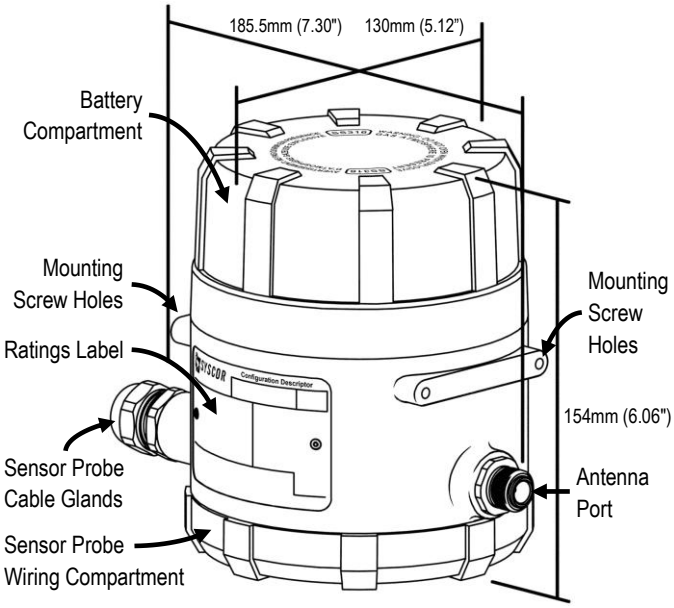
PCU-X11 WirelessHART Inclinometer – Installer Reference



Syscor's battery-powered WirelessHART Inclinometer provides inclination monitoring with a precision of 0.1 degrees in both the X-axis and Y-axis. The 273.6Wh battery pack provides 10+ years of operational life. The Inclinometer may be used with attached Syscor sensor probes.

Safety Information

The PCU-X11 Inclinometer has been certified for operation in hazardous locations under the following parameters and conditions:

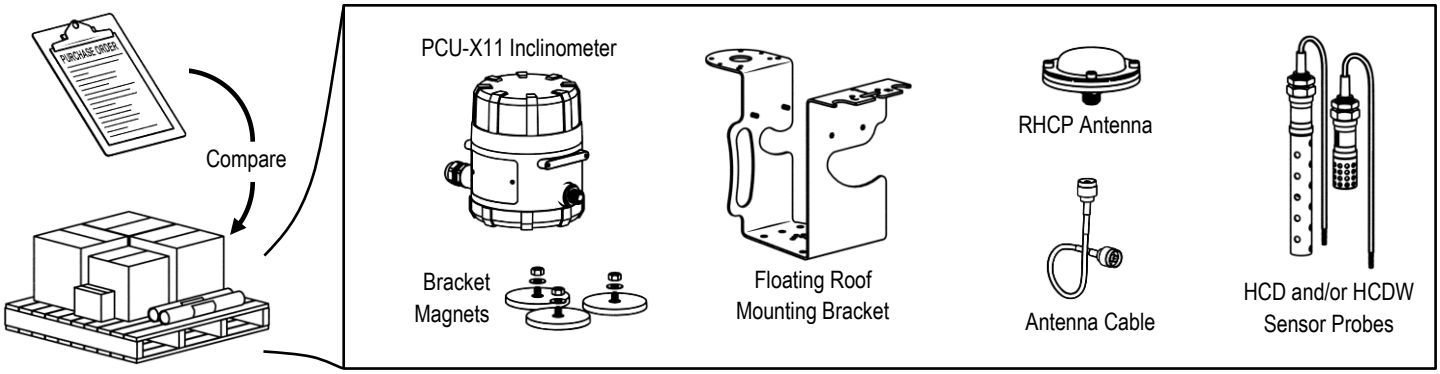
- Class 1, Division 1, Groups C, and D;
- Intrinsically safe Ex ia;
- Ambient temperature range -40°C to +60°C, Temperature Code T4;
- Pollution degree 4
- Water submersion to a depth of 1m (3.28 ft.)
- Enclosure is Type 4X and IP67

Specific Conditions of Use:

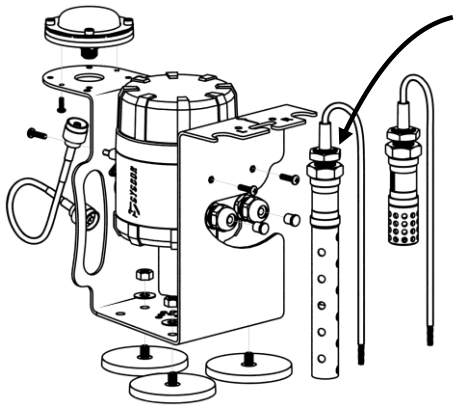
1. A passive antenna may be supplied by the manufacturer or provided by the customer. Permitted antennas must have <10 000mm^2 plastic surface when connected directly to the enclosure. Antennas connected through an extension cable are not subject to the plastic surface area restriction.
2. When a non-metallic antenna is connected directly to the enclosure, it is possible that under certain extreme circumstances, the non-metallic antenna may generate an ignition-capable level of electrostatic charge. Therefore, when a non-metallic antenna is connected to the enclosure without the use of an extension cable, the equipment shall be installed in a location where the external conditions are conductive to the build-up of electrostatic charge on such surfaces. In addition, the equipment shall only be cleaned with a damp cloth.
3. The HART maintenance port in the PCU must not be used in the hazardous area. When used in the non-hazardous area, a battery-powered HART Field Communicator with intrinsic safety approvals shall be used. Examples are the Emerson 375 or 475 HART Field Communicator, and the AMS Trex Device Communicator.

