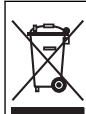


Antennas for flow products

Precautionary labels

Read all labels and tags attached to the instrument. Personal injury or damage to the instrument could occur if not observed. A symbol on the instrument is referenced in the manual with a precautionary statement.



Electrical equipment marked with this symbol may not be disposed of in European domestic or public disposal systems. Return old or end-of-life equipment to the manufacturer for disposal at no charge to the user.

Product components

Make sure that all components have been received. If any items are missing or damaged, contact the manufacturer or a sales representative immediately.

Required equipment/software

Make sure that the following requirements are available:

- FL900 Series flow logger with modem option
- Remote host computer operating FSDATA
- Portable computer operating FSDATA Desktop
- Activated wireless account

FL900 Series Flow Logger

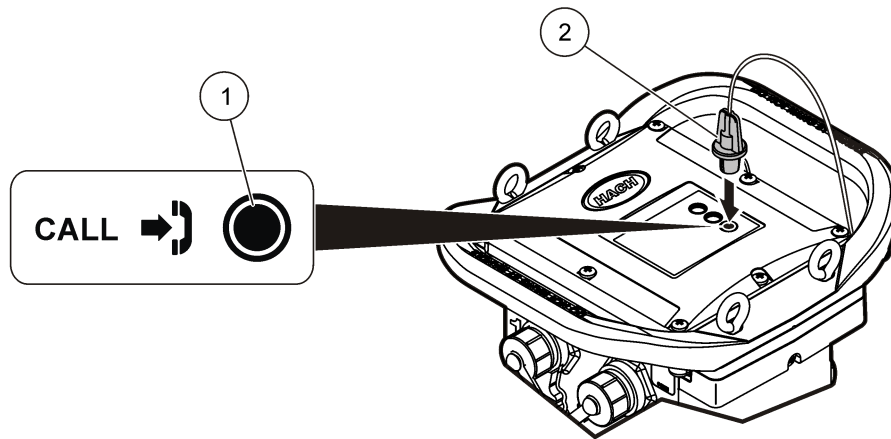
Verify the telemetry (wireless option)

The user can manually send a call to the server to make sure that the network communication is good.

1. Temporarily attach the antenna to the logger to test the antenna and the cell coverage at the site location before installation.
2. Touch the magnet to the call initiation target ([Figure 1](#)). The modem LED indicator changes to green.
3. Look at the modem LED indicator during the call (45 to 90 seconds) and wait for a change:
 - LED goes off—the connection to the server is good.
 - LED flashes red—the connection to the server failed.

Note: If the connection failed, refer to the instrument user manual for more information.

Figure 1 Call the server



1 Call initiation target

2 Magnet

Installation

⚠ WARNING

Electromagnetic radiation hazard. To meet regulatory radio safety requirements for this modem, do not use or install the device with an antenna that is not supplied by the manufacturer. Make sure that all antennas are kept at a minimum distance of 20 cm (7.9 in.) from all personnel in normal use.

NOTICE

Test the antenna and cell coverage at the site location before installation.

NOTICE

Make sure that the flow meter is programmed to call the host PC before installation.

Blade antenna

NOTICE

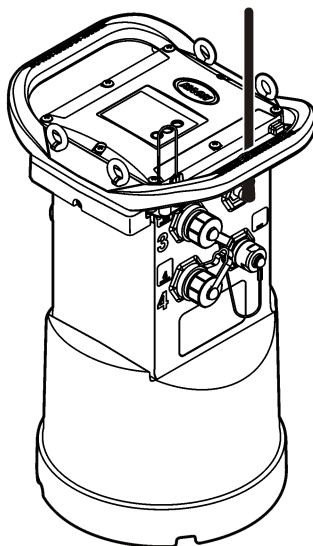
The blade antenna is intended for above-ground use.

1. Unpack the antenna ([Figure 2](#)).
2. Bend the antenna at the joint to a 90 degree angle between the antenna and the swivel fitting.
3. Put the antenna extension inside of the logger handle ([Figure 3](#)).
4. Align the threads from the antenna fitting to the antenna receptacle on the logger. Hand-tighten by turning the swivel end.

Figure 2 Blade antenna



Figure 3 Blade antenna attached



Traffic rated manhole lid antenna

Required tools:

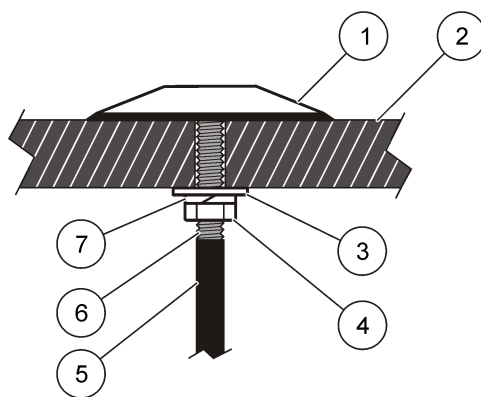
- 31.75 mm (1¼ in.) open-end wrench
- Large nylon Ty-wrap cable ties

