H2scan
Advanced Hydrogen Sensing

1 Sentinel Quick Start Guide

What's in the Box

- Sentinel/Sentinel Pro IOT Monitor
- Voltage Pigtails (5.7m) (Sentinel Only)
- Voltage Cable (3m) (Sentinel Pro Only)
- Voltage Clamps (x4) (Sentinel Pro Only)
- Rogoski Current Sensing Cable (3m) (Sentinel Pro Only)
- Whip Antenna (Sentinel Only)
- PUK Antenna (Sentinel Pro, Optional for Sentinel)
- PUK Antenna Remote Mounting Bracket (Sentinel Pro, Optional for Sentinel)
- Magnet Activation Tool
- Cable Ties
- Quick Start Guide

Tools Required

- Portable Drill - For Drilling PUK Antenna Mounting Hole
- 3mm (0.125") Drill Bit - For Drilling Pilot Holes into Metal
- 25mm (1") Drill Bit - For Drilling PUK Antenna Mounting Hole
- Adjustable Wrench - For Tightening PUK Antenna Nut
- Wire Cutters - For Trimming Cable Ties

General Notes

- Appropriate PPE must be worn at all times during the installation process.
- Follow all applicable safety procedures, especially when working around/with energized equipment.
- The Sentinel/Sentinel Pro IOT Monitor should be positioned so that the voltage cable can be fully removed in a single fluid motion.
- Where possible, the voltage connection for the device should be installed below the feeder circuit's fuse cut-out, circuit breaker, or disconnect.
- Do not cut or trim any cables provided with the Sentinel/Sentinel Pro IOT Monitor.

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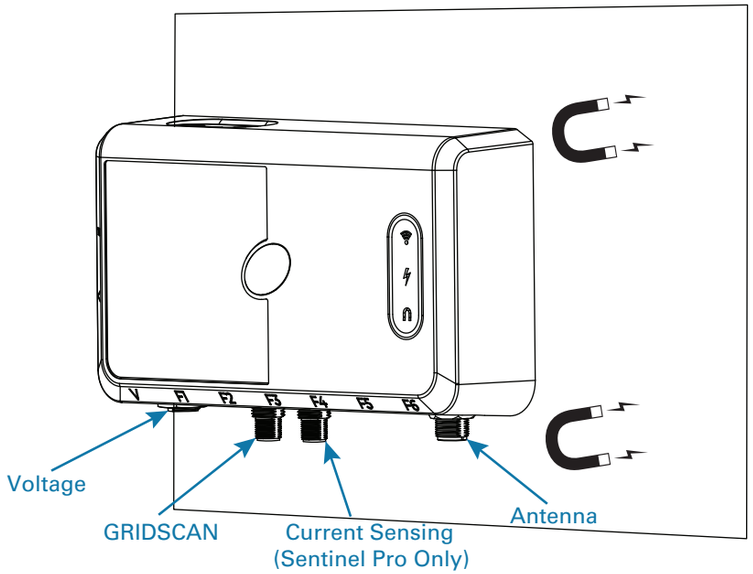
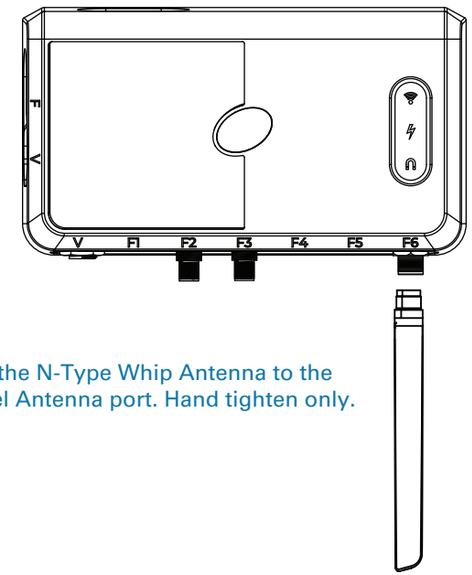
2 Mounting



1. Attach Sentinel to a metal surface using built-in magnets. Ensure sufficient space under unit to attach cables.

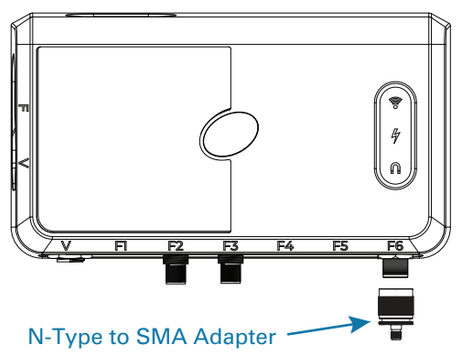
3 Antenna Installation (Sentinel)



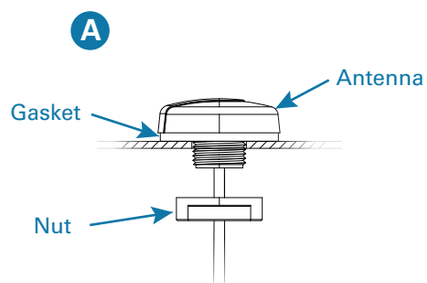
1. Attach the N-Type Whip Antenna to the Sentinel Antenna port. Hand tighten only.

