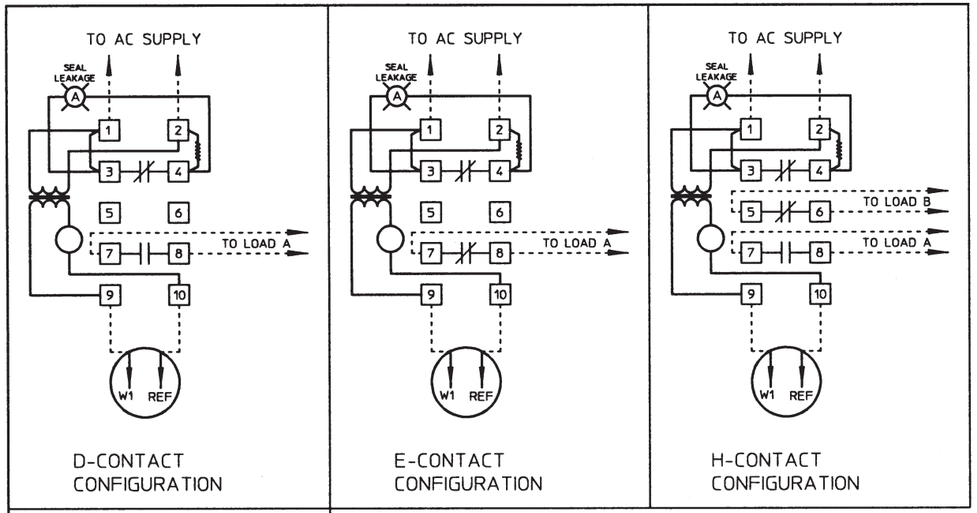
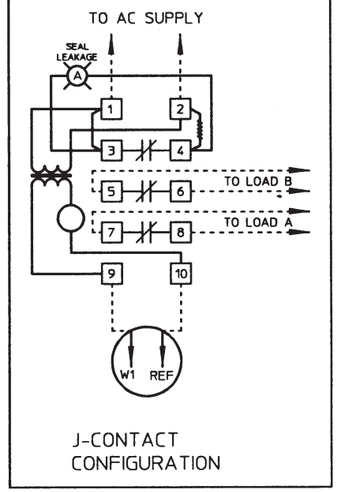
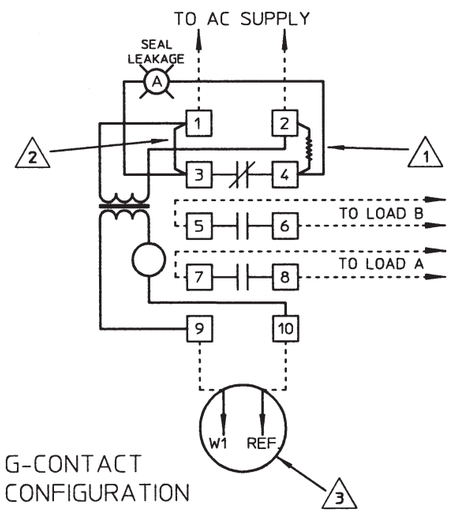
Wiring Diagrams







Notes:

1. Factory-installed resistor (See resistor table)
2. Factory-installed jumper
3. The reference connection must be a metallic vessel or probe
4. Dashed lines represent field connections
5. Open version only is UL recognized (UL 353 File: MP1430)

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Rev C

Warrick® Series 2820 Seal Leakage Detector

Installation and Operation Bulletin

This bulletin should be used by experienced personnel as a guide to the installation of Series 2820 controls. Selection or installation of equipment should always be accompanied by competent technical assistance. We encourage you to contact Gems Sensors Inc. or its representative if further information is required.

Specifications

Contact Design: 2PST and 3PST bridge type double break in all possible combinations of normally open and normally closed. Fully enclosed. Buttons are 1/4 inch diameter silver cadmium oxide.
Contact Rating: 16A @ 115 VAC, 8A @ 230VAC, 1 H.P. @ 115, 230 VAC
Mode of Operation: Direct only. Contacts assume normal position with open circuit.
Supply Voltage: 115, 230, 406 or 575 VAC models: +10% -15%, 50/60 Hz
Supply Current: Relay energized 4.4 VA
Secondary Circuit: 500 VAC on probes, 6 VA with short circuited electrode circuit
Sensitivity: 20K Ohms/cm (150' maximum distance between control and probes).
Temperature: -40° to 150°, ambient
Terminals: Size 8 pan head screws with wire clamping plate for use with captivated wires or a maximum of 1-#12 AWG/2-#14 AWG uncaptivated wires. Numbered 1 to 10 for identification. Located on front of control assembly for accessibility.
Listings: UL limit control recognized (353) on open type controls only.

General

The Type 2820 is a conductance-actuated control for detection of moisture in the oil chamber of a submersible motor. It is used as a warning device to indicate a seal leakage and to signal the need for preventative maintenance.

Installation

Mount the control or enclosure vertically on wall or other solid structure, with the transformer on the left-hand side. Wire Series 2820 as indicated on drawing. Terminals on the control are numbered and are in the same relative position as shown on the wiring diagram. Terminal pair 1 and 2 must be continuously energized from an AC supply line of electrical characteristics shown on the data plate. Contacts 5-6 and 7-8 are available for load duty and, if required, must be wired in series with the load device(s) and load. Terminals 9 and 10 connect to the moisture sensing probe in the motor marked W1 and Ground Reference via cable provided with the motor.

Caution: Probe Sensing circuit, terminals 9 and 10, have 500 VAC, 12mA. This high voltage has minimal amperage, but can cause significant shocking.