WARNING: Substitution of components not expressly specified by Syscor will void intrinsic safety certification.
WARNING: Do not open in an explosive gas atmosphere.
WARNING: Do not power on without first connecting an antenna.

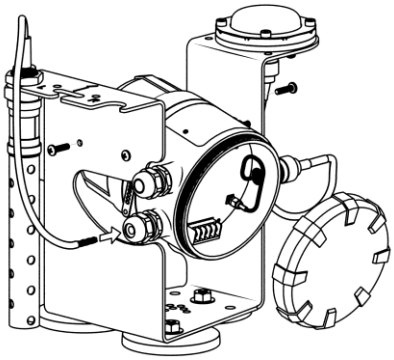
Package 1 – Standard Configuration – Floating Roof Deck



Package 1-1 – Mounting Bracket



Ensure hex nut is threaded onto the sensor probe before connecting the probe's cable to the PCU-X11 Inclinometer



The wiring compartment may be accessed by removing the mounting screws on the closed side of the bracket and loosening the remaining screws to pivot the Inclinometer on to its side.

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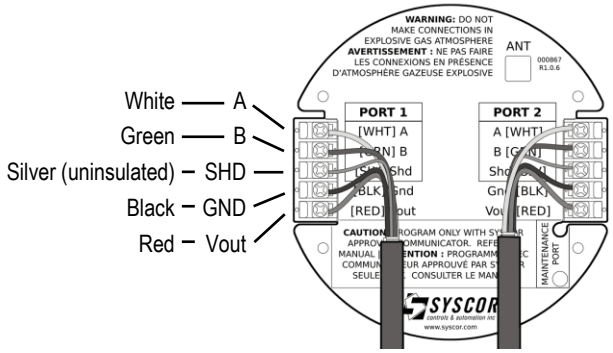
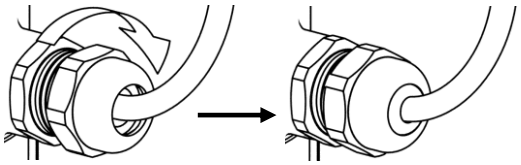
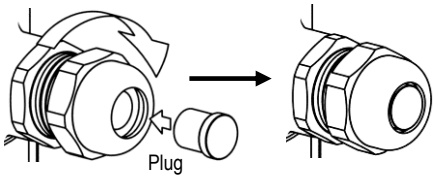
Package 1-2 – Wire Sensor Probes to Port 1 and Port 2. Use Port 1 when using a single Sensor Probe.



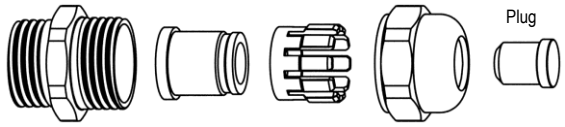
After wiring, tighten the port glands



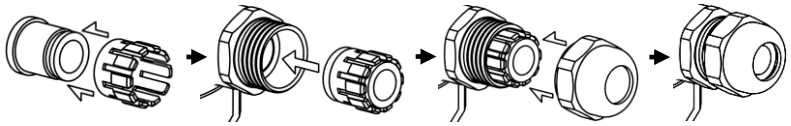
If a port is not used, insert the gland plug prior to tightening