4 PUK Antenna Installation (Sentinel Pro, Optional on Sentinel)

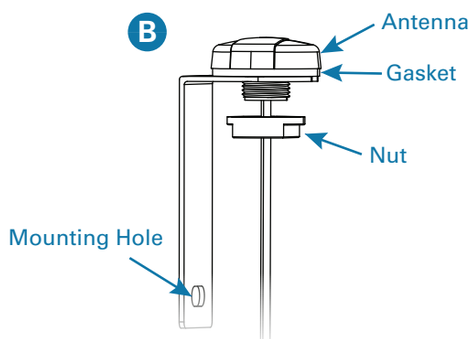
The PUK antenna can be mounted directly to the top of the substation **A** or using the remote mount bracket. **B**



1. Attach the N-Type to SMA adapter to the Sentinel Pro Antenna port. Hand tighten only. Once antenna is mounted, route cable to Sentinel Pro IOT Monitor, securing with cable ties as necessary. Connect to Sentinel Pro IOT Monitor, hand tighten only.



2A. Drill a 20mm (1") hole in the top of the enclosure. Feed the cable through the hole and the mounting nut. Tighten mounting nut to 3.9 Nm. Route cable to Sentinel Pro IOT Monitor (secure using cable ties as necessary) and connect, hand tighten only.



2B. Secure remote antenna bracket to a suitable location. Mount the antenna to the bracket by tightening the mounting nut to 3.9 Nm. Route cable to Sentinel Pro IOT Monitor (secure using cable ties as necessary) and connect, hand tighten only.

5 GRIDSCAN Installation

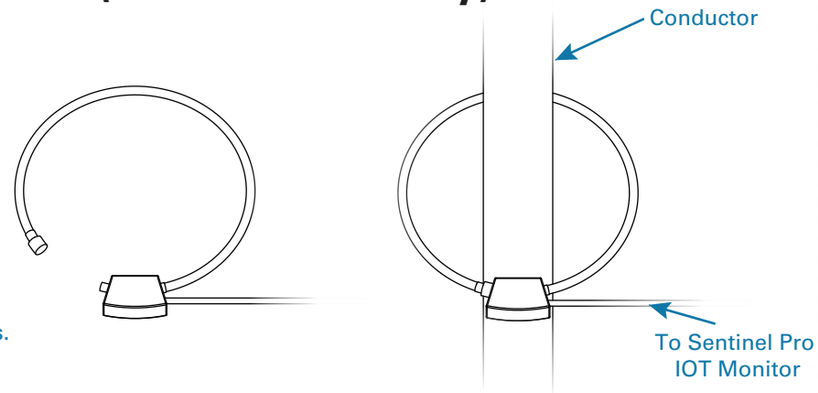
Steps

1. Install the GRIDSCAN 5000 or GRIDSCAN 6000. For installation instructions refer to H2scan document 90000177 (GS5000) or 90000215 (GS6000).
2. Route the cable from the GRIDSCAN 5000/6000 to the Sentinel/Sentinel Pro IOT Monitor, securing as necessary using cable ties.
3. Connect the cable to the M12 connector, taking care not to over-tighten.

6 Rogowski Coil Installation (Sentinel Pro Only)

Steps

1. Select the correct Rogowski coil associated with the phase (L1, L2, L3, or N).
2. Open the coil by turning the screw gate counterclockwise.
3. Wrap the coil once around the conductor with the load arrow pointing in the direction of load flow and close the coil.
4. Repeat steps 1-3 for the remaining phases.
5. If necessary, secure the Rogowski coils to the conductor using a cable tie.
6. Carefully route the Rogowski coil lead from the coil heads back to the Sentinel Pro. Do not allow the lead to rest on hot or live surfaces.
7. Connect the Rogowski coil to the Sentinel Pro IOT Monitor. Do not over-tighten the M12 connector.



