✓ and then make a selection.

Pump alarms, alerts, and messages

For a table that describes the meaning, consequences, reasons, and resolutions for the most common or serious notifications, see *Pump alarms, alerts, and messages, on page 233*.

11

Additional basal features

11 Additional basal features

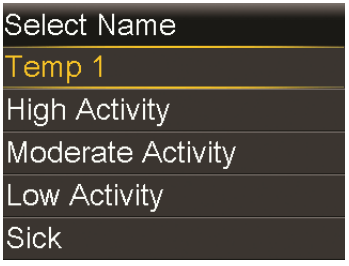
This chapter provides information about setting up additional features for basal insulin delivery.

Preset temp basal rates

Set up preset temp basal rates for reoccurring short-term situations. Up to four preset temp basal rates can be set up for specific situations. There are also four additional preset temp rates available for use in other circumstances (Temp 1 through Temp 4).

To set up a preset temp basal rate:

1. From the Home screen, press ◎, and then select ⚙.
2. Select **Delivery Settings** > **Preset Temp Setup**.
3. Select **Add New**.



4. Select a name for the preset temp basal rate.
5. Select **Type** to select Percent or Rate, and then enter the percentage or the rate in units per hour.

6. Set the **Duration** for the preset temp basal rate to be active.
7. Select **Save**.

To edit, rename, or delete a preset temp basal rate:

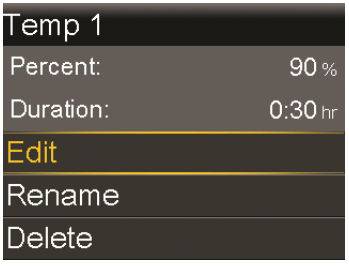
1. From the Home screen, press ◎, and then select ⚙.
2. Select **Delivery Settings** > **Preset Temp Setup**.

   The Preset Temp Setup screen appears and shows the settings for any existing preset temp basal rate.



3. Select a preset temp basal rate.

   A screen appears that shows the preset temp basal rate information.



4. Do any of the following:
   - Select **Edit** to adjust the type (Percent or Rate), the percent or rate amount, and the duration.
   - Select **Rename** to assign a different name to the preset temp basal rate. When the Select Name screen appears, select any available name from the list.
   - Select **Delete** to delete the preset temp basal rate.

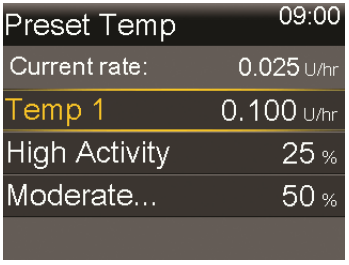
Starting a preset temp basal delivery

Follow the steps to use the preset temp basal rate for basal insulin delivery. If a preset temp basal rate has not yet been set up, see *Preset temp basal rates, on page 183*. After the preset temp basal delivery is completed or canceled, basal insulin delivery resumes using the programmed basal rate.

To start a preset temp basal delivery:

1. From the Home screen, press ◎, and then select .
2. Select **Basal** > **Preset Temp**.

   The Preset Temp screen appears and shows the preset temp basal rates set up, along with their percentage or rate amounts.



> **Note:** If a percentage preset temp basal rate is set up so that it could exceed the current Max basal limit, that rate is grayed out in the list and cannot be selected.

3. Select a preset temp basal rate to start.
4. Select **Begin**.

   The Temp Basal banner appears on the Home screen during delivery.



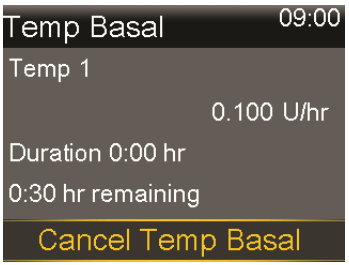
Canceling a temp basal or preset temp basal

A temp basal rate or preset temp basal rate can be canceled at any time. After it is canceled, the scheduled basal pattern automatically resumes.

To cancel a temp basal rate:

1. From the Home screen, press ◎, and then select .
2. Select **Cancel Temp Basal**.

   The Temp Basal screen appears.



3. Select **Cancel Temp Basal**.

Additional basal patterns

Adding an additional basal pattern

This procedure shows how to add a new basal pattern after at least one basal pattern has been set. If this is the first time a basal pattern is being set, see *Adding a new basal pattern, on page 49*.

The following basal patterns can be set up:

- Basal 1
- Basal 2
- Workday
- Day Off
- Sick Day

To add an additional basal pattern:

1. From the Home screen, press ◎, and then select .
2. Select **Basal** > **Basal Pattern Setup**.

The Basal Pattern Setup screen appears.

3. To add a new basal pattern, select **Add New**.

   The Select Name screen appears.

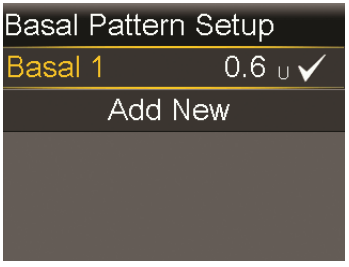
4. Select a name for the basal pattern.
5. Set the basal rate.
6. Select **Done**.
7. Select **Save**.

Editing, copying, or deleting a basal pattern

To edit, copy, or delete a basal pattern:

1. From the Home screen, press ◎, and then select ⚙.
2. Select **Delivery Settings** > **Basal Pattern Setup**.

   The Basal Pattern Setup screen appears



3. Select a basal pattern.
4. Select **Options**.
5. Do any of the following:
   - Select **Edit** to adjust the end time or rate values.
   - Select **Copy** to copy the basal rate information from the selected basal pattern to a new basal pattern. When the Select Name screen appears, select any available name from the list.
   - Select **Delete** to delete the selected basal pattern. The active basal pattern cannot be deleted.

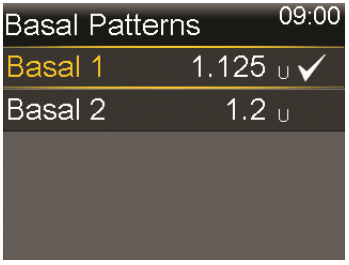
Changing from one basal pattern to another

If more than one basal pattern has been set, the basal pattern can be changed. The MiniMed 780G insulin pump delivers basal insulin according to the selected basal pattern.

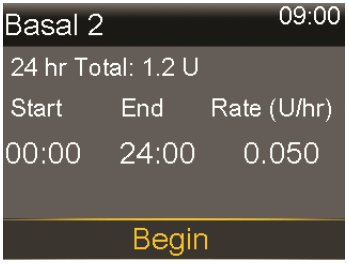
To change to a different basal pattern:

1. From the Home screen, press ◎, and then select .
2. Select **Basal** > **Basal Patterns**.

   The Basal Patterns screen appears. A check mark displays next to the active basal pattern.



3. Select a basal pattern.



4. Select **Begin**.

12

Additional bolus features

12 Additional bolus features

This chapter provides information about additional features for bolus delivery. Square Wave, Dual Wave, Easy, Manual, and Preset bolus are only available in Manual mode. While the SmartGuard feature is active, only a normal bolus can be delivered.

Bolus types

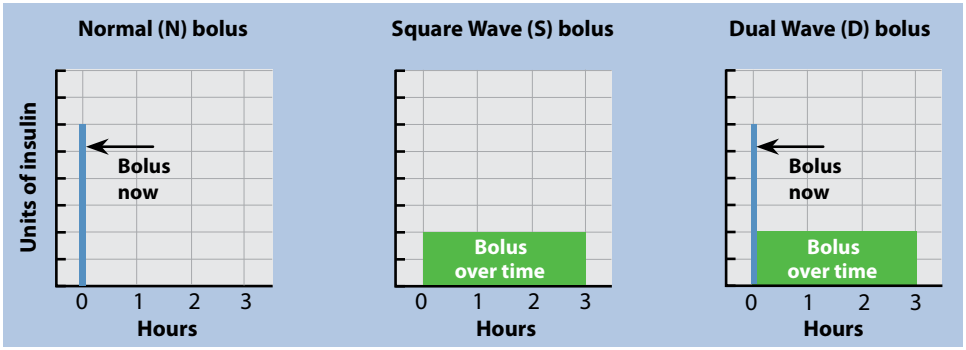
The following table provides general information about the available bolus types.

Bolus type	Description	Purpose
Normal	Normal bolus provides a single immediate dose of insulin.	This is the typical bolus type used to cover food intake or to correct a high BG meter reading. For details about delivering a normal bolus, see *Normal bolus, on page 63*.
Square Wave bolus	Square Wave bolus delivers a single bolus evenly over an extended period of time from 30 minutes up to 8 hours.	A Square Wave bolus can be used for the following reasons: • A delayed food digestion due to gastroparesis or meals high in fat. • Snacking over an extended period of time. • A normal bolus drops the BG too rapidly. For details about using the Square Wave bolus feature, see *Square Wave bolus, on page 196*.

Bolus type	Description	Purpose
Dual Wave bolus	Dual Wave bolus delivers a combination of an immediate normal bolus followed by a Square Wave bolus.	A Dual Wave bolus can be used for the following reasons: • When meals are high in carbs and fat, which may delay digestion. • When a meal bolus is combined with a correction bolus for an elevated BG. For details about using a Dual Wave bolus, see *Dual Wave bolus, on page 200*.

Bolus type example

The following example shows how the different bolus types work.



Bolus settings

Additional settings are required to use the Bolus Wizard feature. These are described in the section, *Bolus delivery options, on page 56*.

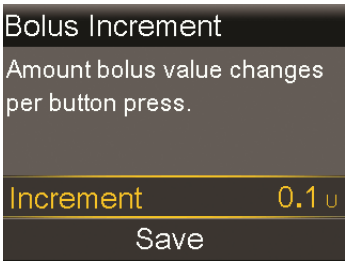
Bolus increment

The Bolus increment is the number of units that are increased or decreased with each button press for the bolus delivery amount in the Bolus Wizard, Manual Bolus, and Preset Bolus screens. Depending on the typical bolus amount, the increment can be set to 0.1 units, 0.05 units, or 0.025 units.

To set the bolus increment:

1. From the Home screen, press ◎, and then select ⚙.

2. Select **Delivery Settings** > **Bolus Increment**.
3. Select **Increment** to set the desired increment value.



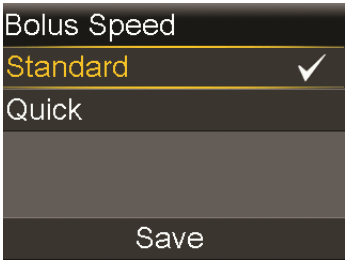
4. Select **Save**.

Bolus speed

The bolus speed sets the rate at which the pump delivers bolus insulin. Set a standard rate (1.5 units per minute), or a quick rate (15 units per minute).

To set the bolus speed:

1. From the Home screen, press ◎, and then select ⚙.
2. Select **Delivery Settings** > **Bolus Speed**.
3. Select **Standard** or **Quick**.



4. Select **Save**.

Changing the Bolus Wizard settings

This section shows how to make changes to personal settings after the initial Bolus Wizard feature setup. Consult a healthcare professional before changes are made to the personal settings.

Changing the carb ratio

The carb ratio can be set whether or not the Bolus Wizard feature is turned on.

To change the carb ratio:

1. From the Home screen, press ◎, and then select ⚙.
2. Select **Delivery Settings** > **Bolus Wizard Setup** > **Carb Ratio**.
3. Select **Edit**.
4. Select the carb ratio. For one carb ratio, enter the g/U, and then press ◎.

   For more than one carb ratio, enter one carb ratio at a time to complete the full 24 hours, which ends at 24:00.

   Note: For instructions on setting up more than one carb ratio over a 24-hour period, see *Settings covering a 24-hour period, on page 42*.

5. Select **Save**.

Changing the insulin sensitivity factor

The insulin sensitivity factor can be set only if the Bolus Wizard feature is turned on.

To change the insulin sensitivity factor:

1. From the Home screen, press ◎, and then select ⚙.
2. Select **Delivery Settings** > **Bolus Wizard Setup** > **Insulin Sensitivity Factor**.
3. Select **Edit**.
4. Select the insulin sensitivity factor. For one insulin sensitivity factor, press ∧ and ∨ to enter the mg/dL per U, and then press ◎.

   For more than one insulin sensitivity factor, press ∧ or ∨ to enter one insulin sensitivity factor at a time to complete the full 24 hours, which ends at 24:00.

   Note: For instructions on setting up more than one insulin sensitivity factor over a 24-hour period, see *Settings covering a 24-hour period, on page 42*.

5. Select **Save**.

Changing the BG target

The BG target can be from 60 to 250 mg/dL. The BG target can be set only if the Bolus Wizard feature is turned on.

To change the BG target:

1. From the Home screen, press ◎, and then select ⚙.
2. Select **Delivery Settings** > **Bolus Wizard Setup** > **BG Target**.
3. Select **Edit**.
4. Select the BG target. For one BG target, enter the low BG limit and the high BG limit, and then press ◎.

   For more than one BG target, enter one BG target at a time to complete the full 24 hours, which ends at 24:00.

   Note: For instructions on setting up more than one BG target over a 24-hour period, see *Settings covering a 24-hour period, on page 42*.

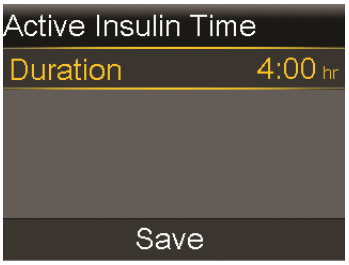
5. Select **Save**.

Changing the active insulin time

The active insulin time setting lets the pump know which active insulin time to use in calculating the amount of active insulin to subtract before estimating a bolus. A healthcare professional provides the personalized active insulin time.

To change the active insulin time:

1. From the Home screen, press ◎, and then select ⚙.
2. Select **Delivery Settings** > **Bolus Wizard Setup** > **Active Insulin Time**.
3. Select **Duration**, and adjust the active insulin time in hours, using 15-minute increments.



4. Select **Save**.

Square Wave bolus

A Square Wave bolus delivers a bolus evenly over a period of time from 30 minutes up to 8 hours.

When using the Bolus Wizard feature, a Square Wave bolus is available only when giving a food bolus without a correction for an elevated BG. A Square Wave bolus is not available for a correction bolus alone or a correction bolus with food bolus. A normal bolus can be delivered while a Square Wave bolus is being delivered, as needed.

A Square Wave bolus can be useful in the following situations:

- Delayed food digestion due to gastroparesis or meals high in fat.
- When snacking over an extended period of time.
- A normal bolus drops BG too rapidly.

Since the Square Wave bolus extends delivery over a period of time, the insulin is more likely to be available as needed.

Turning the Square Wave bolus feature on or off

A Square Wave bolus can be set up and delivered only after the Square Wave bolus feature is turned on.

To turn the Square Wave bolus feature on or off:

1. From the Home screen, press ◎, and then select ⚙.
2. Select **Delivery Settings** > **Dual/Square Wave**.
3. Select **Square Wave** to turn the feature on or off.
4. Select **Save**.