Gland components

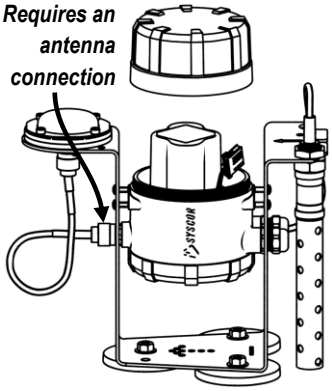


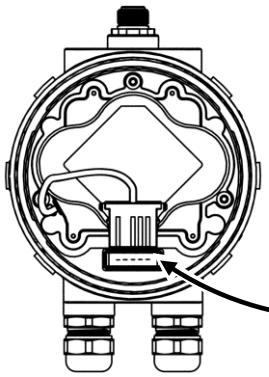
Gland assembly



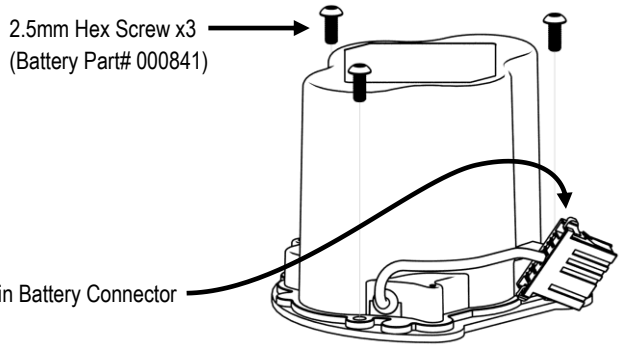
Package 1-3 – Power the Inclinometer

Requires an antenna connection



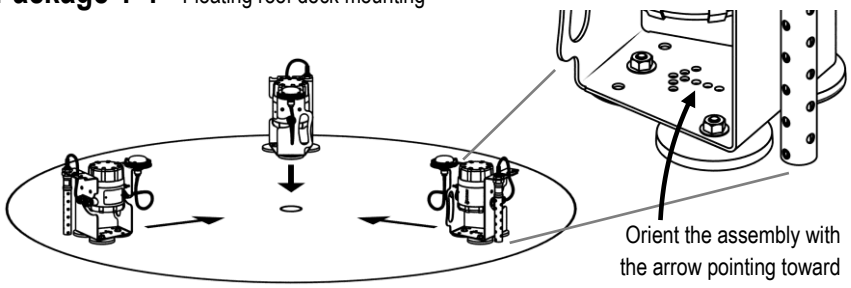


2.5mm Hex Screw x3
(Battery Part# 000841)

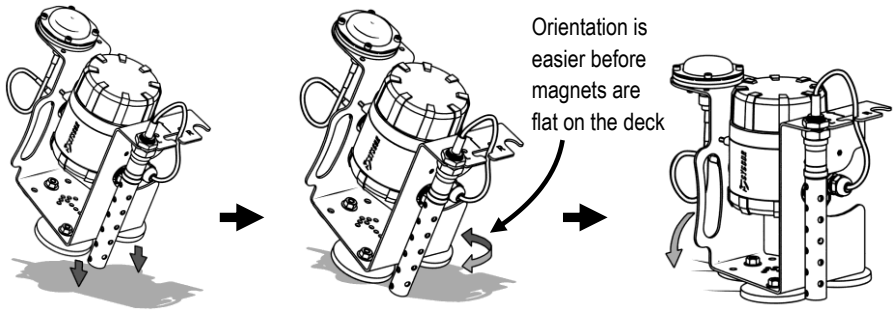


Plug in Battery Connector

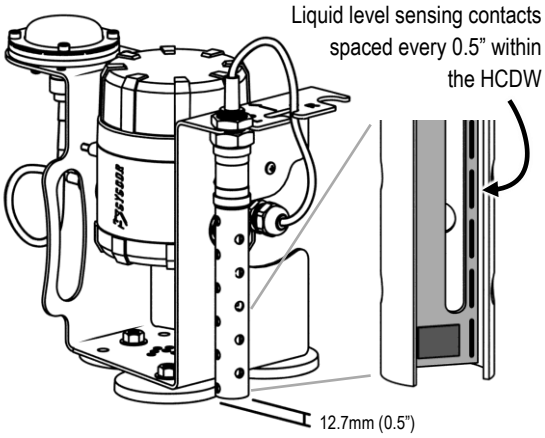
Package 1-4 – Floating roof deck mounting



Orient the assembly with the arrow pointing toward the center of the tank.



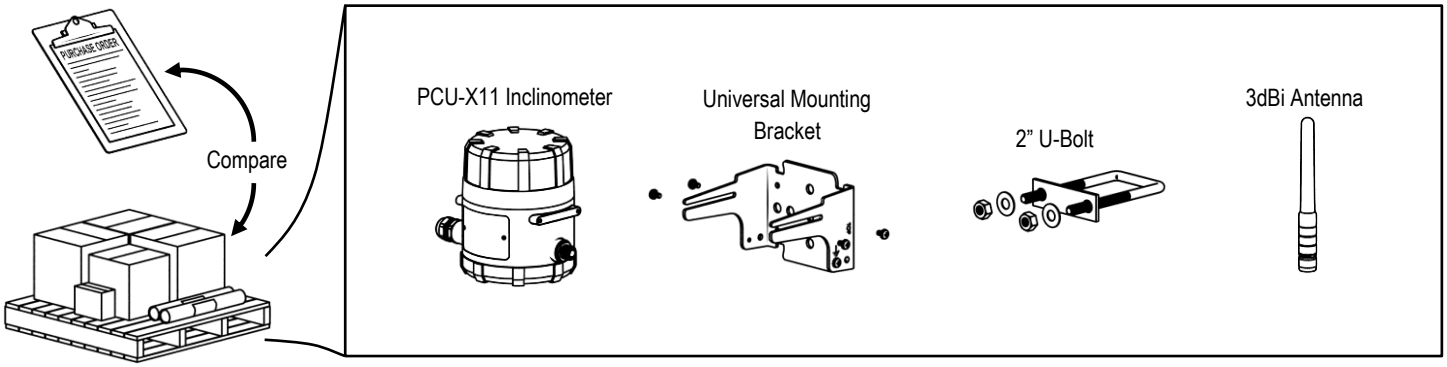
Orientation is easier before magnets are flat on the deck



