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Technical Support Sheet - Installation & Maintenance Instructions

Smarterwater®
Wastewater Manhole Sensor

TSS S1.3IMI
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This document provides step by step installation and maintenance guidance for the Hynds Smarterwater® Wastewater Manhole Sensor.

Contents

HYNDS SMARTERWATER

1. Safety Considerations

The Hynds Smarterwater® Wastewater Manhole Sensor has been designed and certified as Intrinsically Safe, allowing for its use in IECEx defined Zone 2 environments. As such, it can be installed in eligible sewer, stormwater and other water systems requiring water level measurement. The hazards while installing or maintaining this product can include but are not limited to the presence of dangerous and explosive gases, confined spaces and fall risks. The user should follow their organisation's safety policies and ensure all safety procedures are adhered to when installing and performing maintenance of the device.

2. Intrinsic Safety Considerations

The Hynds Smarterwater® Wastewater Manhole Sensor is Ex certified to the below parameters and IEC standards:

- Ex ic IIB T4 Gc
- -10 °C ≤ Ta ≤ +65°C
- IEC 60079-0:2017
- IEC 60079-11:2011

Certificate numbers are listed below. Copies of these documents are available at https://www.iecex-certs.com

- IECEx ExTC 21.0016X
- IECEx ExTC 22.0008X

Special considerations:

- This product is IECEx certified to operate between an ambient temperature range of -10°C and +65°C.
- For further information on intrinsically safe parameters, refer to the IECEx product certificate.
- The product is rated for IP67 ingress protection. Do not clean the unit using a water blaster or similar pressurised water equipment.
- Due to the potential electrostatic charging hazard, clean the unit with a damp cloth only.
- Avoid the use of solvents.
- The batteries shall not be replaced by the user.
- Installation, maintenance, and repairs are to be performed by authorised and trained personnel only. Any unauthorised action (including the opening of the housing unit, the replacement of batteries and/or removal of parts) may lead to losing IP67 protection and/or Ex certification. If in doubt, contact Hynds Smarterwater® on 09 274 0316 or email info@smarterwater.co.nz

3. Installation Instructions

The Hynds Smarterwater® Wastewater Manhole Sensor has been designed and certified as Intrinsically Safe, allowing for its use in IECEx defined Zone 2 environments. As such, it can be installed in eligible sewer, stormwater and other water systems requiring water level measurement. The hazards while installing or maintaining this product can include but are not limited to the presence of dangerous and explosive gases, confined spaces and fall risks.

Suggested Equipment

- PPE
- Manhole cover safety grille
- Gas detector
- Lid lift
- Grinder
- Spanner (M24 ring spanner recommended)
- Cones and barriers
- Rags
- Hole Saw
- Traffic Management as required

FIG. 1 Smarterwater® Wastewater Manhole Sensor Exploded Diagram

Note: The user/installer is responsible for ensuring only properly rated tools are used in the hazardous zone. The installation steps 1, 2 and 3 are suggestions only, and the user/installer should check and follow their organisation's safety policies and site asset access procedures before commencing installation.

1. Isolate the working zone

2. Remove manhole cover by using lid lifter and place the manhole cover aside in a safe working area.

3. Ensure the area is safe from hazards in accordance with your organisation's safety operating procedures. For example, hazard identification and relevant testing may be required. If safe to proceed, secure the manhole access point with a manhole safety grille.

4. After moving the manhole cover to a safe area, choose the best installation location on the manhole cover. Subject to space and manhole lid design, the sensor may be installed centrally or in an offset position between the manhole cover ribs. Make sure there is a flat 160mm dia. clearance on the underside of the manhole to accommodate the sensor body. Next, grind the antenna area *(top of the manhole cover)* until the ribs or patterns are flat *(ensure sparks from grinding do not present a hazard for your location)*. The ground area needs to be round in shape with a minimum of 115mm dia. Drill a hole through the centre of the ground area *(at least dia. 25mm)*.

Note: *The swarf from grinding and drilling rusts very easily and will leave an orange stain if not contained. Ensure the area is enclosed properly when drilling and grinding, capture the fine grinding particles and dispose of them appropriately.*

5. Insert antenna dome through the drilled hole from the top of the manhole cover, then install the washer from the underside of the manhole cover. While holding the antenna with the Hynds antenna spanner, install and tighten the nut to a minimum of 75Nm.

Special precautions when attaching the antenna to a manhole cover:

- Ensure you use the **lock nut** provided with your installation kit.
- Before adjusting the nut, check there are no gaps between the antenna and the manhole cover surface. Lock nuts can be difficult to remove.
- Take special consideration to avoid damage to the antenna cable and connector when preforming this operation.
- Please remove the carboard stick from the shaft after installing the lock nut.

Products required:

- Antenna assembly
- M16 large washer
- M16 stainless steel lock nut
- Spanner provided by Hynds Smarterwater®

6. Thread the antenna cable through the center hole of the unit and slide the brain onto the stem *(ensure the key and groove are in the correct position)*.

7. Connect the gold plated connector to the bulkhead fitting on the housing. Once in place, use the tool provided to tighten the connector, although this can also be done by hand. Do not overtighten. Once the gold plated connector is connected, ensure the wire is tucked-in properly to the channel before the cable access cover is installed. Secure the cable access cover with the screw provided.

   Note: Do not use a metal spanner. Only use the spanner provided. Please note the spanner provided is designed to slip at the correct torque.

8. Install the washer and nut to secure the brain to the manhole lid, then insert the safety pin.

9. Turn ON the device using key provided. The key must be inserted for at least 2-3 seconds to allow for the unit to be activated. A series of beeps will confirm the status of the unit:
   - Turn ON indication: Two long beeps
   - Turning OFF indication: Four short beeps
   - Error indication: Alarm clock style buzzer

10. Remove the manhole safety grille and re-install the manhole cover complete with Smarterwater® sensor.

4. Maintenance Instructions

Equipment required:

- Safety gear
- Manhole cover grille
- Gas detector
- Lid lift
- Cones and barriers
- Damp cloth
- Traffic management as required

Note: If any electrical equipment is used, it must be IECEx certified. Otherwise, it can only be used outside of the hazard zone. The user/installer is responsible for ensuring the correct tools are used in the appropriate zone and environment. Steps 1, 2 and 3 are suggestions only.

Isolate the working zone and ensure the working area is safe to work. We suggest following step 1, 2, and 3 from Installation Instructions (please note, the user/installer should check and follow their organisation's safety policies and site access procedures before commencing maintenance).

Once the Smarterwater® manhole sensor is retrieved, use a damp cloth to wipe bottom of the housing. Do not open the housing, replace batteries and/or remove any parts. Any unauthorised action may lead to losing IP67 protection and the Ex certification.

Hynds can supply spare parts including antenna dome, magnet key, nuts, washers, and the entire unit.