1. Unpack the antenna ([Figure 4](#)) or disassemble the antenna from the instrument.
2. Make sure that the manhole lid has a 25.4 mm (1 in.) hole for the antenna neck to fit into.
***Note:** Do not use the pick hole. Use a drill, motor oil for lubrication and increasing size drill bits to drill the 25.4 mm (1 in.) hole if needed. Make sure that the location of the hole does not coincide with the ribs on the underside of the manhole lid.*
3. Remove the manhole lid and put the lid in a stable position where the lid top and bottom are accessible.
4. Remove the nut and washers from the threaded neck on the base of the antenna ([Figure 5](#)).
5. Put the antenna cable and neck through a hole on the manhole lid until the base of the antenna is against the top of the manhole lid.
6. Install the flat washer, then the lock washer and then the nut on to the threaded neck of the antenna.
7. Tighten the nut with the open-end wrench until both washers are flush against the base of the manhole lid and the antenna is tight ([Figure 5](#)).
8. Connect the antenna cable to the instrument connector labeled "Antenna". To make sure proper transmission, hand-tighten the connections.
9. Attach any excess cable to the access ladder or another non-obstructing location with Ty-wrap cable ties.
10. Replace the manhole lid.

Figure 4 Traffic rated manhole lid antenna



Figure 5 Manhole lid installation



1 Antenna top	5 Antenna cable
2 Manhole lid	6 Antenna threaded neck
3 Flat washer	7 Lock washer
4 31.75 mm (1¼ in.) nut	

Mini-wing antenna

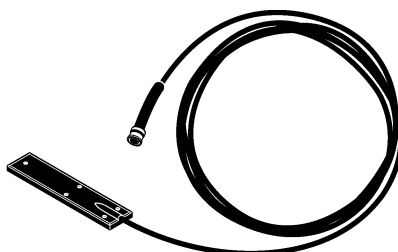
The mini-wing antenna can be attached to an interior wall or to a window for a longer term deployment or the antenna can be attached to a manhole lid for a short term deployment.

Required tools:

- Large nylon Ty-wrap cable ties

1. Unpack the antenna (Figure 6).
2. To attach the antenna to a window or a wall, remove the adhesive backing and push the antenna to a clean surface.
3. To attach the antenna to a manhole, make sure that the manhole lid has a hole large enough for the antenna connector to fit into.
Note: Do not use the pick hole. Use a drill, motor oil for lubrication and increasing size drill bits to drill the 1" hole if needed. Make sure that the location of the hole does not coincide with the ribs on the underside of the manhole lid.
4. Remove the manhole lid and put the lid in a stable position where the lid top and bottom are accessible.
5. Put the antenna cable through a hole on the manhole lid and put the antenna against the top of the manhole lid.
6. Attach the antenna to the manhole lid with heavy tape or tar tape.
7. Connect the antenna cable to the instrument connector labeled "Antenna". To make sure proper transmission, hand-tighten the connections.
8. Attach any excess cable to the access ladder or another non-obstructing location with Ty-wrap cable ties.
9. Replace the manhole lid.

Figure 6 Mini-wing antenna



Traffic rated in-road/burial antenna

Required tools:

- Asphalt saw or auger: saw capable of cutting 127 mm (5 in.) in diameter and 95.3 mm (3.75 in.) deep into a road surface or ground
- Asphalt chisel
- Hammer drill with 19.1 to 25.4 mm ($\frac{3}{4}$ to 1 in.) asphalt drill bit (for antenna cable installation)
- Sakrete asphalt mix (Asphalt patch)
- Bondo; Mar-Hyde P606 Traffic Detector Wire Loop Sealer or equal
- Shovel, if placing in the ground

The traffic rated in-road/burial antenna is intended for burial beneath the road surface or ground adjacent to a manhole or vault that is being monitored (Figure 8).

NOTICE

The antenna should be installed in the road approximately 152.4 to 203.2 mm (6 to 8 in.) from the manhole or vault containing the flow meter. Make sure to drill outside of the manhole ring (steel).

1. Unpack the antenna (Figure 7) or disassemble the antenna from the instrument.
2. Excavate a hole or trench in the road surface or ground approximately 127 mm (5 in.) in diameter (or square) and 95.3 mm (3.75 in.) deep.
3. Select the closest position from the excavated hole to the manhole. Drill a 19.1 to 25.4 mm ($\frac{3}{4}$ to 1 in.) hole from the selected position to the manhole. Make sure to drill the hole below the steel manhole cover support ring (Figure 8, 2).
4. Put the antenna cable through the drill hole into the manhole or vault.
5. Install the antenna in the excavated hole. Pull the antenna cable taut. Locate the antenna so that the top of the antenna is minimum 6.4 ($\frac{1}{4}$ in.) to 12.7 mm ($\frac{1}{2}$ in.) maximum below the road or ground surface. Make sure the antenna sits safely in the hole.
6. Attach the antenna cable to the antenna connector.
7. Make sure that the antenna is working by placing a call from the instrument.
8. When the operation of the antenna is confirmed, permanently bury the antenna.
 - a. Insert asphalt mix around the antenna and pack it in place. Make sure the antenna is sitting firmly on a solid base and cannot be rocked back and forth.
 - b. Install the asphalt mix around the antenna. The mix should be level with the road surface but not over the antenna surface.
 - c. Pour the Bondo sealer on and over the asphalt mix and over the top of the antenna. There should be no more than 6.4 mm ($\frac{1}{4}$ in.) of Bondo sealer over the top of the antenna.

