



Smart Plant™ Remote Monitoring Systems

INSTALLATION GUIDE

WX IoT Differential Pressure Sensor



- **Revision History**

Release 1 – 2022-11-15

IAC Form #: IAC-IG-002

In case of emergency call 911.

For IAC afterhours troubleshooting and service assistance contact:

IAC 24/7 Customer Support Hotline
Phone: 913-834-5511, Option # 4

TABLE OF CONTENTS

Contents

•	Revision History	1-1
	TABLE OF CONTENTS	1-2
1	INTRODUCTION	1-3
1.1	PURPOSE.....	1-3
1.2	INTENDED AUDIENCE.....	1-3
1.3	HOW TO USE THIS GUIDE	1-3
2	LOCATION	2-4
3	MOUNTING	2-4
4	CONNECTIONS - TUBING	4-5
5	STARTUP AND OPERATION.....	5-5
6	CONFIGURATION BUTTON	6-6
6.1	INSTANT READING	6-6
6.2	DP SENSOR ZERO CALIBRATION	6-6
7	RESET BUTTON	7-6
8	REPLACEMENT BATTERY	8-7
9	BATTERY LIFE	9-7

1 INTRODUCTION

1.1 PURPOSE

The WX sensor node is a battery powered wireless device that transmits readings to a cloud monitoring platform through a central gateway device over a secure internet connection. All readings from the device are identified with the device ID listed on the equipment label as shown below.



Sensor readings are transmitted to a cloud-based software dashboard and alerting application at a periodic basis, with a default uplink period of once every 15 minutes (adjustable).

1.2 INTENDED AUDIENCE

This guide will be useful for all users of the WX IoT Differential Pressure Sensor. It will guide Operators and Maintenance personnel through mounting, connection, start-up, and operation.

1.3 HOW TO USE THIS GUIDE

This guide will explain proper mounting, connections, start-up, and operation of the WX IoT Differential Pressure Sensor. It will also explain different LED status lights, how to take readings, and battery information.

2 LOCATION

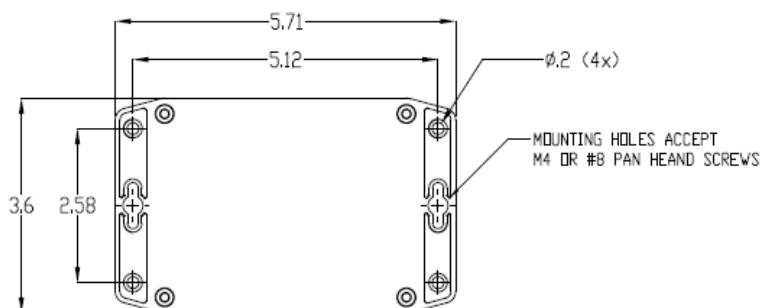
Installation of this product should be performed by an appropriately licensed Electrician. The device should be mounted away from sources of excessive heat or electrical interference. The device should be oriented so that the pressure ports (if present) are facing vertically down to prevent moisture entrapment within the pressure sensor.

The WX sensor uses LoRa radio signals to transmit readings to a centrally located cellular gateway. The installation location should be chosen to provide the best radio signal possible. It should not be located within a metal enclosure. If possible, it should be located outdoors with some line of sight to the gateway, or on an outside wall of a building/structure.

Installation and wiring methods should comply with all applicable Electrical codes.

3 MOUNTING

The enclosure should be mounted to a solid surface using M4 or #8 pan head screws (not supplied). The enclosure should be oriented so the pressure ports face vertically down to prevent condensation from entering the sensor.