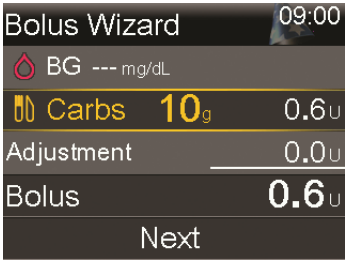
Delivering a Square Wave bolus using the Bolus Wizard feature

The Bolus Wizard feature only delivers a Square Wave bolus if the Square Wave bolus feature is turned on and a carb value is entered. If a BG reading causes the Bolus Wizard feature to calculate that a correction bolus is necessary, then a Square Wave bolus cannot be delivered.

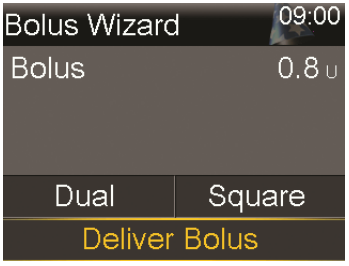
To deliver a Square Wave bolus using the Bolus Wizard feature:

1. From the Home screen, press ◎, and then select .
2. Select **Bolus** > **Bolus Wizard**.

   The Bolus Wizard screen appears.



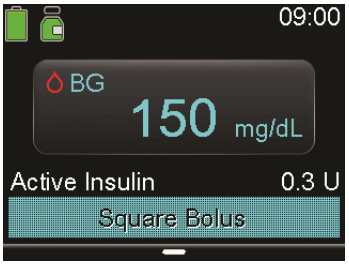
3. For a food bolus, select **Carbs** to enter the carb count of the meal.
4. The calculated bolus appears in the Bolus field. To modify the bolus amount, select **Bolus**.
5. Select **Next** to review the bolus information.



6. Select **Square**.
7. Select **Duration** to adjust the time period when the Square Wave bolus needs to be delivered.



8. Select **Deliver Bolus** to start the bolus.



Note: To stop bolus delivery or to see details on the insulin that has been delivered, see *Stopping a Square Wave or Dual Wave bolus delivery, on page 209*.

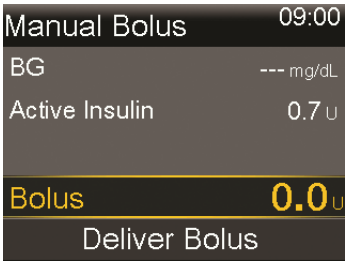
Delivering a Square Wave bolus using the Manual bolus feature

The Square Wave bolus option is available in the Manual Bolus screen only after the Square Wave feature is turned on.

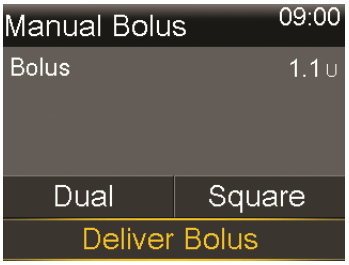
To deliver a Square Wave bolus using the Manual bolus feature:

1. From the Home screen, press ◎, and then select .
2. Do one of the following:
   - Select **Bolus** if the Bolus Wizard feature is turned off.
   - Select **Bolus** > **Manual Bolus** if the Bolus Wizard feature is turned on.

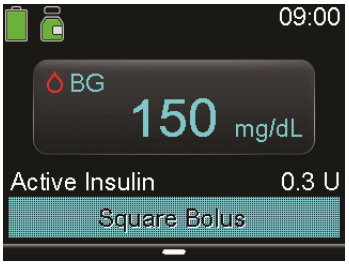
   The Manual Bolus screen appears.



3. Set the bolus delivery amount in units, and then select **Next**.



4. Select **Square**.
5. Select **Duration** to adjust the time period when the Square Wave bolus is to be delivered.
6. Select **Deliver Bolus** to start the bolus.



Note: To stop bolus delivery or to see details on the insulin that has been delivered, see *Stopping a Square Wave or Dual Wave bolus delivery, on page 209*.

Dual Wave bolus

The Dual Wave bolus feature meets both immediate and extended insulin needs by delivering a combination of an immediate normal bolus followed by a Square Wave bolus. A normal bolus can be delivered while the Square portion of a Dual Wave bolus is being delivered, as needed.

A Dual Wave bolus can be useful in these situations:

- When an elevated BG needs to be corrected before a meal, and a delayed bolus is needed for food that is absorbed slowly.
- When eating meals with mixed nutrients, such as carbs, fats and proteins, that are absorbed at different rates.

Turning the Dual Wave bolus feature on or off

A Dual Wave bolus can be delivered only after the Dual Wave bolus feature is turned on.

To turn the Dual Wave feature on or off:

1. From the Home screen, press ◎, and then select ⚙.
2. Select **Delivery Settings** > **Dual/Square Wave**.
3. Select **Dual Wave** to turn the feature on or off.
4. Select **Save**.

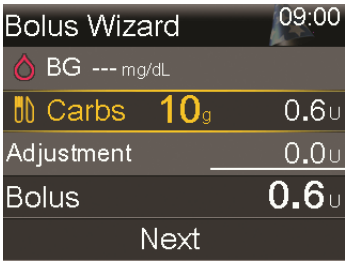
Delivering a Dual Wave bolus using the Bolus Wizard feature

A Dual Wave bolus with the Bolus Wizard feature can be delivered only after the Dual Wave bolus feature is turned on.

To deliver a Dual Wave bolus with the Bolus Wizard feature:

1. For a correction bolus or a food bolus with a correction, use a BG meter to check BG. For a food bolus only, go to step 2.
2. From the Home screen, press ◎, and then select 🧴.
3. Select **Bolus** > **Bolus Wizard**.

   The Bolus Wizard screen appears.

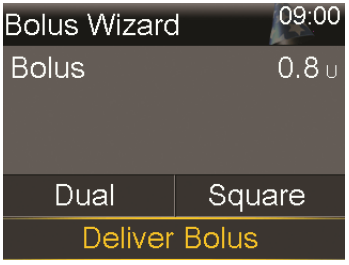


Note: For more information on how to manually enter the BG meter reading, see *Entering a BG value, on page 55*.

4. For a food bolus, select **Carbs** to enter the carb count of the meal. For a correction bolus where no food was eaten, leave the carbs value as 0.

   The calculated bolus appears in the Bolus field.

5. To modify the bolus amount, select **Bolus**.
6. Select **Next** to review the bolus information.

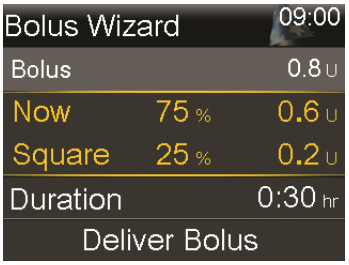


7. Select **Dual**.

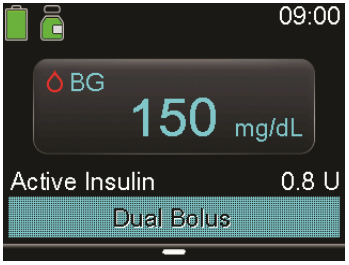
   The Bolus Wizard screen appears.

8. To change the amounts, select the area of the screen with the Now % and Square % values and adjust the **Now** % amount.

   When adjusting the Now amount, the Square amount adjusts automatically.



9. Adjust the **Duration** of the square portion of the bolus to be delivered.
10. Select **Deliver Bolus** to start the bolus.



Note: To stop bolus delivery or to see details on the insulin that has been delivered, see *Stopping a Square Wave or Dual Wave bolus delivery, on page 209*.

Delivering a Dual Wave bolus using the Manual bolus feature

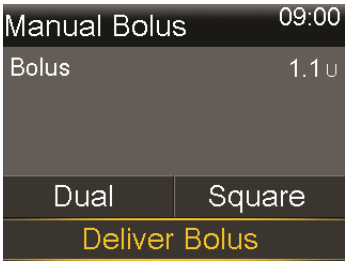
The Dual Wave bolus option is available in the Manual Bolus screen only after the Dual Wave feature is turned on.

To deliver a Dual Wave bolus using the Manual bolus feature:

1. From the Home screen, press ◎, and then select .
2. Do one of the following:
   - Select **Bolus** if the Bolus Wizard feature is turned off.
   - Select **Bolus** > **Manual Bolus** if the Bolus Wizard feature is turned on.

   The Manual Bolus screen appears.
3. Set the bolus delivery amount in units, and then select **Next**.

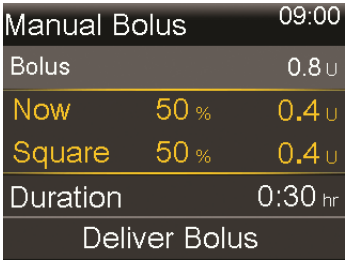
   The Manual Bolus screen appears, with the option to select the bolus type.



4. Select **Dual**.

   The Manual Bolus screen appears.

5. To change the amounts, select the area of the screen with the Now % and Square % values and adjust the **Now** % value. When the Now amount is adjusted, the Square amount adjusts automatically.



6. Select **Duration** to adjust the time period when the Square Wave bolus is to be delivered.

7. Select **Deliver Bolus** to start the bolus.



Note: To stop bolus delivery or to see details on the insulin that has been delivered, see *Stopping a Square Wave or Dual Wave bolus delivery, on page 209*.

Easy bolus

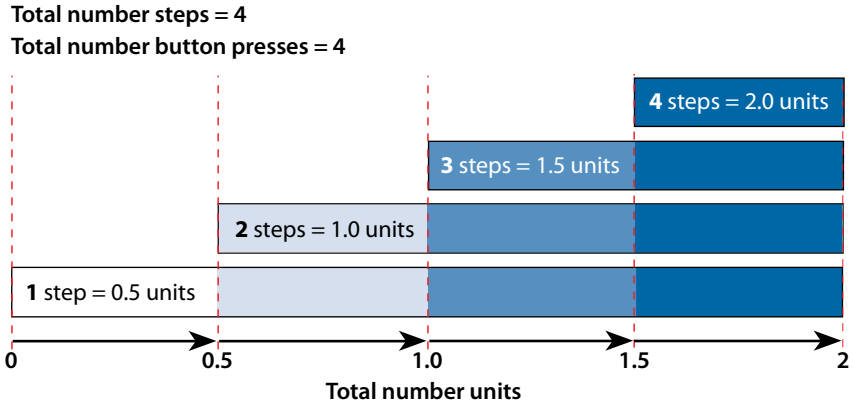
The Easy bolus feature can be used to deliver a normal bolus using only the ^ button. The Easy bolus feature only works when the pump is in Sleep mode.

When the ^ button is pressed while the Easy bolus feature is used, the bolus amount increases by a certain amount. This amount, or step size, can be set from 0.1 to 2.0 units of insulin. The pump makes a tone or vibration each time the ^ button is pressed to help keep count of the steps.

Note: The step size cannot be greater than the Max bolus amount. The maximum number of steps is 20 for each bolus delivery.

Setting up the Easy bolus feature

The following graph provides an example of setting up a bolus of 2.0 units of insulin using a step size of 0.5 units.



To set up the Easy bolus feature:

1. From the Home screen, press ◎, and then select ⚙.
2. Select **Device Settings** > **Easy Bolus**.
3. Select **Easy Bolus** to turn on the feature.
4. Set the **Step Size** amount in units.

   Select a step size to a number that makes it easy to calculate the total bolus amount.



5. Select **Save**.

Delivering a bolus using the Easy bolus feature

WARNING: Never rely on beeps or vibrations alone while using the Easy bolus feature. Always confirm the insulin delivery by looking at the pump screen. When using the Sound & Vibration options, it is possible that a sound or vibration notification may not occur as expected if the speaker or vibrator in the pump malfunctions. Relying on beeps or vibrations while using the Easy bolus feature may result in over-delivery of insulin.

To deliver a bolus using the Easy bolus feature:

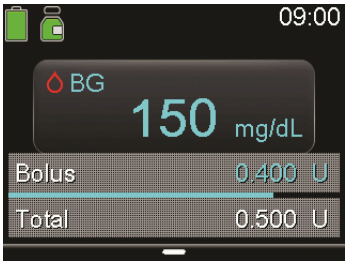
1. While the pump is in Sleep mode, press and hold ∧ for one second or until the pump beeps or vibrates. The bolus can now be set up.

Note: If the pump does not respond when ∧ is pressed, it may not be in Sleep mode, even if the screen is dark. For more information, see *Sleep mode, on page 27*.

2. Press ∧ the number of times needed to set the bolus amount. Count the tones or vibrations for each button press to confirm the total bolus amount.

Note: If ∧ is pressed too many times and the bolus amount is too high, press ∨ to cancel the Easy bolus delivery and start at step 1 to set up a new bolus.

3. When the needed bolus amount is reached, press and hold ^ to confirm the amount.
4. Press and hold ^ for one second, or until the pump beeps or vibrates, to deliver the bolus.



Note: If the ^ button is not pressed within 10 seconds after the bolus amount is confirmed, the bolus is canceled and a message appears that the bolus was not delivered.

Preset bolus

The Preset Bolus feature allows frequently used bolus deliveries to be set up in advance. There are four preset bolus names that can be used to match a bolus to a meal that has a known carb content. Four additional preset bolus names can be set for other circumstances. These are numbered from Bolus 1 to Bolus 4.

Note: To set up a Preset bolus as a Dual Wave bolus or Square Wave bolus, the Dual Wave bolus feature or Square Wave bolus feature must be turned on.

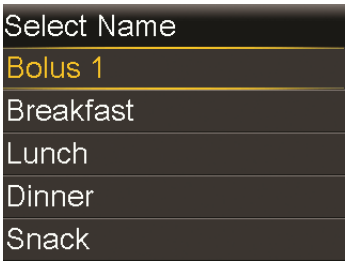
Setting up and managing preset bolus deliveries

To set up preset bolus amounts:

1. From the Home screen, press ◎, and then select ⚙.
2. Select **Delivery Settings** > **Preset Bolus Setup**.

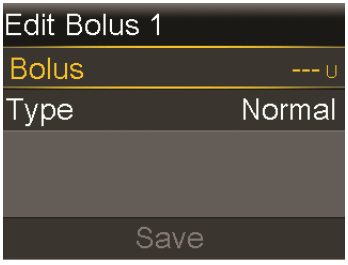


3. Select **Add New**.



4. Select a preset bolus.

   An edit screen appears.



5. Select **Bolus** to set the bolus amount.
6. Select **Type** to set this as a normal bolus, Square Wave bolus, or Dual Wave bolus.



Note: Square Wave and Dual Wave can be selected in the **Type** field only if the Square Wave bolus and Dual Wave bolus features are turned on.

If the type is set to Square or Dual, do the following:

- For a Square Wave bolus, set the **Duration** of time for the bolus delivery.

- For a Dual Wave bolus, adjust the **Now** % amount. When the **Now** amount is adjusted, the **Square** amount adjusts automatically. Then set the **Duration** of time for the Square portion of the bolus.



Note: If the Dual Wave bolus feature or Square Wave bolus feature is turned off, the existing Preset Bolus settings are still available for use.