Figure 7 Traffic rated in-road/burial antenna

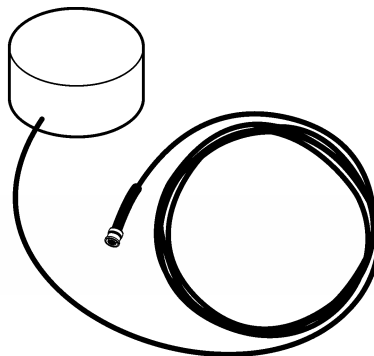
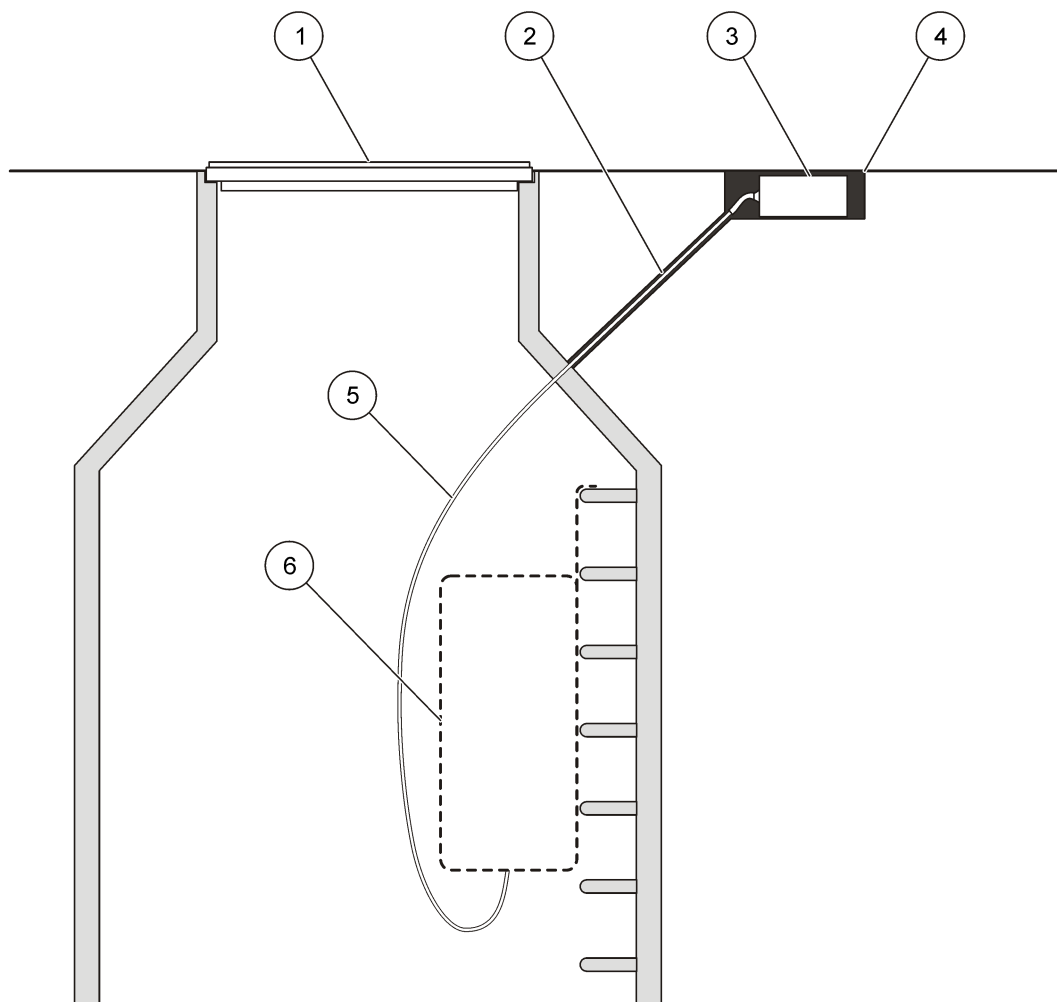


Figure 8 Burial antenna assembly



1 Manhole cover	4 Trench or hole for antenna
2 19.1 to 25.4 mm (¾ to 1 in.) hole	5 Antenna cable
3 Antenna	6 Flow meter

Replacement Parts

Note: Product and Article numbers may vary for some selling regions. Contact the appropriate distributor or refer to the company website for contact information.

Description	Item no.
Antenna, blade, 3G/4G LTE, 3 dBi	8623800
Antenna, mini-wing, 2G/3G/4G LTE, 2.5-meter cable, 5.5 dBi	8624000
Antenna, burial, 3G/4G LTE, 3-meter cable, 3 dBi	8624200
Antenna, manhole lid, 3G/4G LTE, 3-meter cable, 3 dBi	8624400

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