WaterPro™ VFD Moisture Sensor

ALDERON™ Industries

Leading Edge Control Products

Part Number - 8074 and 2000905
Operation, Maintenance and Installation Manual

Introduction

⚠ WARNING ⚠

Before proceeding with the installation or operation of the product, make sure to read all instructions thoroughly, as well as complying with all Federal, State and Local Codes, Regulations and Practices. The product must be installed by qualified personnel familiar with all applicable local electrical and mechanical codes. Refer to the National Electrical Code (NFPA 70). Failure to properly install and test this product can result in personal injury or equipment malfunction.

Safety Guidelines

1. DISCONNECT ALL ELECTRICAL SERVICE BEFORE WORKING ON OR HANDLING THE PRODUCT.
2. DO NOT USE WITH FLAMMABLE OR EXPLOSIVE FLUIDS SUCH AS GASOLINE, FUEL OIL, KEROSENE, ETC. DO NOT USE IN EXPLOSIVE ATMOSPHERES.

Description of Operation

The WaterPro™ VFD Moisture Sensor connects directly to booster/well pump Variable Frequency Drive (VFD) digital input. A green "Normal" LED indicates normal operating conditions. When water is detected, the red "Alarm" (Pump Stop) LED will activate and the WaterPro™ VFD Moisture Sensor will activate the digital input of the VFD, which will stop the pump and prevent flooding. The VFD must have a digital input that can be programmed to "Fault" or stop the drive and require a manual reset of the VFD to put back into service.

Electrical Information

Voltage: 12VDC or 24VDC (depending on model)

Operating Current:
    Normal: 3mA - 6mA
    Alarm: 27-30mA (typical VFD Digital Input)
   Switching: 100mA or 500mA

Typical Application

Detect Water
A WaterPro™ VFD Moisture Sensor (**1**) detects a water leak in designated area and sends a signal to the Variable Frequency Drive (VFD).

Activate VFD Digital Fault Input
The WaterPro™ VFD Moisture Sensor can only connect to a Variable Frequency Drive (**2**) with Digital Fault Input that can be programmed to stop the pump.

Shut Off Water Supply
When the WaterPro™ VFD Moisture Sensor detects water, the VFD (**2**) will stop the pump to prevent flooding.
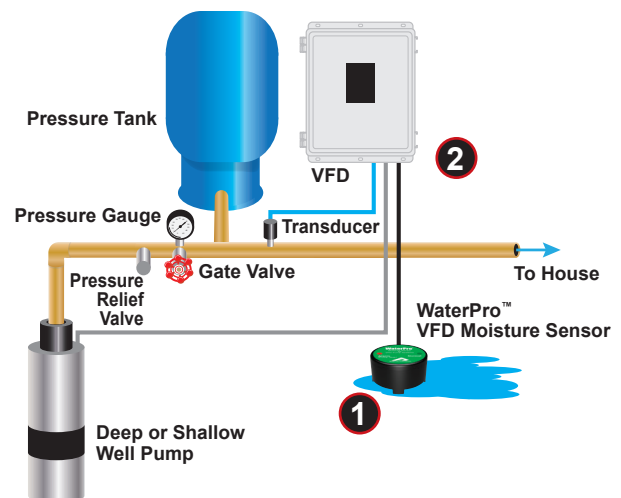
Installation of the WaterPro VFD Moisture Sensor

1. Disconnect all power to the system.

2. Determine location for water leak detection, cable length is 15-feet on the sensor. If splicing is required, use 18 AWG cable and appropriate waterproof junction boxes. Lay the WaterPro™ VFD Moisture Sensor on a flat surface where water is likely to collect and touch the stainless steel probes on the bottom of the sensor (Fig. 1).