7. Select **Save**.

Editing, renaming, or deleting a preset bolus

Dual Wave Preset Boluses and Square Wave Preset Boluses can only be edited when the Dual Wave Bolus and Square Wave Bolus features are turned on.



Note: A preset bolus cannot be edited, renamed, or deleted during preset bolus delivery.

To edit, rename, or delete a preset bolus:

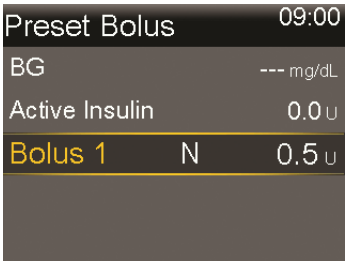
1. From the Home screen, press ◎, and then select ⚙.
2. Select **Delivery Settings** > **Preset Bolus Setup**.
3. Select a preset bolus.
4. Select **Options**.
5. Do any of the following:
   - Select **Edit** to adjust the bolus value and type, if applicable. If changing to a Square Wave bolus, enter the duration. If changing to a Dual Wave bolus, enter the Now and Square values and the Duration.
   - Select **Rename** to assign a different name to this preset bolus. When the Select Name screen appears, select any available name from the list.
   - Select **Delete** to delete this preset bolus.

Delivering a preset bolus

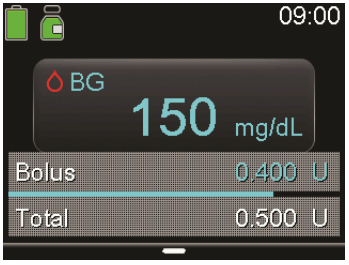
A preset bolus must be set before the Preset Bolus feature can be used. For more information, see *Setting up and managing preset bolus deliveries, on page 206*.

To deliver a preset bolus:

1. From the Home screen, press ◎, and then select .
2. Select **Bolus** > **Preset Bolus**.
3. Select the preset bolus to be delivered.



4. Review the bolus amount, and then select **Deliver Bolus** to start the bolus.



Stopping a Square Wave or Dual Wave bolus delivery

This section describes how to stop a bolus in progress. It does not stop basal insulin delivery. To stop all insulin delivery, use the Suspend All Delivery feature (press ◎, select , and select **Suspend All Delivery**).

This section describes how to stop the following bolus deliveries:

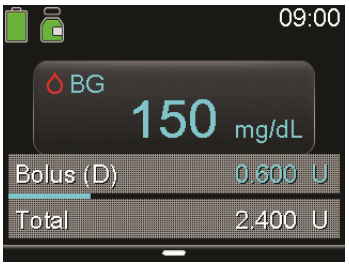
- A Dual Wave bolus during the Now portion delivery
- A Square Wave bolus delivery or a Dual Wave bolus during the Square portion delivery

To stop a normal bolus delivery see *Stopping a normal bolus delivery, on page 66*.

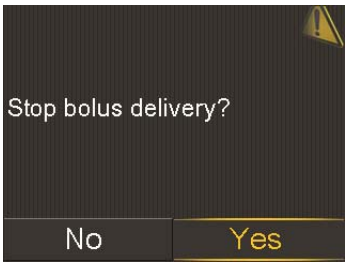
Note: When delivering a normal bolus and a Square Wave bolus at the same time, or a normal bolus and the Square portion of a Dual Wave bolus at the same time, both boluses are stopped.

To stop a Dual Wave bolus delivery during the Now portion:

1. While the pump is delivering the Now portion of a Dual Wave bolus, press ◎ from the Home screen.



2. Select .
3. Select **Stop Bolus**, then select **Yes** to confirm.



The Bolus Stopped screen appears and shows the amount of bolus delivered, and bolus amount that was originally set up.

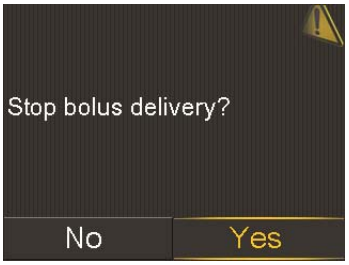
Note: When a Dual Wave bolus is stopped during the Now portion, the Now portion is stopped and the Square portion is canceled.



4. Select **Done**.

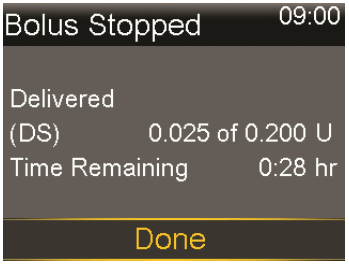
To stop a Square Wave bolus delivery or the Square portion of a Dual Wave bolus delivery:

1. While the pump is delivering a Square Wave bolus delivery or the Square portion of a Dual Wave bolus delivery, press ◎ from the Home screen.
2. Select , and then select **Bolus**.
3. Select **Stop Bolus**, then select **Yes** to confirm.



The Bolus Stopped screen appears and shows the amount of bolus delivered, and the bolus amount that was originally set up.

4. Select **Done**.



13

13 Troubleshooting

This chapter provides information about common MiniMed 780G insulin pump and sensor issues, as well as possible resolutions.

For a list of alarms, alerts, and messages, see *List of alarms, alerts, and messages, on page 233*.

Pump issues

WARNING: When a critical pump error occurs, the following screen appears and the pump siren goes off:



Immediately disconnect the pump and discontinue use. Contact a local Medtronic support representative.

Insulin delivery is still required when the pump is removed. Consult a healthcare professional to determine an alternate method of insulin delivery while the pump is removed.

Issue	Resolution
The pump buttons are stuck during airplane travel.	During atmospheric pressure changes, the pump buttons may not work for up to 45 minutes. For example, during airplane travel, pump buttons may get stuck and the pump will alarm. This is rare. If this occurs, either wait for the problem to correct itself, or confirm the AA battery connection: 1. Remove the battery cap. 2. Place the battery cap back onto the pump. The pump will check the AA battery power, and may require a new AA battery. 3. If prompted, insert a new AA battery. For more information about changing the battery, see *Removing the battery, on page 229*. If these steps do not correct the problem, contact a local Medtronic support representative for assistance.
The pump was dropped.	**CAUTION:** Always inspect the pump for cracks before exposing the pump to water, especially if the pump was dropped or damaged. Water leakage can cause the pump to malfunction and result in injury. 1. Confirm all connections are secure. 2. Check the display, button area, and pump case for cracks or damage. 3. Check the infusion set, including the tubing connector and tubing, for cracks or damage. 4. Confirm that the information on the Status screen, and the settings for the basal rates and the pump are correct. 5. Perform a self test. For more information, see *Self Test, on page 151*. 6. If necessary, contact a local Medtronic support representative and check BG.

Issue	Resolution
The pump display times out too quickly.	In order to conserve battery, the pump display times out after 15 seconds. To increase the time, see *Display options, on page 149*.
The pump displays a Check Settings alarm.	The pump has reset to factory settings. Review any settings that were not already set in the Startup Wizard and re-enter them, if necessary.

Issue	Resolution
The pump settings have been cleared and need to be re-entered.	Do not clear pump settings unless directed to do so by a healthcare professional. Certain pump errors may cause the pump to reset to factory default values, which clears the current pump settings. To restore saved pump settings, see *Restoring the settings, on page 153*. Consult a healthcare professional to determine the necessary settings. Have the settings that need to be entered into the pump ready before starting the procedure below. Use the following procedure to re-enter personalized pump settings using the Startup Wizard: 1. After the pump resets, the Startup Wizard appears. Select a language, and then press ◎. 2. Select a time format, and then press ◎. 3. Enter the current time, and then select **Next**. 4. Enter the current date, and then select **Next**. 5. Select the carb unit, and then press ◎. 6. When the Active Insulin Time screen appears, select Next. For more information, see *Bolus Wizard settings, on page 58*. 7. Enter the **Duration**, and then select **Next**. 8. Enter the basal rates for the new basal pattern, and then select **Next**. For more information, see *Adding a new basal pattern, on page 49*. 9. Review the basal pattern information, and then select **Next**. 10. On the Startup screen, a message displays to ask to set up Bolus Wizard now. Do one of the following: • Select **Yes** to enter the Bolus Wizard settings. For more information. see *Bolus Wizard settings, on page 58*. • Select **No** to skip the Bolus Wizard setup.

Sensor issues

Issue	Resolution
The pump has lost connection with the sensor.	After 30 minutes without a signal, the Lost sensor signal alert appears. Follow the steps on the pump screen or the steps below to try to resolve the issue. **Note:** If alerts are silenced and a sensor alert occurs, the alert still appears on the screen. 1. Move the pump closer to the transmitter, and then select **OK**. It can take up to 15 minutes for the pump to find the sensor signal. If the pump still cannot find the sensor signal, the Possible signal interference alert appears. 2. Move away from electronic devices that may cause interference, and then select **OK**. Wait 15 minutes for the pump to locate the sensor signal. If a signal is not found, the Check connection alert appears. 3. Confirm that the connection between the transmitter and sensor is secure, and then select **OK**. The "Check sensor insertion" message appears. 4. Do one of the following: • If the sensor connection is secure, select **Yes**. Contact a local Medtronic support representative if the pump cannot find the sensor signal within 15 minutes or if the "Sensor signal not found - See User guide" alert appears on the SG graph. • If the sensor is not securely connected to the transmitter, select **No**. A Change sensor alert appears. Select **OK** and change the sensor.

Issue	Resolution
A calibration is not accepted.	The sensor does not require calibration for use with the system. However, every BG reading provided to the pump is used to calibrate the sensor. A Calibration not accepted alert occurs in one of the following situations: • The system cannot use the entered BG meter reading. Only a BG value between 50 mg/dL and 400 mg/dL can be used to calibrate the sensor. Wait at least 15 minutes, wash hands, and try again. • The entered BG meter reading differs too greatly from the most recent SG reading. Check the accuracy of the BG meter reading and try again. • The transmitter cannot receive the calibration BG meter readings from the pump due to a failed sensor signal. Troubleshoot the failed sensor signal.
The suspend by sensor icon appears with a red X. 	The suspend by sensor icon appears with a red X when the Suspend before low or the Suspend on low feature is unavailable. This can occur in the following situations: • A suspend event recently occurred. For information about the availability of the suspend functionality, see *The Suspend before low feature, on page 101* or *The Suspend on low feature, on page 103*. • Sensor glucose (SG) readings are unavailable. SG readings may be unavailable in the following situations: • A BG meter reading is required. • The pump has lost communication with the sensor. Restore pump communication with the sensor. • A sensor error occurred. Clear the alert and wait up to 3 hours for the SG readings to resume. If necessary, insert a new sensor. If the issue continues after a new sensor is inserted, contact a local Medtronic support representative.

14

Maintenance

14 Maintenance

This chapter provides information about maintaining the components of the MiniMed 780G system.

Pump maintenance

Cleaning the pump

Prepare the following supplies to clean the pump:

- four small, clean, soft cloths
- mixture of water and mild detergent
- clean water
- 70% alcohol
- clean cotton swabs
- clean cotton balls

CAUTION: Never use organic solvents, such as lighter fluid, nail polish remover, or paint thinner to clean the MiniMed 780G insulin pump. Never use lubricants with the pump. When the pump is being cleaned, be sure to keep the reservoir compartment dry and away from moisture. If organic solvents are used to clean the pump, they can cause the pump to malfunction and result in minor injury.

To clean the pump:

1. Dampen a cloth with water mixed with a mild detergent.

2. Use the cloth to wipe the outside of the pump.
3. Dampen a clean cloth with water and wipe to remove any detergent residue.
4. Dry with a clean cloth.
5. Wipe the pump with a 70% alcohol wipe.
6. Use a dry, clean cotton swab to remove any battery residue from the battery cap.
7. Use a dry clean cloth to remove any battery residue from the battery compartment housing.

Storing the pump

The pump can be stored when it is not in use.

WARNING: After the pump is stored, do not rely on active insulin tracked in the pump when making new Bolus Wizard calculations. Storage mode clears active insulin. Inaccurate Bolus Wizard calculations may result in inaccurate insulin delivery and serious injury.

To place the pump in storage mode:

1. Remove the AA battery from the pump. For details, see *Removing the battery, on page 229*.

Note: When the battery is removed, the pump issues an Insert Battery alarm for 10 minutes or until the pump is in storage mode.

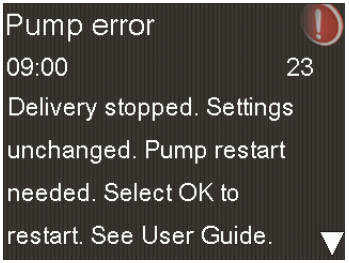
2. Press and hold ↩ until the screen turns off.

CAUTION: Never expose the pump to temperatures below -20°C (-4°F) or above 50°C (122°F). Storing the pump in temperatures outside of this range can damage the pump.

To use the pump after it has been stored:

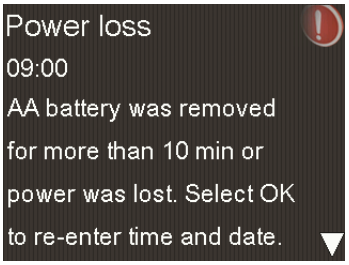
1. Insert a new AA battery into the pump. For details, see *Inserting the battery, on page 29*.

   A Pump Error alarm appears.



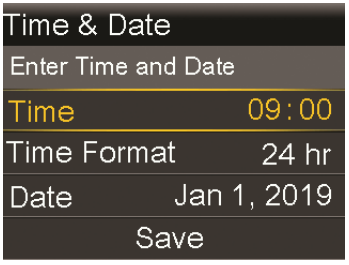
2. Select **OK**.

   The pump displays a Power Loss alarm.



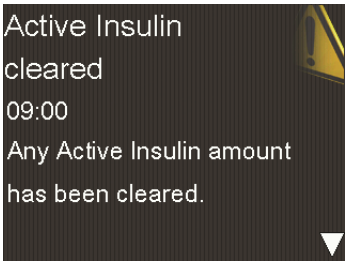
3. Select **OK**.

   The Time & Date screen appears.



4. Enter the current **Time**, **Time Format**, and **Date**.
5. Select **Save**.

   The pump displays an Active Insulin Cleared alert.



6. Select **OK**.

   Confirm that all the settings, such as basal rate, are set as desired. Use the Restore Settings option to reapply the last saved settings, if needed. For more information, see *Restoring the settings, on page 153*.

7. Repeat the pairing process for the transmitter and meter. For transmitter details, see *Pairing the pump and transmitter, on page 90*. For meter details, see *Pairing the pump and meter, on page 88*.

Pump disposal

Contact a local Medtronic support representative for information on proper disposal of the MiniMed 780G system. Always follow local laws and regulations for the disposal of medical devices.

Meter maintenance

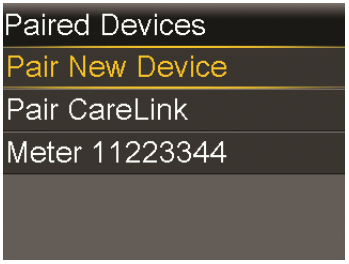
Unpairing a meter from the pump

Follow this procedure to unpair the Accu-Chek Guide Link meter from the pump.