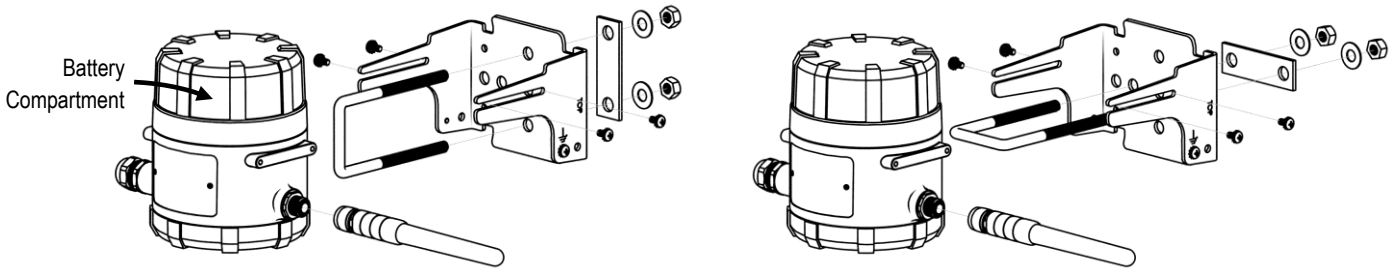
Liquid level sensing contacts spaced every 0.5" within the HCDW

When configuring the liquid height offset in software, use the distance from the HCDW to the floor.

Package 2 – Standard Configuration – Floating Roof Ladder

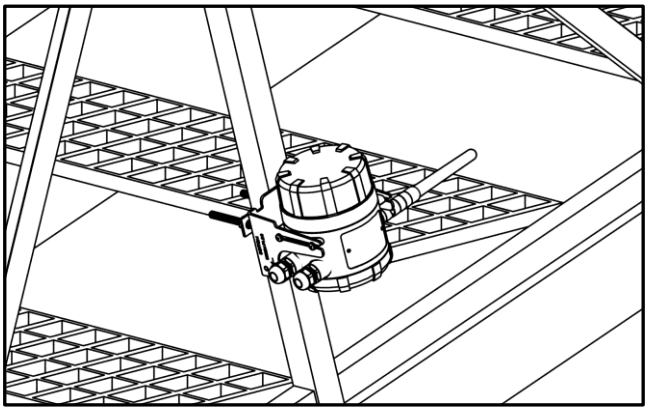


Package 2-1 – Mounting bracket

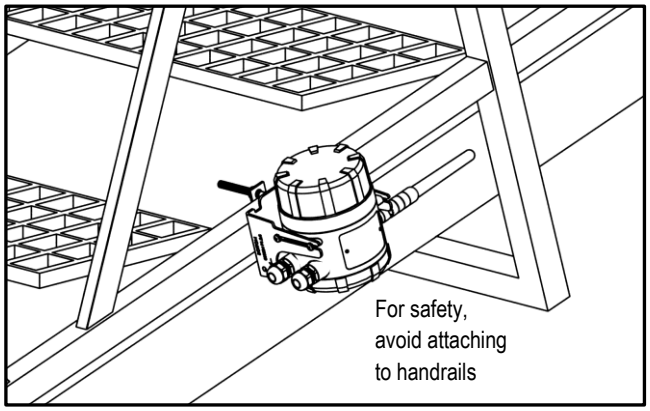


Keep the battery compartment facing skyward - Orient U-Bolt based on target mounting strut