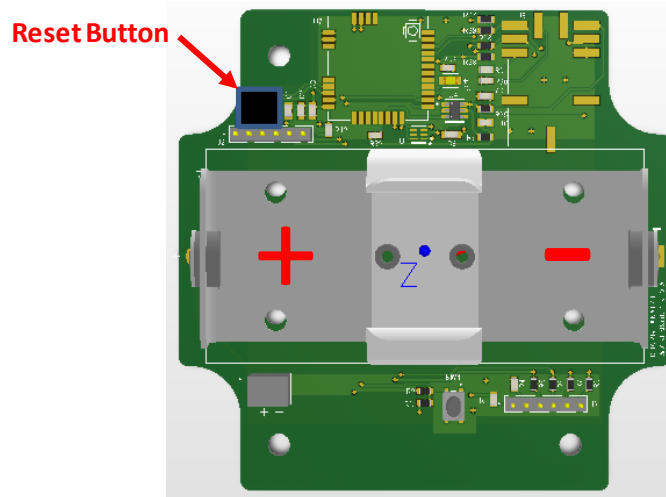


4 CONNECTIONS - TUBING

Pneumatic fittings for Differential Pressure high (DP HI) and low (DP LO) accept 0.170" ID flexible tubing and should be connected as shown on the equipment top label.

5 STARTUP AND OPERATION

Apply power to the sensor node by inserting the supplied battery into the battery holder. **Take care to match the polarity shown on the battery holder.**



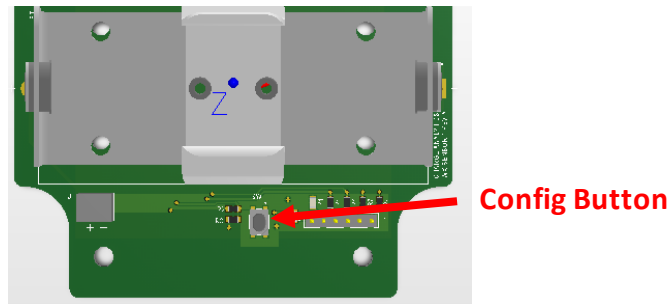
Once the battery is installed press the RESET button to initiate a fresh system reset and startup. The WX will begin by attempting to make a network connection. The status LED turn ON while the network connection attempt is occurring. If unsuccessful after 5 tries the WX will power down and attempt another network connection after 10 minutes. The RESET button may be pressed again to immediately retry the network connection.

Once connected to the network the WX will take a pressure measurement and immediately transmit the reading to the network and users can verify the reading in the cloud dashboard. During operation the sensor node will periodically wake-up, take a sensor reading and transmit the reading to the network. The status LED will flash ON when this occurs.

During operation the sensor node will periodically wake-up, take a sensor reading and transmit the reading to the network. The status LED will flash ON when this occurs.

6 CONFIGURATION BUTTON

The configuration button is located on the bottom center of the internal circuit board as shown below and provides two independent functions:



6.1 INSTANT READING

A short press of the configuration button will initiate the WX to take a pressure measurement and immediately transmit the reading to the network. The status LED will turn ON while the WX measurement and uplink are taking place.

6.2 DP SENSOR ZERO CALIBRATION

Pressing and holding the configuration button for 10 seconds will initiate the WX to perform a DP sensor zero-point calibration. Prior to performing zero calibration both pressure tubes must be vented to atmosphere, or the process pressure applied to the WX sensor must be zero. After performing the zero calibration the WX will immediately transmit the reading to the network allowing users to verify that the sensor reading is now zero. The status LED will turn ON while the WX zero calibration and uplink are taking place and turn OFF when complete.

7 RESET BUTTON

The reset button initiates a fully system reset of the WX sensor. The status LED will turn ON indicating the WX has reset and is attempting to make a network connection. The status LED will turn OFF once the network join is successful.

8 REPLACEMENT BATTERY

IMPORTANT – The battery in the WX sensor is a high-power Lithium Primary battery and is NOT RECHARGEABLE. The battery must be replaced with a high pulse capacity lithium battery to ensure stable operation during radio transmission. The replacement battery is:

Manufacturer: SAFT

Model: LSH-20

Description: D-Size 3.6 V, 13.0 Ah Primary lithium-thionyl chloride (Li-SOCl₂), high power, spiral cell, wide temperature

9 BATTERY LIFE

Battery life of the WX sensor will vary depending on installation location and use case.

Locations that are far from a central gateway, or have to penetrate buildings and walls, will require the WX to utilize more power to reach the gateway which will reduce battery life.

Operating in extreme cold locations will also limit battery life. The WX sensor fitted with D cell lithium battery specified above is intended to provide roughly 5-year battery life with 15-minute update rate when mounted in a reasonable installation location.

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