To unpair the meter from the pump:

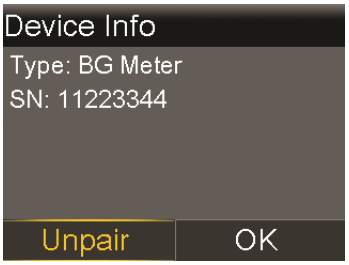
1. From the Home screen, press ◎, and then select .

   The Paired Devices screen appears.



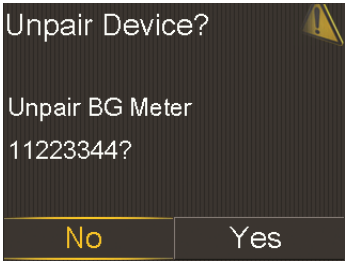
2. Select the serial number of the meter to unpair the device. The Accu-Chek Guide Link meter serial number is located on the back of the meter.

   The Device Info screen appears.



3. Select **Unpair**.

   The Unpair Device? screen appears.



4. Select **Yes** to confirm. Select **No** to cancel.

Deleting the pump from a meter

For steps to delete the pump from a meter, see the Accu-Chek Guide Link User's Manual.

Transmitter and sensor maintenance

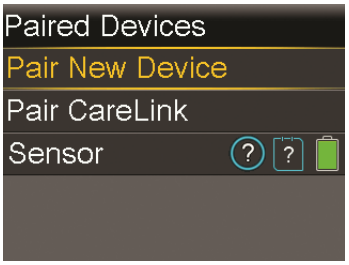
Unpairing the transmitter from the pump

Follow this procedure to unpair the transmitter from the pump, including when the transmitter needs to be replaced.

To unpair the transmitter from the pump:

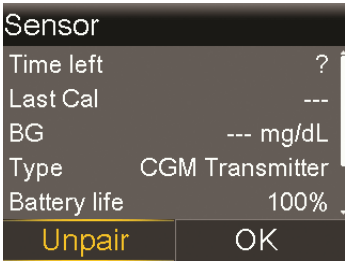
1. From the Home screen, press ◎, and then select .

   The Paired Devices screen appears.



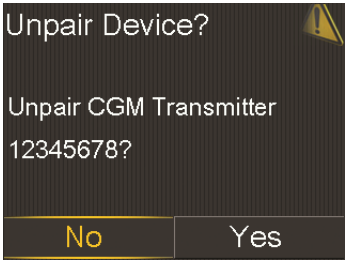
2. Select **Sensor**.

   The Device Info screen appears.

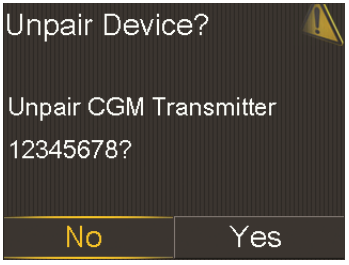


3. Select **Unpair**.

   The Unpair Device? screen appears.



4. Select **Yes** to confirm. Select **No** to cancel.



Disconnecting the transmitter from the sensor

Refer to the transmitter user guide for instructions on how to disconnect the transmitter from the sensor.

Removing the sensor

Refer to the sensor user guide for instructions on how to remove the sensor.

Cleaning the transmitter

Refer to the transmitter user guide for instructions on how to clean the transmitter.

Storing the transmitter

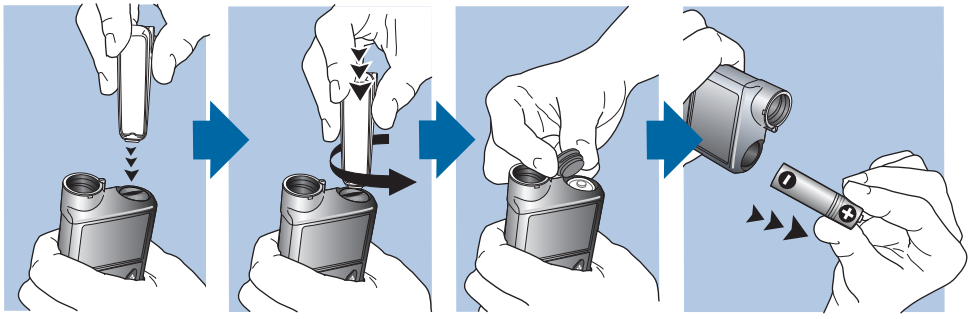
Refer to the transmitter user guide for instructions on how to store the transmitter.

Removing the battery

CAUTION: Do not remove the battery unless a new battery needs to be inserted or to store the pump. The pump cannot deliver insulin while the battery is removed. After an old battery is removed, make sure to replace it with a new battery within 10 minutes to clear the Insert battery alarm and avoid a Power loss alarm. If power loss occurs, the time and date settings must be re-entered.

To remove the battery:

1. Before a battery is removed from the pump, clear any active alarms or alerts.
2. Use the pump clip or a coin to loosen and remove the battery cap.
3. Remove the battery.



4. Dispose of old batteries according to local regulations for battery disposal (nonincineration), or contact a healthcare professional for disposal information.
5. After a battery is removed, wait until the Insert Battery screen appears before inserting a new battery.

   If a battery is removed to place the pump in storage, see *Storing the pump, on page 224* for more information.

Appendix A: List of alarms, alerts, and messages

List of alarms, alerts, and messages

This appendix provides information about alarms, alerts, and messages that can occur in the MiniMed 780G system.

Pump alarms, alerts, and messages

The following table lists the most common or serious alarms, alerts, and messages related to the MiniMed 780G insulin pump. The table also explains the meaning, consequences, and the reasons why these notifications appear, and provides steps for problem resolution.



Note: Use the MiniMed Mobile app to view the sensor graph on a mobile device. Always read and acknowledge all alarms and alerts on the pump. If the pump simultaneously generates more than one alarm or alert, only one of the alarms or alerts appears on the mobile device.

Title and text	Type	Explanation	Next steps
Active Insulin cleared Any Active Insulin amount has been cleared.	Alert	The active insulin amount is now at 0 units. This may occur because certain alarms automatically clear active insulin.	• Select **OK** to clear the alert. • The active insulin tracked prior to pump restart is not included in new Bolus Wizard calculations. Consult a healthcare professional for how long to wait after active insulin is cleared before relying on the active insulin calculation of the Bolus Wizard feature. • Check Daily History for the time and amount of the last bolus.
Auto Suspend Insulin delivery suspended. No buttons pressed within time set in Auto Suspend.	Alarm	Insulin delivery is currently suspended by Auto Suspend. The Auto Suspend feature automatically suspends insulin delivery and triggers an alarm after no buttons are pressed for a specified period of time. Insulin delivery is suspended until the alarm is cleared and basal insulin delivery resumed.	• Select **Resume Basal** to clear the alarm and resume basal insulin delivery. • Check the BG and treat it as necessary.

Title and text	Type	Explanation	Next steps
Battery failed Insert a new AA battery.	Alarm	The battery in the pump is low on power.	• Select **OK** to clear the alarm. • Remove the old battery and insert a new AA battery.
Battery not compatible. See User Guide.	Alarm	The inserted battery is not compatible with the pump.	• Remove the incompatible battery to clear the alarm. • Insert a new AA battery.
Bolus not delivered Bolus entry timed out before delivery. If bolus intended, enter values again.	Alert	A bolus value was entered, but a bolus was not delivered within 30 seconds.	• Select **OK** to clear the alert. • If a bolus delivery was intended, check BG, re-enter bolus values and redeliver the bolus.
Bolus stopped Cannot resume bolus or cannula fill. XX.XXX of YY.YYY U delivered. ZZ.ZZZ U not delivered. If needed, enter values again.	Alarm	The battery power was exhausted while a bolus delivery or Fill Cannula procedure was in progress or the Resume bolus? message appeared and was not cleared.	• Note the amount of insulin not delivered. • Replace the AA battery. • Select **OK** to clear the alarm. • Deliver the remaining bolus amount if needed.

Title and text	Type	Explanation	Next steps
Check settings Startup Wizard settings complete. Check and set up your other settings.	Alert	Some settings have been cleared or reverted to factory default values.	• Select **OK** to clear the alert. • Review any settings that have not already been set in Startup Wizard and re-enter the values if necessary.
Critical pump error Delivery stopped. Pump not working properly. Stop using pump. Remove infusion set from body. Consider other insulin treatment. See User Guide.	Alarm	The pump has encountered an error that cannot be resolved. For example, the pump may have a mechanical problem.	The pump is not able to deliver insulin. Disconnect the infusion set and stop using the pump. • Consider another form of insulin delivery. • Check BG, and treat as necessary. • Write down the error code that appears on the alarm screen. • Contact a local Medtronic support representative for assistance with the pump.
Delivery limit exceeded Delivery stopped. Check BG. See User Guide for more information.	Alarm	The pump has suspended insulin delivery because the hourly delivery limit was reached. This limit is based on the maximum bolus and maximum basal setting. If this alarm occurs during a bolus, the bolus is canceled before it can complete.	• Check BG. • Select **Resume Basal**. • Check Bolus History and re-evaluate insulin needs. • Continue to monitor BG.

Title and text	Type	Explanation	Next steps
Device Limit You must delete an existing device (device type) before you can pair a new one (device type).	Message	The pump is already paired with the maximum number of devices for this type. The following list describes the maximum number of each *device type* to pair with the pump: • Meter–four Accu-Chek Guide Link meters • CGM–one Guardian 4 transmitter • Mobile Device–one compatible mobile device	• Select **OK** to clear the message. • Go to the Manage Devices screen and select the device to delete from the list of devices. Select **Delete**, and then select **Yes** to confirm or **No** to cancel. Pair the pump and the desired device.
Device not compatible Device cannot be used with this pump.	Alert	The pump cannot pair with the selected device.	• Select **OK** to clear the alert. • Contact a local Medtronic support representative for assistance.

Title and text	Type	Explanation	Next steps
Device not found Make sure device is in range and in pairing mode.	Alert	The pump did not pair with the device.	• Select **OK** to clear the alert. • Confirm that the device is not already paired with a pump. • Confirm that the device is ready to pair with the pump. • Make sure the pump is away from any electronic devices that might cause interference, such as cellular phones that are not paired with the MiniMed 780G system and other wireless devices. • Move the device closer to the pump. • Try to pair the pump with the device again.
Fill Cannula? Select Fill to fill cannula or select Done if not needed.	Alarm	The Fill Cannula? screen has been active for 15 minutes.	• To fill the cannula, select **Fill**. • If the cannula does not need to be filled, select **Done** to skip this process.

Title and text	Type	Explanation	Next steps
High BG XXX mg/dL Check infusion set. Check ketones. Consider insulin injection. Monitor BG. Confirm BG?	Alert	The BG meter reading is above 250 mg/dL . This alert appears in Manual mode. For High BG XXX mg/dL while the SmartGuard feature is active, see *SmartGuard feature alerts and messages, on page 263*.	• Select **No** to prevent the remote BG from being used by the pump. Select **Yes** to confirm the BG reading. • Check BG and treat as necessary.
Insert battery Delivery stopped. Insert a new battery now.	Alarm	The battery was removed from the pump. If a bolus was in progress when the battery was removed, a Resume bolus? message appears and a tone sounds when a new battery is inserted. The message indicates how much of the bolus was delivered.	• Insert a new AA battery. • The alarm clears when a new battery is inserted. • The pump powers off after 10 minutes unless a new battery is inserted.

Title and text	Type	Explanation	Next steps
Insulin flow blocked Check BG. Consider testing ketones. Check reservoir and infusion set.	Alarm	The pump has detected that the basal or bolus insulin flow was blocked.	• Check BG and ketones. Administer an insulin injection if necessary. • Remove the infusion set and reservoir. • Select **Rewind** to start the process with a new infusion set and reservoir. If the alarm occurs during a bolus delivery: • Check the Daily History screen for the amount of bolus already delivered before the pump alarmed. • Consider delivering remaining bolus, if the bolus insulin was not included in an insulin injection.



WARNING: Do not use the SmartGuard feature for a period of time, determined by a healthcare professional, after giving a manual injection of insulin by syringe or pen. Manual injections are not accounted for with the SmartGuard feature. Therefore, the SmartGuard feature could deliver too much insulin. Too much insulin may cause hypoglycemia. Consult a healthcare professional for how long to wait after a manual injection of insulin before resuming the SmartGuard feature.

Title and text	Type	Explanation	Next steps
Insulin flow blocked Check BG. Consider testing ketones. Estimated 0 U insulin in reservoir. Change reservoir and infusion set.	Alarm	The pump has detected that the insulin flow is blocked and there is no insulin in the reservoir.	• Check BG and ketones. Administer an insulin injection if necessary. • Remove the infusion set and reservoir. • Select **Rewind** to start the process with a new infusion set and reservoir. If the alarm occurs during a bolus delivery: • Check the Daily History screen for the amount of bolus already delivered before the pump alarmed. • Consider delivering remaining bolus, if the bolus insulin was not included in an insulin injection.
Insulin flow blocked Fill Cannula stopped. Remove infusion set from body. Change reservoir and infusion set.	Alarm	The pump has detected that the insulin flow is blocked while filling the cannula.	• Check BG and ketones. Administer an insulin injection if necessary. • Remove the infusion set and reservoir. • Select **Rewind** to start the process with a new infusion set and reservoir.

Title and text	Type	Explanation	Next steps
Insulin flow blocked Fill Tubing stopped. Remove reservoir and select Rewind to restart.	Alarm	The pump has detected that the insulin flow is blocked while filling the tubing. Possible connection issue between the tubing and reservoir.	• Remove the reservoir and select **Rewind** to restart the fill tubing process. • Disconnect the tubing from the reservoir. • Confirm that the tubing is not crimped or bent. • Continue to follow the steps displayed on the pump using the same infusion set and reservoir. • If this alarm occurs again, replace the infusion set.
Loading incomplete Remove reservoir and select Rewind to restart loading.	Alarm	was pressed after loading began.	• Remove the reservoir to start again. • Select **Rewind** and follow the on-screen instructions.

Title and text	Type	Explanation	Next steps
Low battery Pump Replace battery soon.	Alert	The battery in the pump is low on power. Remaining battery life is 10 hours or fewer.	• Select **OK** to clear the alert. • Replace the AA battery as soon as possible. Otherwise, insulin delivery stops, and the Replace battery now alarm occurs. • If the pump is delivering a bolus or filling the cannula, wait until delivery is complete to replace battery.
Low BG XX mg/dL Treat Low BG. Do not bolus until BG is normal. Monitor BG. Confirm BG?	Alert	The BG meter reading is below 70 mg/dL .	• Select **No** to prevent the remote BG reading from being used by the pump. Select **Yes** to confirm the BG reading. • Check BG and treat as necessary.
Low reservoir *XX* units remaining. Change reservoir.	Alert	The reservoir is low on insulin, according to the number of units set in the Low Reservoir reminder.	• Select **OK** to clear the alert. • Change the reservoir soon. • If the reservoir is not changed after this alert is received, a second Low reservoir alert appears when the insulin level reaches half of the original alert amount.