Package 2-2 – Floating roof ladder mounting

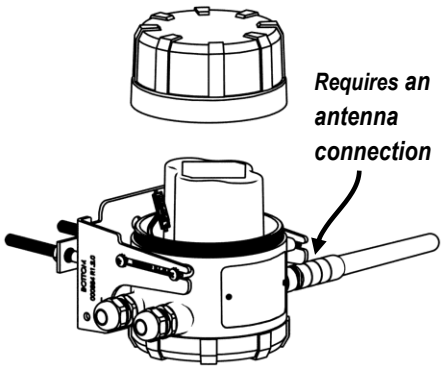


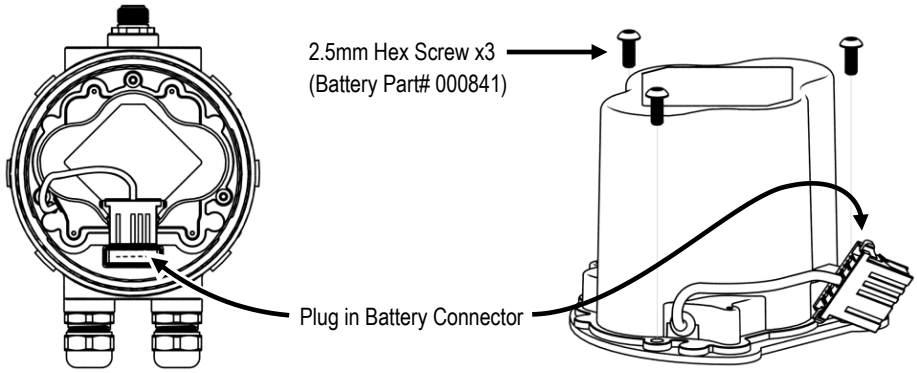
Vertical Strut



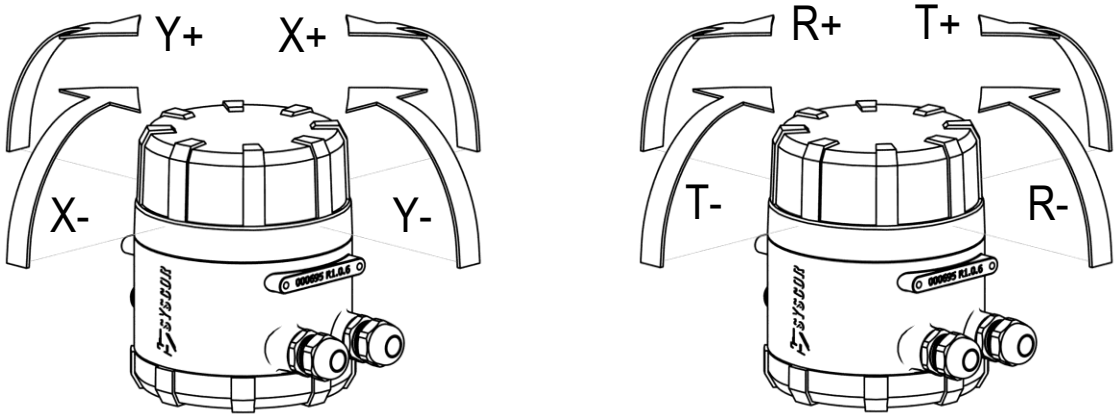
Horizontal Strut

Package 2-3 – Power the Inclinometer



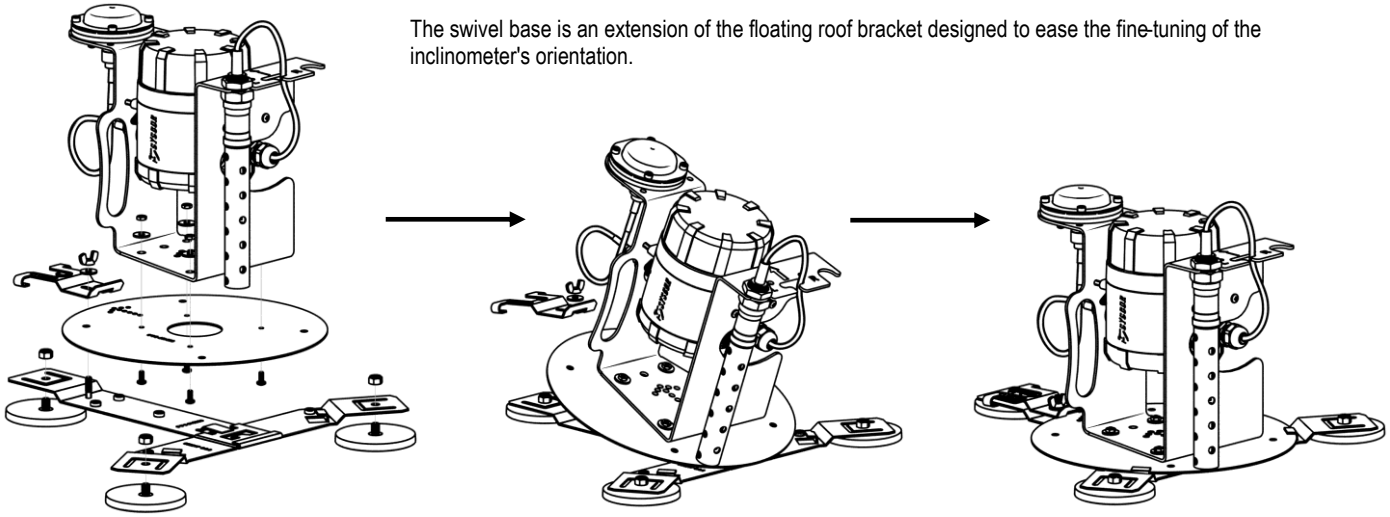


Inclination Values Reference

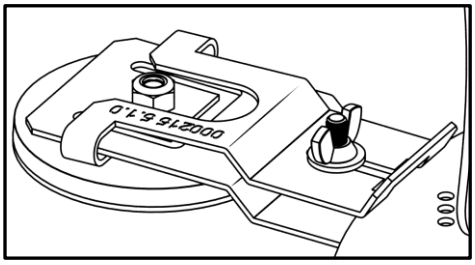


Floating roof mounted inclinometers may be configured to display T and R values (tangential and radial) in place of X and Y