Operation

Normally the oil surrounding the probes is nonconductive and the control will be de-energized. An influx of moisture past the outer seal and into the oil reservoir will change the conductivity of the oil and cause the relay to energize. ***Note that the moisture may not cause this change in conductivity until motor is running and the moisture becomes emulsified***

Operation *(Cont.)*

with the oil. Load contacts 5-6 and 7-8 will change from their normally open or normally closed position when the control energizes.

Test Procedure

To simulate a seal leakage, the following test should be done. ***Caution: Voltage will be present at all terminals on the control when this test is being made:***

Remove the enclosure cover and momentarily place an insulated jumper (or 20K ohm resistor) across terminals 9 and 10 on the control. The control should energize, simulating a leak condition.

Wire control per drawing, following NEC and local codes. Use appropriately sized spade terminals when wiring.

Ordering Information

Model 2820 X X X Moisture Detectors

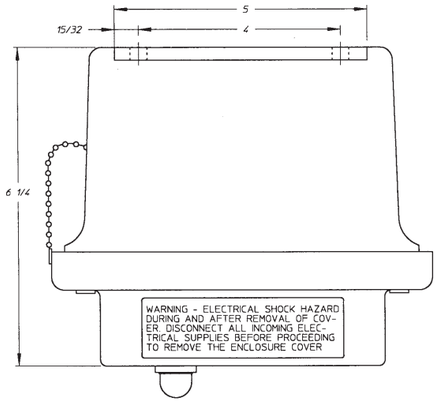
Basic Model of Moisture Relays

Supply Voltage
1) 115 VAC
2) 230 VAC
4) 460 VAC
5) 575 VAC

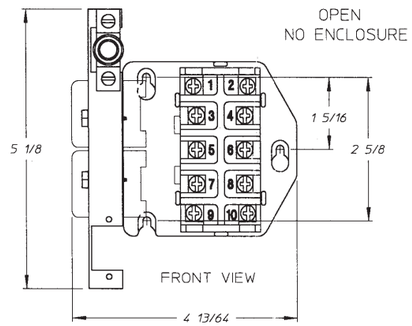
Contact Configuration
D) 1 N.O. & 1 N.C.
E) 0 N.O. & 2 N.C.
G) 2 N.O. & 1 N.C.
H) 1 N.O. & 2 N.C.
J) 0 N.O. & 3 N.C.

Enclosure Type
0) Open - No Enclosure
1) NEMA 1
4) NEMA 4

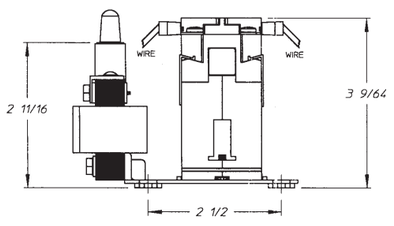
Dimensional Drawing
(Nema 4 - Weather Proof)



TOP VIEW

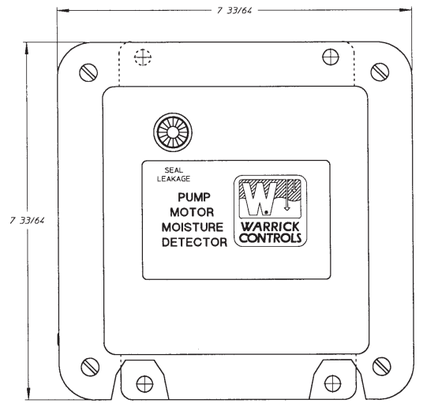


FRONT VIEW

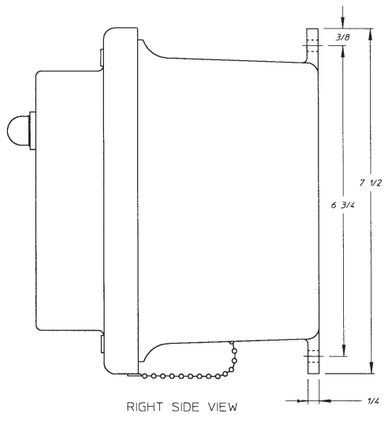


BOTTOM VIEW

TOP VIEW



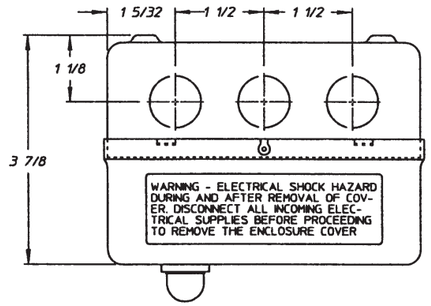
FRONT VIEW



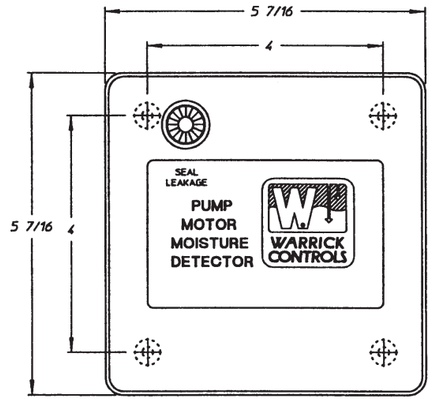
RIGHT SIDE VIEW

Dimensional Drawing
(Nema 1 - General Purpose)

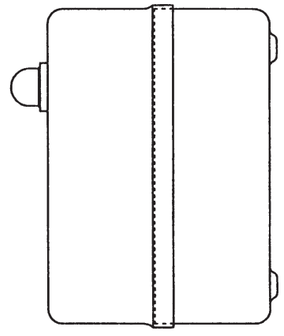
NEMA 1
GENERAL PURPOSE



TOP VIEW



FRONT VIEW



RIGHT SIDE VIEW