Title and text	Type	Explanation	Next steps
Manage settings error Delivery stopped. Backup settings cleared from Manage Settings. Current settings are working properly. Select OK to restart. See User Guide.	Alarm	A pump error occurred and the pump needs to be restarted. The backup settings have been lost, but the current settings are unchanged.	• Select **OK** to restart the pump. The current settings are unchanged. Only the backup settings are lost. • When the pump restarts, follow instructions on the pump display. • If the pump was delivering a bolus or filling the cannula, check Daily History and evaluate if insulin is needed.
Max Fill reached 3*X.X* U. Did you see drops at the end of tubing?	Alarm	The number of units expected to fill the tubing has been exceeded. By now, insulin should be visible at the end of the tubing.	• If there are drops of insulin at the end of the tubing, select **Yes**. • If there are no drops of insulin at the end of the tubing, select **No**. • Follow instructions displayed on the pump.
Max Fill reached 4*X.X* U. Remove reservoir and select Rewind to restart New Reservoir procedure.	Alarm	The number of units expected to fill the tubing has been exceeded. By now, insulin should be visible at the end of the tubing.	• Remove the reservoir. • Check if there is still insulin in the reservoir. If there is insulin in the reservoir the same reservoir can be used. • Select **Rewind** to restart the new reservoir procedure.

Title and text	Type	Explanation	Next steps
No reservoir detected Rewind before loading reservoir.	Alarm	There is no reservoir in the pump or the reservoir is not properly locked into place.	• Select **Rewind**. • Confirm that the reservoir is filled with insulin. • When prompted, confirm that the reservoir is inserted and properly locked into place.
Power error detected Delivery stopped. Record your settings by uploading to CareLink or write your settings on paper. See User Guide.	Alarm	The internal power source in the pump is unable to charge. The pump is operating on the AA battery only.	• Select **OK** to clear the alarm. • Check BG and treat as necessary. • Record the pump settings as soon as possible because the AA battery may not last long. • Contact a local Medtronic support representative for assistance with the pump.
Power loss AA battery was removed for more than 10 min or power was lost. Select OK to re-enter time and date.	Alarm	The battery has been out of the pump for more than ten minutes and the pump has lost power. The date and time must be reset.	• Select **OK** to go to the Time & Date screen. • Enter the current time, time format, and date.

Title and text	Type	Explanation	Next steps
Pump error Delivery stopped. Current settings cleared. Pump restart needed. Select OK to restart and then re-enter your settings. See User Guide.	Alarm	The pump encountered an error and will restart. The pump settings will return to factory default values.	• Select **OK** to restart the pump. • When the pump restarts, follow instructions on the pump display. • After the pump restarts, check settings and re-enter values as needed. • If the backup settings were recently saved in Manage Settings, use Restore Settings. • If the pump was delivering a bolus or filling the cannula, check Daily History and re-evaluate if insulin is needed. • If this alarm recurs frequently, write down the error code on the alarm screen (it can also be found in the Alarm History) and contact a local Medtronic support representative for assistance.

Title and text	Type	Explanation	Next steps
Pump error Delivery stopped. Settings unchanged. Pump restart needed. Select OK to restart. See User Guide.	Alarm	A pump error has occurred, the pump needs to be restarted.	• Select **OK** to restart the pump. • If the pump was delivering a bolus or filling the cannula, check Daily History and re-evaluate if insulin is needed. • If this alarm recurs frequently, write down the error code on the alarm screen (it can also be found in the Alarm History) and contact a local Medtronic support representative for assistance.
Pump error Delivery stopped. Settings unchanged. Select OK to continue. See User Guide.	Alarm	The pump encountered an error but a restart is not necessary. The issue is resolved. The settings are not changed.	• Select **OK** to resume basal insulin delivery. • If the pump was delivering a bolus or filling the cannula, check Daily History and re-evaluate if insulin is needed. • If this alarm recurs frequently, write down the error code on the alarm screen (it can also be found in the Alarm History) and contact a local Medtronic support representative for assistance.

Title and text	Type	Explanation	Next steps
Pump restarted Delivery stopped. Settings unchanged. Select OK to continue. See User Guide.	Alarm	The pump has encountered a problem and has restarted. The settings have not been changed.	• Select **OK** to continue. • If the pump was delivering a bolus or filling the cannula, check Daily History and re-evaluate if insulin is needed. • If this alarm recurs frequently, write down the error code on the alarm screen (it can also be found in the Alarm History) and contact a local Medtronic support representative for assistance.
Replace battery Battery life less than 30 minutes. To ensure insulin delivery, replace battery now.	Alert	Battery power is low and will be exhausted within 30 minutes.	• Select **OK** to clear the alert. • Replace the AA battery.
Replace battery now Delivery stopped. Battery must be replaced to resume delivery.	Alarm	Insulin delivery has stopped due to low power. The battery was not replaced after the Low battery Pump alert.	Replace the battery immediately to resume insulin delivery.

Title and text	Type	Explanation	Next steps
Reservoir estimate at 0 U To ensure insulin delivery, change reservoir.	Alert	The reservoir level is estimated at 0 units.	• Select **OK** to clear the alert. • Change the reservoir.
Resume bolus? *XXX* of *YYY* U delivered. Resume delivery of *ZZZ* U?	Message	A normal bolus delivery has been interrupted because the pump battery was removed. If it is within ten minutes since this interruption, the bolus can be resumed.	• Check the message to see how much of the bolus was delivered. • To cancel the remaining bolus delivery, select **Cancel**. • To resume the bolus delivery, select **Resume**.
Resume Dual bolus? *XX* of *YY* U delivered. Resume delivery of *ZZ* U for *XX:XX* hr?	Message	The Square portion of Dual Bolus delivery has been interrupted. If it is within ten minutes since this interruption, the bolus can be resumed.	• Check the message to see how much of the Dual Wave bolus was delivered. • To cancel the remaining bolus delivery, select **Cancel**. • To resume the bolus delivery, select **Resume**.
Resume Dual bolus? *XX* of *YY* U delivered. Resume delivery of *ZZ* U now, and *AA* U Square for *XX:XX* hr?	Message	The Now portion of a Dual Wave bolus delivery has been interrupted because the pump battery was removed. If it is within ten minutes since this interruption, the bolus can be resumed.	• Check the message to see how much of the Dual Wave bolus was delivered. • To cancel the remaining bolus delivery, select **Cancel**. • To resume the bolus delivery, select **Resume**.

Title and text	Type	Explanation	Next steps
Resume Square bolus? *XX* of *YY* U delivered for *XX:XX* hr. Resume delivery of *ZZ* U for *XX:XX* hr?	Message	The Square Wave bolus delivery was interrupted. If it is within ten minutes since this interruption, the bolus can be resumed.	• Check the message to see how much of the Square Wave bolus was delivered. • To cancel the remaining bolus delivery, select **Cancel**. • To resume the bolus delivery, select **Resume**.
Rewind required Delivery stopped. Rewind was required due to pump error. Select OK to continue. See User Guide.	Alarm	The pump encountered an error.	• Select **OK** to clear the alarm after the pump has completed rewinding. • Select **Reservoir & Set** from the Menu screen to start the new reservoir process with a new infusion set and reservoir. For details, see *Setting up the reservoir and infusion set, on page 71*. • If this alarm recurs frequently, contact a local Medtronic support representative for assistance.

Title and text	Type	Explanation	Next steps
Stuck button Button pressed for more than 3 minutes.	Alarm	The pump has detected that a button has been pressed for an unusually long time.	• Select **OK** to clear the alarm. • If this alarm occurs again, Contact a local Medtronic support representative for assistance with the pump. If the alarm cannot be cleared • See *Pump issues, on page 215*. • Consider another form of insulin, because the pump is not delivering insulin. • Check BG and treat as necessary. • Contact a local Medtronic support representative for assistance with the pump.

CGM (sensor) alarms, alerts, and messages

The following table lists the most common or serious alarms, alerts, and messages related to sensor glucose (SG) readings, as well as the status of the transmitter and sensor. The table also explains the meaning, consequences, and the reasons why these notifications appear, and provides steps for problem resolution.

Title and text	Type	Explanation	Next steps
Alert before high Sensor glucose approaching High Limit. Check BG.	Alert	The SG reading is approaching the specified high limit.	• Select **OK** to clear the alert. • Check BG. • Follow instructions from a healthcare professional and continue to monitor BG.
Alert before low Sensor glucose approaching Low Limit. Check BG.	Alert	The SG reading is approaching the specified low limit.	• Select **OK** to clear the alert. • Check BG. • Follow instructions from a healthcare professional and continue to monitor BG.
Alert on high XXX mg/dL High sensor glucose. Check BG.	Alert	The SG reading is at or above the specified high limit.	• Select **OK** to clear the alert. • Check BG. • Follow instructions from a healthcare professional and continue to monitor BG.
Alert on low XX mg/dL Low sensor glucose. Check BG.	Alert	The SG reading is at or below the specified low limit.	• Select **OK** to clear the alert. • Check BG. • Follow instructions from a healthcare professional and continue to monitor BG.
Alert on low XX mg/dL Low sensor glucose. Insulin delivery suspended since XX:XX. Check BG.	Alarm	The SG reading is at or below the specified low limit, and the pump has suspended insulin delivery due to a Suspend before low or Suspend on low.	• Select **OK** to clear the alarm. • Check BG. • Follow instructions from a healthcare professional and continue to monitor BG.

Title and text	Type	Explanation	Next steps
Basal delivery resumed Basal delivery resumed at XX:XX after suspend by sensor. Check BG.	Message	The pump is resuming basal insulin delivery after a Suspend before low or Suspend on low event occurred.	• Select **OK** to clear the message. • Check BG. • Follow instructions from a healthcare professional and continue to monitor BG.
Basal delivery resumed Low settings change caused basal to be resumed at XX:XX. Check BG.	Alert	The pump is resuming basal insulin delivery after a Suspend before low or a Suspend on low event occurred, because the Suspend before low or the Suspend on low feature was turned off.	• Select **OK** to clear the alert. • Check BG. • Follow instructions from a healthcare professional and continue to monitor BG.
Basal delivery resumed Maximum 2 hour suspend time reached. Check BG.	Alert	The pump is resuming basal insulin delivery two hours after a Suspend before low or Suspend on low event occurred.	• Select **OK** to clear the alert. • Check BG. • Follow instructions from a healthcare professional and continue to monitor BG.

Title and text	Type	Explanation	Next steps
Basal delivery resumed Maximum 2 hour suspend time reached. SG is still under Low limit. Check BG.	Alarm	The pump is resuming basal insulin delivery two hours after a Suspend before low or Suspend on low event occurred.	• The pump has resumed basal insulin delivery; however, the SG reading is still at or below the low limit. • Select **OK** to clear the alarm. • Check BG. • Follow instructions from a healthcare professional and continue to monitor BG.
BG not received Place pump close to transmitter. Select OK to resend BG to transmitter.	Alert	The transmitter was unable to receive the BG meter reading from the pump.	• Move the pump and transmitter closer together. • Select **OK** to clear the alert, and then enter a new BG meter reading.
Calibration not accepted Sensor information is unavailable for up to 2 hours. Entered BGs may not calibrate the sensor but can still be used for therapy.	Alert	The system was unable to use the BG meter readings entered to calibrate the sensor. This alert occurs on the first day only.	• Wash and dry hands thoroughly. • Select **OK** to clear the alarm. • Consider waiting up to two hours, and then enter a new BG meter reading. • Contact a local Medtronic support representative for assistance, if needed.

Title and text	Type	Explanation	Next steps
Calibration not accepted Wait at least 15 minutes. Wash hands, test BG again and calibrate.	Alert	The system was unable to use the BG meter readings entered to calibrate the sensor.	• Wash and dry hands thoroughly. • Select **OK** to clear the alert. • After 15 minutes, enter a new BG meter reading. If a Calibration not accepted alert is received on the second calibration after 15 minutes, a Change sensor alert occurs. • Contact a local Medtronic support representative for assistance, if needed.
Change sensor Insert new sensor and Start New Sensor.	Alert	**No** was selected in the Check sensor insertion message, indicating that the sensor is not fully inserted.	• Select **OK** to clear the alert. • Change the sensor. For details, see the sensor user guide. • After the sensor is changed, refer to *Starting the sensor, on page 114*.
Change sensor Second calibration not accepted. Insert new sensor.	Alert	A Calibration not accepted alert occurs if the entered BG meter reading differs too greatly from the most recent SG reading. This alert occurs when two Calibration not accepted alerts are received in a row.	• Select **OK** to clear the alert. • Change the sensor. For details, see the sensor user guide.

Title and text	Type	Explanation	Next steps
Change sensor Sensor not working properly. Insert new sensor.	Alert	This alert occurs when the transmitter diagnoses a problem with the sensor that cannot be resolved.	• Select **OK** to clear the alert. • Change the sensor. For details, see the sensor user guide.
Check connection Ensure transmitter and sensor connection is secure, then select OK.	Alert	The pump fails to detect the transmitter and is unable to receive sensor signal.	• Select **OK** to clear the alert. • If the sensor is fully inserted, select **Yes**. If the sensor is not fully inserted, select **No**. • If the sensor was not fully inserted, insert a new sensor. • See *Pump issues, on page 215* for additional assistance, if needed.
Enter BG now Enter BG to calibrate sensor. Sensor information is no longer available	Alert	A BG meter reading is required to calibrate the sensor. SG readings cannot be received until the sensor is calibrated.	• Select **OK** to clear the alert. If no BG meter reading is entered within 30 minutes, the Enter BG now alert occurs again. • Select **Snooze**, enter the desired snooze time, and select **OK**. If no BG meter reading is entered before the Snooze time has ended, the Enter BG now alert occurs again. • Enter a BG meter reading to calibrate the sensor.

Title and text	Type	Explanation	Next steps
High SG Glucose was 250 mg/dL or higher for more than 3 hours. Check infusion set. Check ketones. Monitor glucose.	Alert	SG was 250 mg/dL or higher for three hours.	• Select **OK** to clear the alert. • Check BG and treat as necessary.
Lost sensor signal Move Pump closer to transmitter. May take 15 minutes to find signal.	Alert	A transmitter signal has not been received for 30 minutes during or after sensor initialization.	• Move the pump closer to the transmitter. It can take up to 15 minutes for the pump to establish communication with the transmitter. • Select **OK** to clear the alert.
Low battery transmitter Recharge transmitter within 24 hours.	Alert	The battery in the transmitter needs to be recharged within 24 hours.	• Select **OK** to clear the alert. • Recharge the transmitter as soon as possible.

Title and text	Type	Explanation	Next steps
Low SG XX mg/dL SG is under 54 mg/dL . Check BG and treat.	Alarm	The SG reading has reached or fallen below 54 mg/dL . This alarm is factory set and cannot be changed or turned off. This alarm cannot be silenced and is always active, whether the pump is using the SmartGuard feature or Manual mode.	• Select **OK** to clear the alarm. • Check BG and treat as necessary.



Note: XX represents the current SG reading that appears on the pump. This alarm remains until the alarm is cleared, even if glucose values rise above 54 mg/dL.