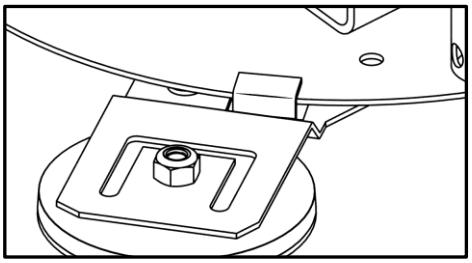
Optional Swivel Base



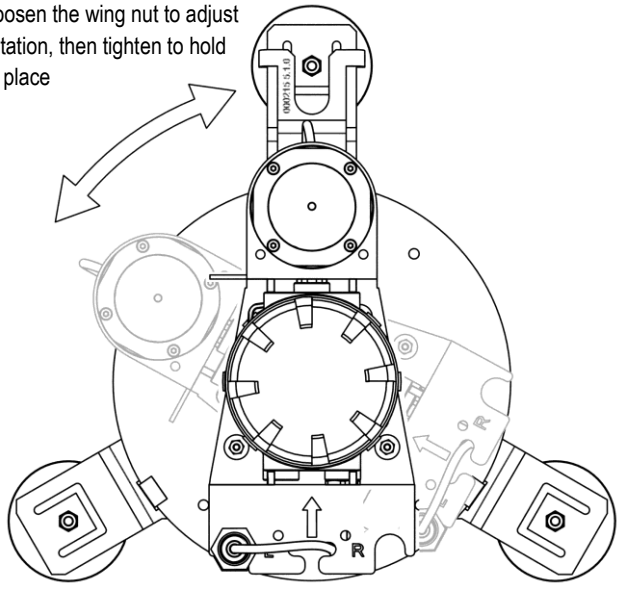
The swivel base is an extension of the floating roof bracket designed to ease the fine-tuning of the inclinometer's orientation.



Detail of rotating disc catches and clamp



Loosen the wing nut to adjust rotation, then tighten to hold in place

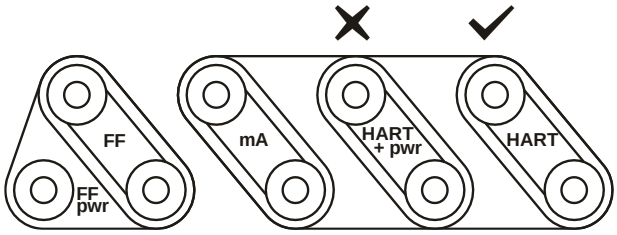


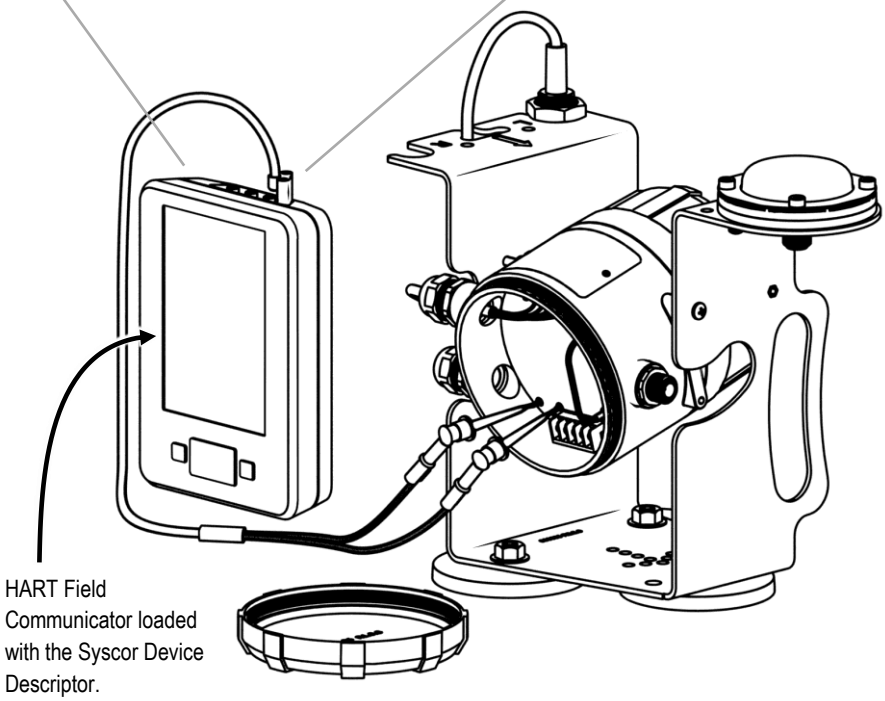
WirelessHART Networking

The PCU-X11 commonly comes with client-specific gateway join settings already loaded. The following box shows the default network ID and join key:

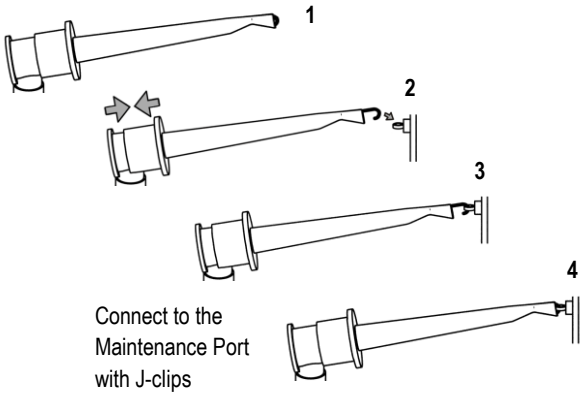
Network ID:	Join Key:
1234	Part 1: **44555354**
	Part 2: **4E455457**
	Part 3: **4F524B53**
	Part 4: **524F434B**