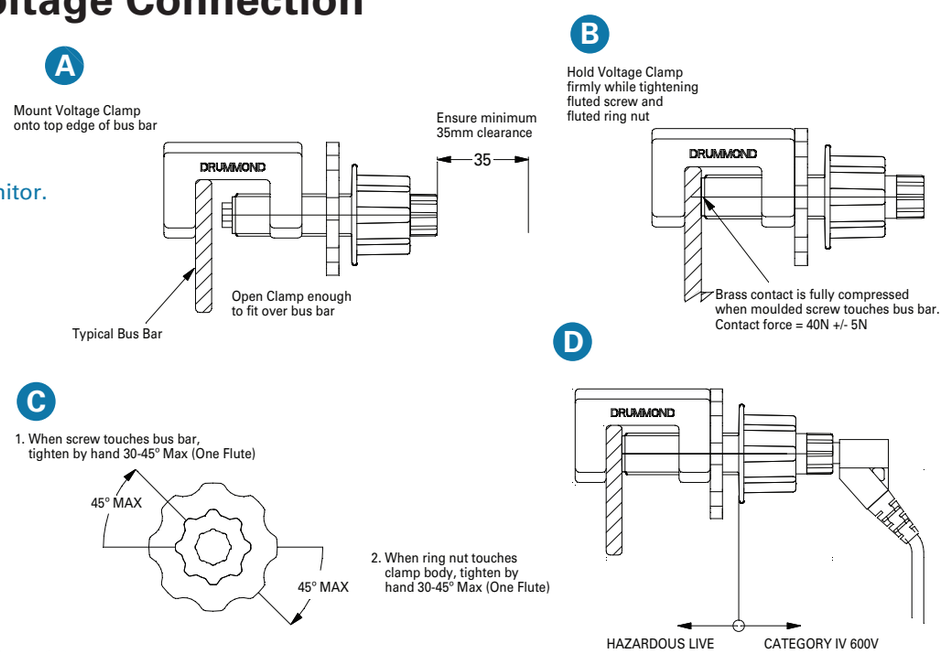
7 Voltage Connection

Sentinel

1. Connect the voltage pigtail cable to Line and Neutral using appropriate terminations and practices.
2. Route the voltage lead to the Sentinel IOT Monitor. Do not allow the lead to rest on hot or live surfaces.
3. Connect the M19 voltage lead to the Sentinel IOT Monitor. The LEDs on the front of the device will turn on.

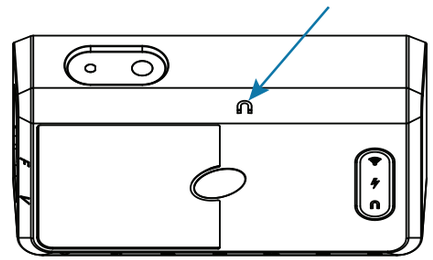
Sentinel Pro

1. Mount the Voltage Clamps to the appropriate bus bar (See Steps A-D to the right).
   - Brown - L1
   - Black - L2
   - Gray - L3
   - Blue - Neutral
2. Connect the 4mm test sockets to the voltage clamps.
3. In the order listed above, connect the voltage leads to their respective voltage clamp.
4. Route the voltage lead from the voltage clamp to the Sentinel Pro IOT Monitor. Do not allow the lead to rest on hot or live surfaces.
5. Connect the M19 voltage lead to the Sentinel Pro IOT Monitor. The LEDs on the front of the device will turn on.



8 Activation and Icons

To fully complete the installation, generate a forced magnet message by swiping the provided magnetic activation tool over the Sentinel/Sentinel Pro IOT Monitor's magnet indicator (shown below). The magnet light on the device will flash when a magnet message has been sent.



After 60 minutes all LED lights on the device will enter sleep mode. To reactivate the LEDs, place a magnet (activation tool) next to the magnet indicator (identified above) for 5 seconds.

LED Indicator light states are detailed below.

	Solid Green	Device has successfully connected.
	No Illumination	Device does not have power or is in sleep mode.
	Green Flashing Fast (2 Seconds)	Device not connected to the network.
	Green Flashing Slow (4 Seconds)	Device connected to cellular network but not yet connected to cloud server.
	Solid Green	Device has successfully connected, no voltage issues detected.
	No Illumination	Device does not have power or is in sleep mode.
	Green Flashing Fast (2 Seconds)	Voltage issue detected: Phase connected to Null incorrectly.
	Green Flashing Slow (4 Seconds)	Voltage issue detected: Incorrect phasing at voltage connection.
	Solid Green	Device has successfully connected and is operating normally.
	No Illumination	Device does not have power or is in sleep mode.
	Green Flashing Fast (1 Second)	Device is sending magnet message.
	Green Flashing Slow (4 Seconds)	Device has a boot error.