Medical device CALL FOR EMERGENCY ASSISTANCE. I have diabetes.	Alarm	The pump is suspended due to low SG and there has been no response to the alarm within 10 minutes.	• Select **Dismiss**. • Immediately call for emergency assistance.

Title and text	Type	Explanation	Next steps
No calibration occurred Confirm sensor signal. Calibrate by XX:XX.	Alert	The transmitter was unable to receive the calibration BG meter readings from the pump.	• Select **OK** to clear the alert. • Check the status icons on the Home screen to confirm that the pump has a signal from the sensor. If there is no sensor signal, see *Sensor issues, on page 219*. • For SG readings to be monitored without interruption, enter or confirm a BG meter reading by the time displayed on the pump screen.
No calibration occurred Confirm sensor signal. Check BG again to calibrate sensor.	Alert	The transmitter was unable to receive the required calibration BG meter readings from the pump. Calibration is required by the system for SG readings to resume. "Calibration required" appears on the sensor graph.	• Select **OK** to clear the alert. • Take another BG meter reading and calibrate again.

Title and text	Type	Explanation	Next steps
Possible signal interference Move away from electronic devices. May take 15 minutes to find signal.	Alert	There may be interference from another electronic device that is affecting the communication between the pump and the transmitter.	• Move away from other electronic devices. It can take up to 15 minutes for the pump to start communicating with the transmitter. • Select **OK** to clear the alert.
Rise Alert Sensor glucose rising rapidly.	Alert	The SG reading has been rising as fast or faster than the preset Rise Alert limit.	• Select **OK** to clear the alert. • Check BG using a meter. • Follow instructions from a healthcare professional.
Sensor connected If new sensor, select Start New. If not, select Reconnect.	Message	The transmitter has detected that a sensor is connected. The pump needs to know if this is a new sensor or if an old sensor has been reconnected.	• If a new sensor has been connected, select **Start New Sensor**. • If a sensor that was already being used has been reconnected, select **Reconnect Sensor**. • In either case, a "Sensor warm up..." message appears for two hours. After the warm up, the pump starts receiving SG readings.
Sensor connected Start new sensor.	Message	The pump has detected that this is a new sensor, which needs to be started and warmed-up.	Select **Start New Sensor**. The alert closes and a "Warm-up" message appears on the sensor graph with a progress bar.

Title and text	Type	Explanation	Next steps
Sensor expired Insert new sensor.	Alert	The sensor has reached the end of its useful life.	• Change the sensor. For details, see the sensor user guide. • Select **OK** to clear the alert.
Sensor signal not found See User Guide.	Alert	After multiple attempts, the pump failed to detect the transmitter and is unable to receive sensor signal.	• Select **OK** to clear the alert. • If the pump still cannot find the sensor signal, contact a local Medtronic support representative for assistance.
Sensor updating Updating can take up to 3 hours. Monitor BG. Entered BGs will not calibrate the sensor, but can still be used for therapy.	Alert	The SG reading is unavailable due to a temporary situation.	• Select **OK** to clear the alert. • Follow the instructions on the pump screen. The sensor does not need to be changed.

Title and text	Type	Explanation	Next steps
Suspend before low Delivery stopped. Sensor glucose approaching Low Limit. Check BG.	Alert	The SG reading is falling. Insulin delivery is suspended according to the Suspend before low setting and the SG is approaching the specified low limit. The Suspend before low feature is not available with the SmartGuard feature.	• Select **OK** to clear the alert. • Check BG. If necessary, treat BG as directed by a healthcare professional.
Suspend on low Delivery stopped. Sensor glucose XX mg/dL. Check BG.	Alarm	The SG reading is at or below the specified low limit. The Suspend on low feature is not available with the SmartGuard feature.	• Select **OK** to clear the alarm. • Check BG. If necessary, treat BG as directed by a healthcare professional.
Transmitter battery depleted Recharge transmitter now.	Alert	The battery in the transmitter needs to be recharged. SG readings cannot be recorded or transmitted until the transmitter is recharged.	• Select **OK** to clear the alert. • Recharge the transmitter.

SmartGuard feature alerts and messages

The following table lists the most common or serious alerts and messages related to the SmartGuard feature. The table also explains the meaning, consequences, and the reasons why these notifications appear, and provides any necessary steps for problem resolution.

Title and text	Type	Explanation	Next steps
SmartGuard started Current action canceled.	Alert	An operation that is not allowed while transitioning to the SmartGuard feature has been selected.	• Select **OK** to clear the alert. • Allow the pump to complete its transition to the SmartGuard feature.
SmartGuard exit Basal xxxx started. Would you like to review the SmartGuard Checklist?	Alert	The pump has exited the SmartGuard feature because: • the sensor has been turned off • the pump has been delivering basal insulin based on insulin delivery history, and not SG readings for the maximum of four hours. This alert cannot be silenced, and is always active whenever the system is using the SmartGuard feature.	• Select **No** to clear the alert. Select **Yes** to view the SmartGuard Checklist. • Enter a BG meter reading. • Follow instructions from a healthcare professional and continue to monitor BG. For details, see *Exiting the SmartGuard feature, on page 143* and *Returning to the SmartGuard feature after an exit, on page 144*.

Title and text	Type	Explanation	Next steps
SmartGuard exit Insulin delivery is still suspended.	Alert	The pump has exited the SmartGuard feature because: • the sensor has been turned off • a suspend event message has not been cleared within four hours • the pump has been delivering basal insulin based on insulin delivery history, and not SG readings for the maximum of four hours. This alert cannot be silenced, and is always active whenever the system is using the SmartGuard feature.	• Enter a BG meter reading. • Manually resume basal insulin delivery, when appropriate. • Follow instructions from a healthcare professional and continue to monitor BG. For details, see *Exiting the SmartGuard feature, on page 143* and *Returning to the SmartGuard feature after an exit, on page 144*.

Title and text	Type	Explanation	Next steps
Enter BG now SmartGuard has been at maximum delivery rate for 7 hours. Enter BG to continue in SmartGuard.	Alert	SmartGuard has been delivering at the maximum SmartGuard basal delivery rate for seven hours. This rate is determined automatically by the system.	• Select **OK** to clear the alert. • Enter a BG meter reading to return to Auto Basal. • Follow instructions from a healthcare professional and continue to monitor BG.
Enter BG now SmartGuard has been at maximum delivery rate for 7 hours. Enter BG to continue in SmartGuard. This event occurred while pump was suspended, and action is required to resume delivery.	Alert	The pump is suspended and the SmartGuard feature has been unable to lower the SG reading. SG is predicted to remain above the SmartGuard target.	• Select **OK** to clear the alert. • Enter a BG meter reading. • Follow instructions from a healthcare professional and continue to monitor BG.



Note:

- The title of the alert appears the same as the previous SmartGuard max delivery alert in the table.
- If the pump is suspended, there will be no delivery. However, the alert may still occur.

Title and text	Type	Explanation	Next steps
Enter BG now SmartGuard has reached the time limit for minimum delivery rate. Enter BG to continue in SmartGuard.	Alert	The SmartGuard feature has reached the time limit for minimum delivery. The minimum delivery time is three to six hours, depending on the reason for the minimum delivery rate.	• Select **OK** to clear the alert. • Enter a BG meter reading to return to Auto Basal. • Follow instructions from a healthcare professional and continue to monitor BG.

Title and text	Type	Explanation	Next steps
Enter BG now SmartGuard has reached the time limit for minimum delivery rate. Enter BG to continue in SmartGuard. This event occurred while pump was suspended, and action is required to resume delivery.	Alert	SmartGuard has reached the time limit for minimum delivery. The minimum delivery time is three to six hours, depending on the reason for the minimum delivery rate.	• Select **OK** to clear the alert. • Enter a BG meter reading. • Follow instructions from a healthcare professional and continue to monitor BG.



Note:

- The title of the alert appears the same as the previous SmartGuard min delivery alert in the table.
- If the pump is suspended, there will be no delivery. However, the alert may still occur.

Enter BG now Enter BG to continue in SmartGuard.	Alert	The SmartGuard feature requires a BG reading to check the reliability of the sensor.	• Select **OK** to clear the alert. • Enter a BG meter reading to return to Auto Basal, or to enter the SmartGuard feature from Manual mode.

Title and text	Type	Explanation	Next steps
High BG XXX mg/dL Check infusion set. Check ketones. Monitor BG. Confirm BG?	Alert	The BG meter reading is above 250 mg/dL. This alert applies only to the SmartGuard feature. There is an equivalent alert for Manual mode. See *CGM (sensor) alarms, alerts, and messages, on page 251*.	Select **No** to prevent the remote BG from being used by the pump. Select **Yes** to confirm the BG reading.

CareLink software alert and message

The following table lists the most common or serious alerts and messages related to CareLink software. The table also explains the meaning, consequences, and the reasons why these notifications appear, and provides steps for problem resolution. If an alarm, alert, or message occurs that is not listed, select **OK** to clear the notification and contact a local Medtronic support representative.

Title and text	Type	Explanation	Next steps
CareLink uploader not found. Follow instructions on the CareLink uploader.	Message	The pump cannot find the CareLink uploader because the wrong pump code was entered, or the search timed out before the pump found the uploader.	• Select **OK** to clear the message. • Follow the instructions on the CareLink uploader. For details, see *Uploading device data to CareLink software, on page 93*.

Title and text	Type	Explanation	Next steps
Download slow Insulin delivery not affected. CareLink download may take longer than usual. Select OK to continue. See User Guide.	Alert	The download of pump data is taking longer than expected. Data will not be affected.	• Select **OK** to clear the alert. • Wait for the data to finish downloading. • If problem still persists or if there is no progress in download, call a local Medtronic support representative for assistance.

Appendix B: Product specifications

Product specifications

This appendix provides detailed product specifications.

Specifications and default settings

Alarm and alert escalation

The following alerts may escalate to a siren if not cleared:

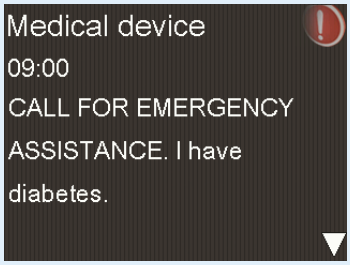
- Alert before high
- Alert before low
- Alert on high
- Alert on low
- Basal delivery resumed
- BG not received
- Calibration not accepted
- Change sensor
- Check connection
- Enter BG now
- Lost sensor signal
- No calibration occurred
- Possible signal interference
- High SG
- Rise Alert
- Sensor expired
- Sensor signal not found
- Low SG XX mg/dL (XX represents 54 mg/dL or below)
- Sensor updating
- Transmitter battery depleted

The MiniMed 780G insulin pump plays a siren if the alert is not cleared within ten minutes. Before ten minutes, the pump beeps, vibrates, or both, depending on the sound and vibration settings.

Minutes	Sound	Vibration	Sound and vibration
0-5	Beep	Vibrate	Beep and vibrate

Minutes	Sound	Vibration	Sound and vibration
6-9	Beep and vibrate	Sound and vibrate	Beep and vibrate
10	Siren and vibrate	Siren and vibrate	Siren and vibrate

Note: The Medical device alarm plays a siren when this screen appears.



Altitude range

- Operating range: 70.33 kPa (10.2 psiA) to 106.18 kPa (15.4 psiA)
- Storage range: 49.64 kPa (7.2 psiA) to 106.18 kPa (15.4 psiA)

Backlight

Type	LED (Light-emitting Diode)
Time out	15 seconds (default), 30 seconds, one minute, three minutes
Time out when battery is low	15 seconds (default), 30 seconds

Basal delivery

Delivery rate range	0 to 35 units per hour or the Max Basal Rate amount, whichever is lower.
Max Basal Rate default	2 units per hour
Basal patterns	Maximum of 8 patterns. Each pattern covers a 24-hour period and can have up to 48 rates. Rates are set in 30-minute increments.
Basal pattern names	Fixed names: Basal 1, Basal 2, Basal 3, Basal 4, Basal 5, Workday, Day Off, Sick Day

Increments	• 0.025 units per hour for basal amounts in the range 0 to 0.975 units • 0.05 units per hour for basal amounts in the range 1 to 9.95 units • 0.1 units per hour for basal amounts of 10 to 35 units

BG meter reading

The BG meter reading refers to the most recent BG reading received from the meter. When an Accu-Chek Guide Link meter is used, the reading appears on the Home screen when the Sensor feature is off. The reading also appears in the Bolus Wizard screen when a bolus is programmed.

Expiration	12 minutes
Range	10 to 600 mg/dL

Bolus delivery

Bolus Speed options	• Standard: 1.5 units/minute • Quick: 15 units/minute
Bolus programming increments	• 0.025 units • 0.05 units • 0.1 units
Fluid delivered/stroke	• 0.25 µL (microliter) for 0.025 unit pump stroke • 0.5 µL for 0.05 unit pump stroke • 2.0 µL for 0.2 unit pump stroke

Bolus Wizard feature default settings

Note: When using the SmartGuard feature, the Bolus Wizard feature is called the Bolus feature.

Item	Default	Limits	Maximum available segments	Increments
Carb units	grams	-	8	-
Insulin to carb ratio	None	1–200 g/u	8	0.1 g/u for 1–9.9 g/u; 1 g/u for ratios of 10 g/u to 200 g/u
Insulin Sensitivity Factor*	None	5–400 mg/dL	8	1 mg/dL
BG Target*	None	60–250 mg/dL	8	1 mg/dL
Active Insulin Time	4 hours	2 to 8 hours	1	15 minutes

*Applies to Manual mode only.

Bolus Wizard feature specifications

The Bolus Wizard feature uses four formulas to estimate a bolus, depending on the current BG reading. The following formulas apply only when the carb units are in grams.