Change the Network ID and Join Key with a HART Field Communicator

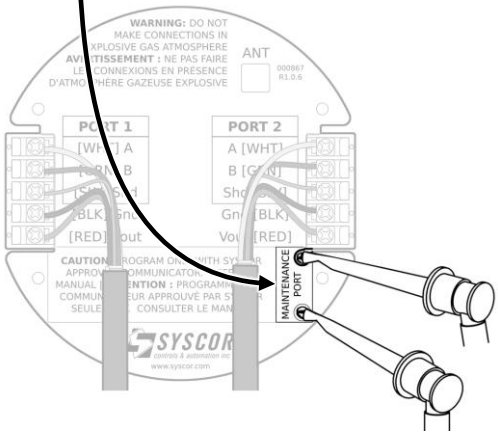




HART Field Communicator loaded with the Syscor Device Descriptor.
(Contact Syscor for a copy of the Device Descriptor)

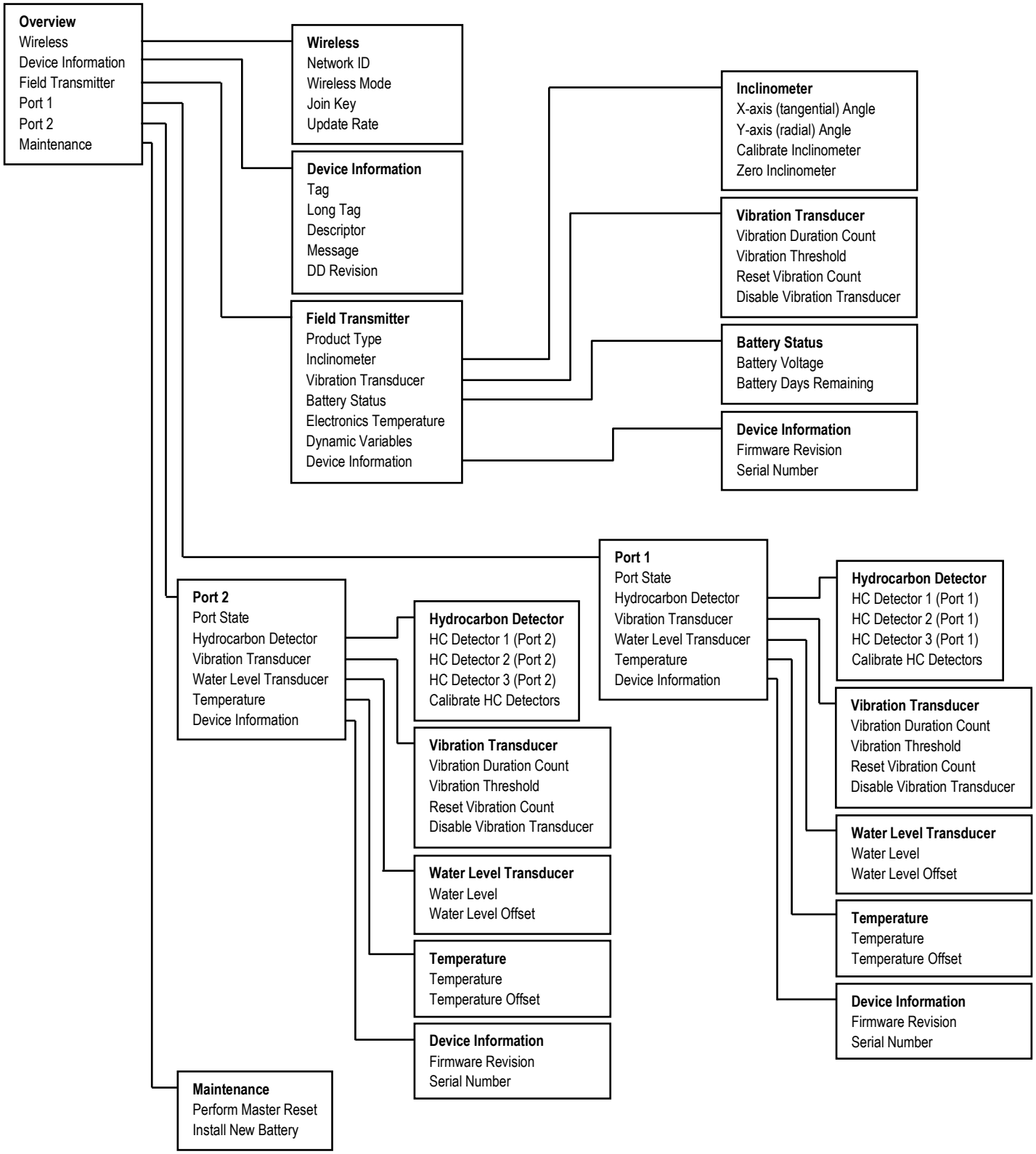


Connect to the Maintenance Port with J-clips



Using the Field Communicator

The following is the menu tree for the HART Field Communicator loaded with the PCU Device Descriptor.