(Fig. 1)
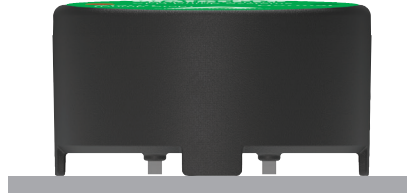
3. This sensor can only be connected to Variable Frequency Drives (VFD) that have 12VDC or 24VDC "Sourcing" (positive switched into the input) Digital Inputs. Check operator's manual for the VFD for verification of voltage requirements. Connect the sensor to the appropriate VFD terminal blocks (Fig. 2 and Fig. 3). Check the VFD owner's manual for determining which terminal blocks are the correct terminals for 12VDC or 24VDC voltage (positive and negative/common) and which VFD digital input that can be programmed for "External Fault" (when digital input receives a positive signal the drive will stop until the fault is cleared).
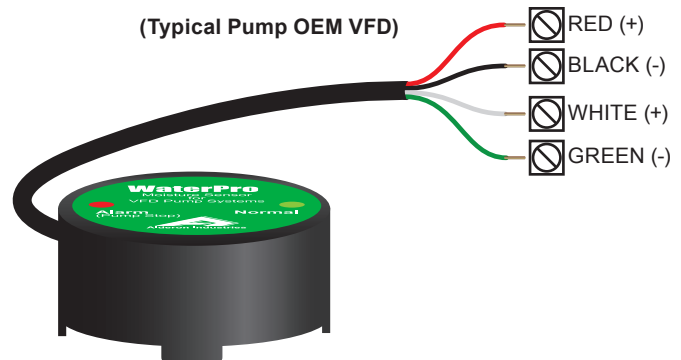
(Fig. 2)

(Typical Industrial VFD)

RED (+)
BLACK (-)
GREEN (-)
WHITE (+)
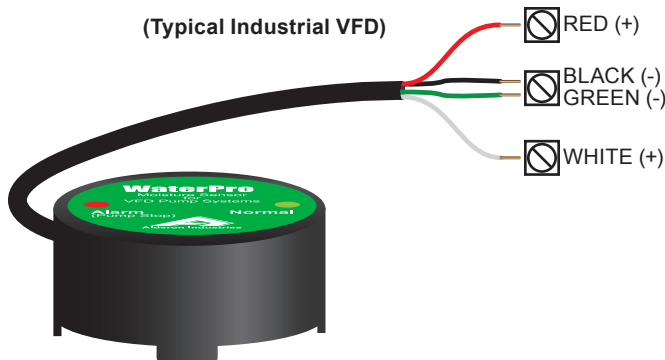
RED (+) = 12VDC or 24VDC VFD Terminal

BLACK (-) = Common/Negative VFD Terminal
GREEN (-) = Common/Negative VFD Terminal

WHITE (+) = Digital Input VFD Terminal
(assign for external fault)

(Fig. 3)

(Typical Pump OEM VFD)

RED (+)
BLACK (-)
WHITE (+)
GREEN (-)

RED (+) = 12VDC or 24VDC VFD Terminal

BLACK (-) = Common/Negative VFD Terminal

WHITE (+) = Positive Digital Input

GREEN (-) = Negative Digital Input

4. Program the correct VFD Digital Input for "External Fault", refer to the VFD operator's manual.

Testing the WaterPro VFD Moisture Sensor

1. After the installation is complete, power up the VFD and the WaterPro™ VFD Moisture Sensor is ready for testing. When power is applied to the VFD, the sensor's "Normal" green LED should illuminate.

2. Place the WaterPro™ sensor in a pan of water or on a wet rag. The "Alarm" (Pump Stop) red LED indicator should illuminate and the VFD should "Fault" and stop pumping.

3. Dry the probes by wiping off with a dry rag until the WaterPro™ VFD Moisture Sensor "Normal" green LED illuminates and the "Alarm" red LED turns off. Reset the VFD and normal pump control should resume. Monitor the VFD to make sure it is controlling the water pressure under normal conditions.

4. Test the system monthly to ensure system integrity. Wipe off the sensor probes with alcohol rag to clean the stainless-steel probes removing all deposits and buildup of debris.