1. If the current BG reading is higher than the High BG Target, the Bolus Wizard feature subtracts active insulin from the BG correction estimate, then adds this value to the food estimate to get the total bolus estimate. However, if the result of subtracting the active insulin amount from the BG correction estimate is a negative number (less than zero), the total bolus estimate is based only on the food estimate.

$$\text{total bolus estimate} = \underbrace{\frac{A}{B}}_{\text{(food estimate)}} + \underbrace{\frac{C - D}{E}}_{\text{(correction estimate)}} - \text{active insulin}$$

where:
A = food (grams)
B = carb ratio
C = current BG
D = High BG Target
E = insulin sensitivity

Food estimate:

Carb grams ÷ Carb ratio = Units of insulin

Correction estimate:

(Current BG - High BG Target) ÷ Insulin sensitivity - Active insulin = Units of insulin

Total bolus estimate:

Food estimate + Correction estimate = Units of insulin

2. If the current BG is less than the Low BG Target, the Bolus Wizard feature adds the BG correction estimate to the food estimate to get the total bolus estimate.

$$\text{total bolus estimate} = \underbrace{\frac{A}{B}}_{\text{(food estimate)}} + \underbrace{\frac{C - D}{E}}_{\text{(correction estimate)}}$$

where: A = food (grams)
B = carb ratio
C = current BG
D = Low BG Target
E = insulin sensitivity

Food estimate:

Carb grams ÷ Carb ratio = Units of insulin

Correction estimate:

(Current BG - Low BG Target) ÷ Insulin sensitivity = Units of insulin

Total bolus estimate:

Food estimate + Correction estimate = Units of insulin

3. If the current BG reading is within the High or Low BG Target, the total bolus estimate is based only on the food estimate.

$$\text{total bolus estimate} = \underbrace{\frac{\text{food (grams)}}{\text{carb ratio}}}_{\text{(food estimate)}}$$

Food estimate:

Carb grams ÷ Carb ratio = Units of insulin

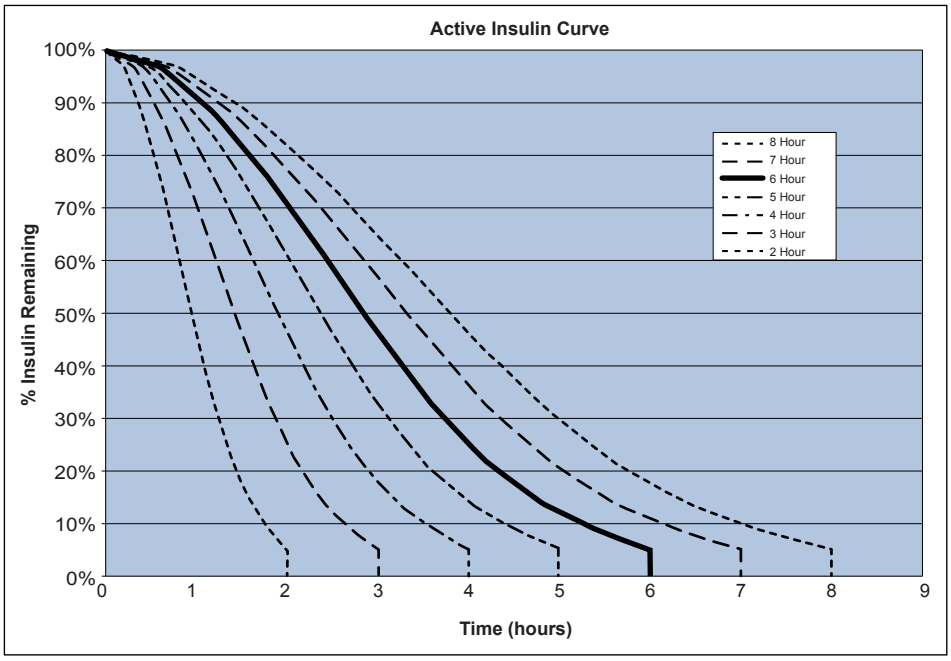
Note: When the current BG reading is below the Low BG Target, an active insulin amount is not considered in the Bolus Wizard feature calculations.

Total bolus estimate = Food estimate

4. If no BG reading is entered, the total bolus estimate is based only on the food estimate.

The following list includes additional conditions to consider when using the Bolus Wizard feature.

- If a Dual Wave bolus amount is less than the estimate due to the Max bolus limit or a change that is made, the Square portion of the bolus is reduced first.
- Based on the Active Insulin Time setting chosen, the pump tracks how much insulin is still active in the body. This is shown as Active Insulin, or Act. Insulin, on the Home screen, Bolus screen, Manual Bolus screen, Preset Bolus screen, and Daily History screen. This prevents over-infusion of insulin, and reduces the risk of hypoglycemia.
- The Bolus Wizard feature may use the current BG reading, carb units, and active insulin to calculate the estimated bolus.
- The Active Insulin Curve graph shows how long a bolus of insulin lowers glucose after the bolus is given. The percentage of insulin remaining lowers at varying rates depending on how long the insulin is active in the body.



Graph adapted from Mudaliar and colleagues, Diabetes Care, Volume 22, Number 9, Sept. 1999, page 1501.

Carb ratios

Maximum ratio settings	Range
8	1 to 200 grams/unit

Delivery accuracy

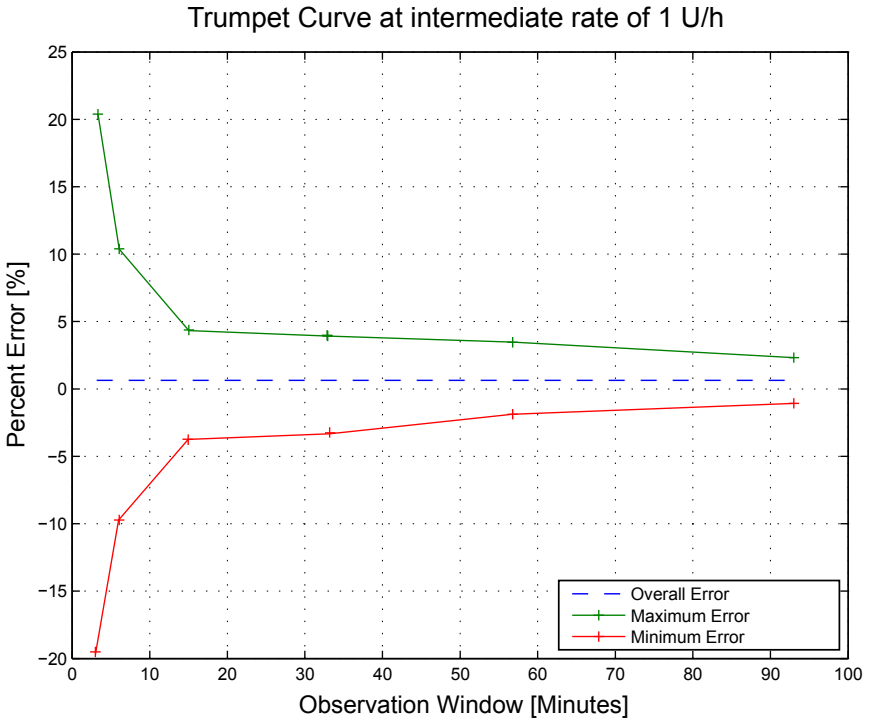
- For a basal rate of 1.0 U/h, the delivery accuracy is ±5%.

  For a basal rate of 0.025 U/h, the delivery accuracy is ±10%.

  Delivery accuracy for bolus volumes < 0.1 unit is ±20% and delivery accuracy for bolus volumes ≥ 0.1 unit is ±5%.

- All normal boluses are delivered within 16 minutes, 41 seconds ±3 seconds at Standard rate (25 units, at 1.5 units per minute), and within 1 minute, 41 seconds ±3 seconds at Quick rate (25 units, at 15 units per minute).

- During delivery, the maximum infusion pressure generated and the occlusion threshold pressure using a 3.0-mL reservoir is 90.67 kPa (13.15 psi). The average resulting bolus volume generated upon clearing the occlusion is 0.0112 mL (equivalent to 1.12 units of U-100 insulin).
- The following image is a representative delivery accuracy curve. The Trumpet Curve represents the maximum percentage change from the expected insulin dosage for a given time interval, known as the observation window, during the infusion of insulin. The upper curve corresponds to positive changes, and the lower curve corresponds to negative changes.



Easy bolus feature

Use the Easy bolus feature to set up and deliver a normal bolus when the pump is in Sleep mode. This is done using ⋀ and with the help of sound and vibration cues.

Sound mode range	0 to 20 increments or Max bolus limit, whichever comes first

Vibrate mode range	0 to 20 increments or Max bolus limit, whichever comes first
Default step size	0.1 unit
Adjustable step size	0.1 to 2 units per increment up to Max bolus limit

Environmental conditions

The MiniMed 780G system is designed to withstand most conditions encountered in daily life. For more details about environmental conditions, such as exposure to magnetic fields and radiation, waterproof capabilities, and extreme temperatures, see *User safety, on page 5*.

- Pump storage temperature range without a AA battery is from -20°C (-4°F) to 50°C (122°F).
- Pump operating temperature range is from 5°C (41°F) to 40°C (104°F).
- Operating air pressure range is from 700 hPa (10.2 psi) to 1060 hPa (15.4 psi).
- Storage air pressure range is from 496.4 hPa (7.2 psi) to 1060 hPa (15.4 psi).
- Relative humidity (RH) range during operation is from 20% to 90%.
- RH range during storage is from 5% to 95%.

Essential performance

The pump will maintain the following functionalities to avoid under-infusion and over-infusion:

- Delivery accuracy
- Occlusion detection
- Empty reservoir detection
- Detection of power loss
- Pump therapy status–UI component: LCD
- Notification annunciation and display–UI components: piezo-electric speaker, LCD–applies to all features above

Filling the infusion set and cannula

- The cannula can be filled from 0.025 units to 5.1 units, in increments of 0.025 units.

- The standard fill rate is 1.5 units per minute.

  The quick fill rate is 15 units per minute.
- When filling the tubing, a warning occurs at 30 units. A second warning occurs at 40 units indicating that the pump must be rewound.
- Insulin used to fill the infusion set is recorded in the Daily History. This insulin is NOT included in the Total Daily Delivery (TDD) totals on the Summary screen.

Infusion pressure

The maximum infusion pressure and occlusion pressure during the fill tubing process are 172.4 kPa (25 psi).

Insulin delivery default settings

Bolus settings

Item	Default setting	Limits	Increments
Bolus Wizard feature:	Off	-	-
Easy bolus feature:	Off	-	-
Easy bolus step size:	0.1 U	0.1 U to 2 U	-
Bolus increment:	0.10 U	0.025 U 0.05 U 0.10 U	-
Dual/Square bolus:	Off	-	-
Max bolus:	10 U	0 to 25 U (per single bolus)	-
Bolus BG Check Reminder:	Off	0:30 to 5:00	0:30

Basal settings

Item	Default setting	Limits	Increments
Max Basal Rate	2 U/h	0–35 U/h	0.025 U for 0.025–0.975 U/h 0.05 U for 1.00–9.95 U/h 0.1 U for rates of 10.0 U/h or more
Basal Rate	0.000 U/h	0.000 U/h to Max basal rate setting	0.025 U for 0.025–0.975 U/h 0.05 U for 1.00–9.95 U/h 0.1 U for rates of 10.0 U/h or more
Temp Basal Type	Percent	Percent, Rate	N/A
Temp Basal Percent	100%	0–200%	5%
Temp Basal Rate	Current basal rate	0.0 U/hr to Max Basal Rate	0.025 U for 0.025–0.975 U/h 0.05 U for 1.00–9.95 U/h 0.1 U for rates of 10.0 U/h or more

Low Reservoir reminder

The values are based on amount shown, not actual amount.

Alert range	Increment	Default value
The first reminder occurs at 5 to 50 units. The second reminder occurs at half of the remaining specified amount. The second reminder is automatic and cannot be changed.	1 unit	20 units

Max bolus

Range	0 to 25 units
Default	10 units

Normal bolus

Range is 0.025 to 25 units of insulin, and limited by the Max bolus setting.

Occlusion detection

When occlusion is detected, the Insulin flow blocked alarm occurs. The occlusion alarm is triggered by an average of 2.23 units of missed insulin (standard bolus) or 1.97 units of missed insulin (quick bolus). This table shows occlusion detection for four different situations when using U-100 insulin.

Rate	Minimum time before alarm	Average time before alarm	Maximum time before alarm
bolus delivery (10 units at standard speed)	71 seconds	95 seconds	136 seconds
bolus delivery (10 units at quick speed)	9 seconds	10 seconds	14 seconds
basal delivery (1.0 u/h)	2.00 hours	2.50 hours	3.80 hours
basal delivery (0.025 u/h)	123.38 hours	142.03 hours	178.33 hours



Note: Certain factors, such as ambient temperature changes or the presence of air in the infusion set or the reservoir, can delay an occlusion alarm.

Percent temp basal

The default value is 100 percent of basal programming. For example, if six units of basal insulin are delivered per day, the default temp basal amount will be six units per day.

Range	0 to 200%
Default	100% of basal programming
Increment	5%

Program safety checks

A single fault condition causes the pump to suspend insulin delivery. Maximum infusion with a single fault condition is 0.2 units.

Pump dimensions

The pump dimensions in centimeters are no greater than 9.68 length x 5.36 width x 2.49 depth.

The pump dimensions in inches are no greater than 3.81 length x 2.18 width x 1.01 depth.

Pump memory

User settings and pump history are stored in pump memory. The pump keeps 90 days of history for review.

Pump weight

The mass of the insulin pump without battery and consumables is less than 106 grams.

Sensor default settings

High sensor settings			
Item	**Default setting**	**Limits**	**Increments**
High SG alert limit	250 mg/dL	100 to 400 mg/dL	5 mg/dL
High SG fixed alert	On (cannot be turned off)	250 mg/dL for 3 hours	-
Alert before high	Off	-	-
Alert on high	Off	-	-
Time before high	15 minutes	5 to 30 minutes	5 minutes
Rise Alert	Off	-	-

High sensor settings			
Item	**Default setting**	**Limits**	**Increments**
Rise Limit	Two up arrows	• 1 up arrow (1 mg/dL/min) • 2 up arrows (2 mg/dL/min) • 3 up arrows (3 mg/dL/min) • Custom limit (1.0 to 5.0 mg/dL/min)	
High Snooze	1 hour	5 minutes to 3 hours	5 minutes

Low sensor settings			
Item	**Default setting**	**Limits**	**Increments**
Low SG alert limit	60 mg/dL	50 to 90 mg/dL	5 mg/dL
Low SG fixed alert	On (cannot be turned off)	54 mg/dL	-
Suspend before low	Off	-	-
Suspend on low	Off	-	-
Alert before low	Off	-	-
Alert on low	Off	-	-
Low Snooze	20 minutes	5 minutes to 1 hour	5 minutes
Resume basal alert	Off	-	-

The SmartGuard feature settings			
Item	**Default setting**	**Limits**	**Increments**
SmartGuard	Off	-	-
Target	100 mg/dL	100 to 120 mg/dL	10 mg/dL
Auto Correction	On	120 mg/dL	-
Temp Target	Off	150 mg/dL	-
Temp Target Duration	2 hours	30 minutes to 24 hours	30 minutes

Sound frequency

The following table lists audible tones that the pump emits, and their corresponding frequencies:

Tone name	Frequency
Alarm	1655 Hz followed by 3310 Hz
Alternate Alarm	1850 Hz
Siren (escalated alarm)	1655 Hz, followed by 3310 Hz
Alert	934 Hz
High SG	1312 Hz, followed by 1410 Hz, 1500 Hz, 1619 Hz, 1722 Hz
Low SG	1722 Hz, 1619 Hz, 1500 Hz, 1410 Hz, 1312 Hz
Lost SG	1485 Hz, followed by 1395 Hz, 1320 Hz, 1395 Hz
Message tone	1655 Hz
Suspend message tone	2100 Hz, followed by 1800 Hz and 2100 Hz
Reminder tone	934 Hz
Fill tubing tone	1850 Hz
Bolus delivery cancellation tone	1485 Hz, followed by 1655 Hz and 1485 Hz
Loading complete tone	934 Hz
Reservoir loading in progress tone	1850 Hz

Tone name	Frequency
Easy bolus activation	1045 Hz
Easy bolus step 1 increment	1175 Hz
Easy bolus step 2 increment	1320 Hz
Easy bolus step 3 increment	1395 Hz
Easy bolus step 4 increment	1570 Hz
Easy bolus step 5 increment	1760 Hz

IEC60601-1-2:4th Edition notice

IEC60601-1-2:4th Edition; Special EMC Precautions for Medical Electrical Equipment

1. Special Precautions regarding Electromagnetic Compatibility (EMC): This body worn device is intended to be operated within a reasonable residential, domestic, public or work environment, where common levels of radiated "E" (V/m) or "H" fields (A/m) exist; such as cellular phones that are not paired with the MiniMed 780G system, Wi-Fi networks, Bluetooth wireless technology, electric can openers, microwave and induction ovens. This device generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the provided instructions, may cause harmful interference to radio communications.
2. Portable and mobile RF communications equipment can affect Medical Electrical Equipment as well. If RF interference from a mobile or stationary RF transmitter is encountered, move away from the RF transmitter that is causing the interference.