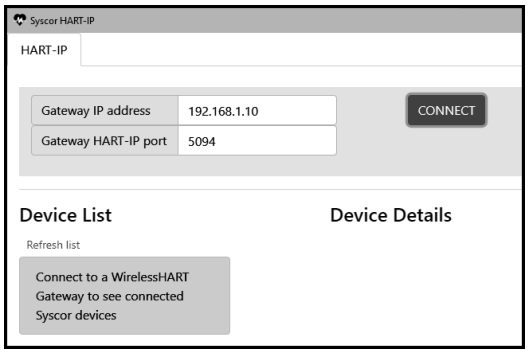


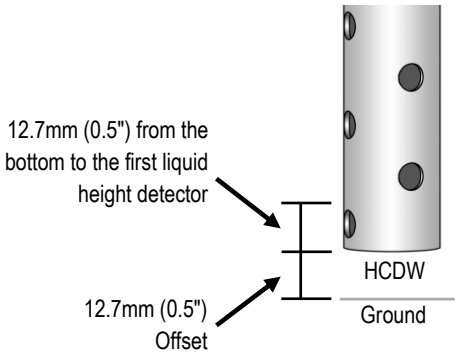
Syscor WiHART Config Tool – Example: Setting Liquid Height Offset

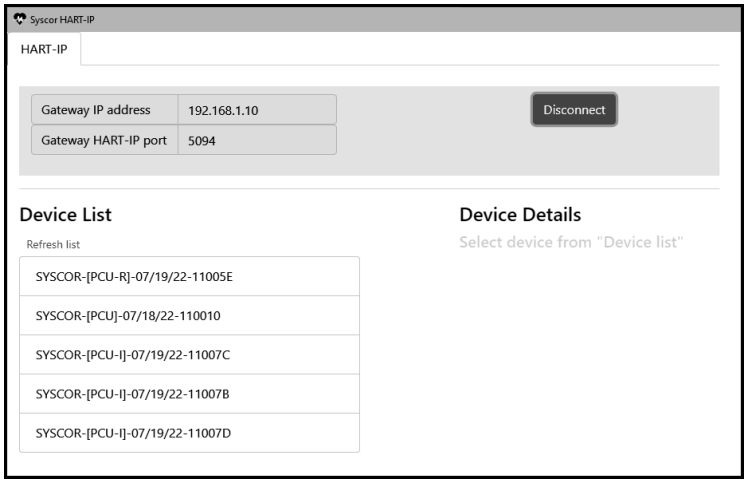
Syscor offers a software tool for adjusting settings remotely once a PCU-X11 has joined the WirelessHART Gateway.

Step 1 - Run syscor-wihart-config-tool.exe (no installation needed)

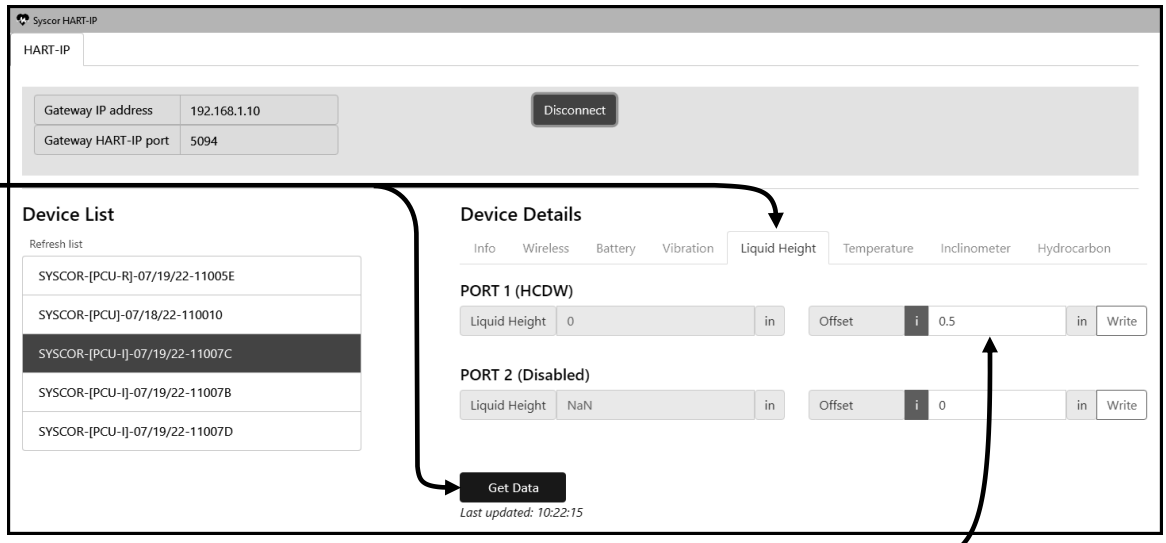
Step 2 - Connect to the gateway using the gateway's IP address and HART-IP port.







Step 3 - Select the PCU to be configured from the device list.



Step 4 - Select the 'Liquid Height' tab and click 'Get Data'

Step 5 - Set the offset in inches and click write

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