IEC60601-1-2:4th Edition; 5.2.1.1

The MiniMed 780G system should not be used adjacent to other electrical equipment. If adjacent use becomes necessary, the MiniMed 780G system should be observed to confirm normal system operation.

Guidance and manufacturer's declaration

Guidance and Manufacturer's Declaration - Electromagnetic Emissions		
The MiniMed 780G insulin pump is intended for use in the electromagnetic environment specified below. Make sure that the MiniMed 780G insulin pump is used in such an environment.		
Emissions Test	Compliance	Electromagnetic Environment - Guidance
RF emissions Test: 47 CFR Part 15, Subpart C Section 15.247/FCC Part 15 Subpart B Section 15.109	• 6 dB and 99% Bandwidths: Complies • Maximum Output Power: Complies • TX Spurious Emissions: Complies • Power Spectral Density: Complies • Radiated Emissions at Band Edge: Complies	The MiniMed 780G insulin pump must emit electromagnetic energy in order to perform its intended function. Nearby electronic equipment may be affected.
Harmonic emissions IEC 61000-3-2	Not applicable	
Voltage fluctuations/ flicker emissions IEC 61000-3-3	Not applicable	
RF emissions CISPR 11 (2009)+A1	Complies Group 1 Class B	The MiniMed 780G insulin pump is suitable for use in aircraft and in all establishments, including domestic and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
RTCA DO 160G (2010) 20.5 and 21.5	Complies	

Guidance and Manufacturer's Declaration - Electromagnetic Immunity			
The MiniMed 780G insulin pump is intended for use in the electromagnetic environment specified below. Make sure that the MiniMed 780G insulin pump is used in such an environment.			
Immunity Test	IEC 60601-1-2 Test Level	Compliance Level	Electromagnetic Environment - Guidance
Electrostatic discharge (ESD) IEC 61000-4-2, 60601-1-2	±8 kV contact ±2, 4, 8, 15 kV air	±8 kV contact ±2, 4, 8, 15 kV air	For use in a typical domestic, commercial, or hospital environment.
Conducted disturbances induced by RF fields	3 Vrms 150 kHz to 80 MHz 6 Vrms ISM bands between 150 kHz to 80 MHz	Not applicable	Requirement does not apply to this battery powered device.
Electrical fast transient/ burst IEC 61000-4-4	±2 kV 100 kHz repetition frequency	Not applicable	Requirement does not apply to this battery powered device.
Surge IEC 61000-4-5	Line to Line: ±0.5 kV, ±1 kV Line to Ground: ±0.5 kV, ±1 kV, ±2 kV	Not applicable	Requirement does not apply to this battery powered device.

Guidance and Manufacturer's Declaration - Electromagnetic Immunity			
Voltage dips, short interruptions, and voltage variations on power supply lines IEC 61000-4-11	0% U_T; 0.5 cycle (at 0°, 45°, 90°, 135°, 180°, 225°, 270°, and 315°) 0% U_T; 1 cycle (at 0°) 70% for 25/30 cycles (at 0°) 0% for 250/300 cycles	Not applicable	Requirement does not apply to this battery powered device.
Power frequency (50/60 Hz) electromagnetic field IEC 61000-4-8, IEC 60601-1-2	30 A/m (continuous field at 60 seconds)	30 A/m 400 A/m per IEC 60601-2-24: 1998	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
Proximity fields from RF wireless communications equipment IEC 61000-4-3	IEC 60601-1-2:2014, Table 9	IEC 60601-1-2:2014, Table 9	For use in a typical domestic, commercial, or hospital environment.
Note: *U_T is the a.c. mains voltage prior to application of the test level.*			

Guidance and Manufacturer's Declaration - Electromagnetic Immunity			
The MiniMed 780G insulin pump is intended for use in the electromagnetic environment specified below. The customer or user of the MiniMed 780G insulin pump should assure that it is used in such an electromagnetic environment.			
Immunity Test	IEC 60601-1-2 Test Level	Compliance Level	Electromagnetic Environment Guidance
Radiated RF IEC 61000-4-3 IEC 60601-1-2 EN 301 489-17	10 V/m 80 MHz to 2.7 GHz 80% AM at 1 kHz	10 V/m 80 MHz to 2.7 GHz 80% AM at 1 kHz	Portable and mobile RF communications equipment should be used no closer to any part of the MiniMed 780G insulin pump, including cables, than the recommended separation distance of 30 cm (12 inches). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey, should be less than the compliance level in each frequency range. Interference may occur in the vicinity of equipment marked with the following symbol: 

Wireless communication

The MiniMed 780G insulin pump communicates using smart device connectivity.

Operating frequency/ Modulation type(s)	2.4 GHz band, GFSK
Effective radiated power (ERP)	1.48 mW (1.69 dBm)
Effective isotropic radiated power (EIRP)	2.42 mW (3.83 dBm)

Open Source Software disclosure

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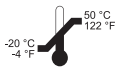
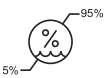
- LZ4–compression library (v1.9.1): http://www.lz4.org
- SWIG (v3.0.12): http://www.swig.org
- FNV-1 hash algorithm (v5.1): http://www.isthe.com/chongo/tech/comp/fnv/ and http://www.isthe.com/chongo/src/fnv/fnv64.c
- CRC32 algorithm: https://opensource.apple.com/source/xnu/xnu-792.13.8/bsd/libkern/crc32.c

Icon table

Consult instructions for use	
Manufacturer	
Date of manufacture	
Use-by date	
One per container/package	(1X)
Do not dispose of this product in unsorted municipal waste stream	
Catalogue number	REF
Serial number	SN
Configuration or unique version identifier	CONF
Storage temperature range	
Storage humidity range	
Magnetic Resonance (MR) Unsafe	
Type BF applied part	
Identification number for global radio frequency certification	RF
Non-ionizing electro-magnetic radiation	
Pump: Protected against the effects of continuous immersion in water (3.6 meters or 12 feet for 24 hours).	IPX8
Conformité Européenne (European Conformity). This symbol means that the device fully complies with applicable European Union Acts.	CE0459

Complies with ANZ radio communications requirements	

Glossary

Glossary

active insulin	Bolus insulin delivered by the insulin pump that continues to lower BG levels.
active insulin time	A Bolus Wizard setting used to indicate length of time that bolus insulin is tracked as active insulin.
activity guard	An attachment that secures the reservoir during activity or when the insulin pump is worn by a child.
alarm	An audible beep or vibration with a message to inform that the insulin pump is no longer delivering insulin. Alarms require immediate action.
alarm history	A feature that stores information about recent alarms and alerts.
alert	An audible beep or vibration with a message to inform of a situation that may require attention.
alert before low	An alert that occurs when the low SG reading is being approached.
alert limits	The settings that determine when low and high SG alerts are triggered.
alert on low	An alert that occurs when the SG reading reaches or falls below the low limit.
auto basal	The automatically adjusted basal insulin delivered by the SmartGuard feature based on the current SG readings.

Auto correction	A correction bolus automatically delivered by the MiniMed 780G system to maximize time in range. Auto correction only occurs when using the SmartGuard feature.
auto suspend	A feature that suspends insulin delivery and triggers an alarm if no buttons are pressed for the specified period of time. Insulin delivery resumes when the alarm is cleared.
awake mode	A state in which the pump screen is on. The Home screen appears unless another screen is being used.
basal insulin	Insulin that is continuously delivered by the insulin pump to meet insulin needs between meals and during sleep.
basal pattern	A set of one or more basal rates that covers a 24-hour period.
basal rate	The setting for the amount of continuous basal insulin to be delivered per hour.
BG	The acronym for blood glucose. For more information, see *blood glucose (BG)*.
BG meter	A device that measures glucose levels in the blood.
BG targets	The high and low BG readings used for BG correction when using the Bolus Wizard feature.
Block mode	A feature that restricts the ability to change all settings. Certain functions can still be performed, such as suspend insulin delivery, test the pump, or clear alarms and alerts.
blood glucose (BG)	Glucose that is present in the blood, commonly measured by a BG meter.
bolus BG check reminder	A reminder for a BG check after programming a bolus. The reminder appears when the specified time period has passed.
bolus insulin	Insulin used to cover an expected rise in BG levels due to carbohydrates, or to lower a high BG reading down to the BG target range.

bolus speed	The delivery speed for bolus insulin.
Bolus Wizard feature	A feature that uses individual Bolus Wizard settings to calculate an estimated bolus amount based on the BG value and the entered carbs. These settings include carb ratio, insulin sensitivity factor, BG target range, and active insulin time.
calibrate	The process of using a meter BG reading to calculate SG values.
calibration reminder	A reminder to calibrate the sensor when the next calibration is due. This feature is not applicable when using the Guardian 4 sensor.
cannula	Short, thin, and flexible tube placed in the tissue below the skin. Insulin is delivered through the cannula into the body.
carb ratio	The number of grams of carbohydrates covered by one unit of insulin. The carb ratio is used to calculate bolus amounts.
CGM	The acronym for continuous glucose monitoring. For more information, see *continuous glucose monitoring (CGM)*.
continuous glucose monitoring (CGM)	A monitoring tool that uses a glucose sensor placed below the skin to continuously measure the amount of glucose in the interstitial fluid.
correction bolus	Insulin used to lower a high BG or SG reading down to a target value.
CT scan	The acronym for computed tomography scan.
daily history	Details of the events entered or actions performed using the insulin pump.
diabetic ketoacidosis	A serious condition that occurs when insulin levels are low, BG levels are elevated, and the body uses fat for energy. This process produces ketones, which upset the acid-base balance in the body, leading to a potentially life-threatening situation.

Dual Wave bolus	A type of bolus that provides a dose of insulin delivered as a combination of a normal bolus followed by a Square Wave bolus.
Easy bolus	A feature that delivers a normal bolus in preset increments using only sound or vibrate confirmation.
EMC	The acronym for electromagnetic compatibility.
ESD	The acronym for electrostatic discharge.
food bolus	A dose of insulin given to cover an expected rise in glucose levels from carbohydrates.
GPS	The acronym for global positioning system.
high limit	The setting the insulin pump uses to determine when to alert for a high SG condition.
infusion set	Tubing that connects to the reservoir on one end, and has a needle or cannula on the other end, that is inserted into the body. Insulin travels from the insulin pump through the infusion set into the body.
infusion site	The location on the body where the infusion set is inserted.
insulin sensitivity factor	The amount that BG is reduced by one unit of insulin. The insulin sensitivity factor is used to calculate correction bolus amounts.
interstitial fluid	The fluid that surrounds the cells in the body.
IV	The acronym for intravenous.
lock	A feature that prevents accidental button presses.
low limit	The setting the insulin pump uses to determine when to alert for a low SG condition and suspend insulin delivery.
Manual bolus	A feature to manually enter and deliver a dose of insulin.
Manual mode	Manual mode refers to system functions that are used when the SmartGuard feature is inactive.
Max basal rate	The maximum amount of basal insulin that can be delivered per hour.

Max bolus	The maximum bolus amount that can be delivered in one dose.
meter	A term for any BG meter.
missed meal bolus reminder	A reminder when a bolus is not delivered during the specified time period, which is often around meal times.
MRI	The acronym for magnetic resonance imaging.
NiMH	The acronym for nickel-metal hydride.
normal bolus	A type of bolus that provides an entire dose of insulin immediately.
notifications	All notifications are designed to get attention and convey different types of information. They include alarms, alerts, reminders, and messages.
occlusion	A blockage or crimp of the cannula or tubing that prevents proper insulin flow.
piston	The part of the insulin pump that engages the reservoir and moves insulin through the tubing.
power save mode	A state in which the insulin pump is fully functional, but the screen goes dark to save power.
preset bolus	A feature to set up and save a bolus for specific meals or snacks that are frequently consumed.
preset temp basal	A feature to set up and save temporary basal rates for repeated use.
reminder	A type of notification to help remember an action.
reservoir	The small container that is filled with insulin and inserted into the insulin pump.
Resume basal alert	An alert that occurs when the insulin pump has automatically resumed basal insulin delivery after a Suspend before low or Suspend on low event because the SG readings have met the necessary criteria. This alert always occurs if basal insulin delivery has resumed because the two-hour maximum suspend time has elapsed.

rewind	A feature that returns the piston to its start position to place a new reservoir into the insulin pump.
RF	The acronym for radio frequency.
rise alert	An alert that occurs if the SG reading is rising rapidly.
sensitivity	For more information, see *insulin sensitivity factor*.
sensor (glucose sensor)	The small part of the CGM system that is inserted just below the skin to measure glucose levels in the interstitial fluid.
sensor glucose (SG)	Glucose that is present in the interstitial fluid and is measured by a glucose sensor.
set change reminder	A reminder to change the infusion set.
SG	The acronym for sensor glucose. For more information, see *sensor glucose (SG)*.
Sleep mode	A state in which the insulin pump is fully functional, but the screen is dark. The insulin pump automatically enters Sleep mode when no buttons are pressed for about two minutes.
SmartGuard bolus feature	A feature that assists to calculate a recommended bolus amount based on optional carbohydrate intake and optional BG or SG measurement. One or both of the two optional values may be entered.
SmartGuard feature	An insulin delivery feature that automatically controls basal insulin delivery to regulate BG levels to a target SG value.
SN	The acronym for serial number.
Square Wave bolus	A bolus delivered evenly over the specified time period.
suspend	Suspend features include the Suspend before low feature and the Suspend on low feature.
Suspend before low	A feature that suspends insulin delivery when the sensor predicts the SG reading is approaching the low limit.
suspend delivery	A feature that stops all insulin delivery until it is resumed. Only the basal insulin restarts when delivery is resumed.

Suspend on low	A feature that suspends insulin delivery when the SG reading reaches or falls below the low limit.
TDD	The acronym for total daily dose.
temp basal rate (temporary basal rate)	A feature that temporarily increases or decreases the current basal rate for the specified duration of time.
transfer guard	The plastic piece that comes attached to the reservoir. It is used to connect the reservoir to the insulin vial while the reservoir fills with insulin.
transmitter	A device that connects to a glucose sensor. The transmitter collects data measured by the sensor and wirelessly sends this data to the insulin pump.

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