

# SERIES 120S DUAL PUMP SEAL & TEMPERATURE MONITOR INSTRUCTION MANUAL



**Sigma Controls, Inc.**  
PROCESS CONTROLS AND INSTRUMENTATION

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## **Introduction**

The Sigma Controls 120S SL/OT series pump monitors are micro controller based devices for monitoring the temperature and seal condition of two submersible pump motors.

Designed for DIN rail mounting these instruments provide continuous monitoring of seal leak or moisture ingress and motor temperature for dual pumps installations.

## **Specifications**

**DIGITAL INPUTS:** (5 ea.) Inputs (Seal/Moisture) from float switches or conductance probes. (Adjustable sensitivity is provided for conductance probes) 2 Inputs provided for temperature monitoring switches or RTD's.  
External push button or terminal connectivity to reset alarm condition.

**INDICATOR LIGHTS:** 8 LED status lights (4 red and 4 green) provided for status and alarm notification.

**RELAY OUTPUTS:** 4 relay outputs, 2 for moisture and 2 for overtemp condition.  
SPDT, Form 'C'; Relay, 5A

**INPUT POWER:** 110 VAC (24 VDC optional)

**DIGITAL OUTPUT PORT:**  
MODBUS® RTU RS485 allows for SCADA or networking applications and programming.

**ENVIRONMENTAL:**  
Operating, 0-65° C  
Storage, -40° -80° C  
R.H., 0-90% non condensing

**TERMINAL STRIP:**  
2 ea. 12-position, compression style, removable for ease of wiring 28 – 16 AWG

**CONNECTIONS:**  
Removable screw terminal blocks 28 – 16 AWG wire

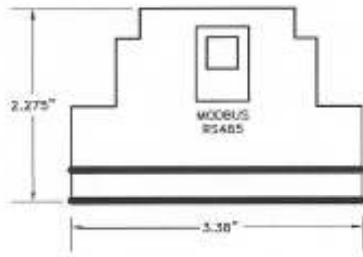
**CONTROL OUTPUTS:**  
4 relay outputs, SPDT Form 'C' relays 10 AMPS

1 Year Warranty

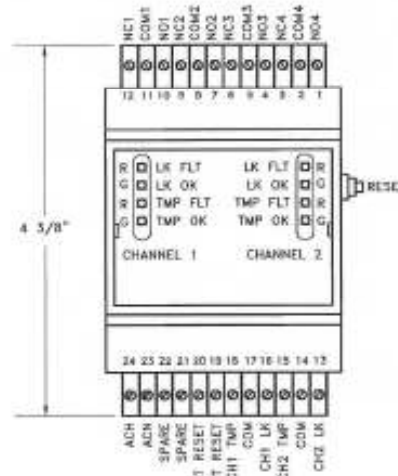
MODBUS®

Network allows multiple units to be connected together for distributed applications,  
Remote monitoring SCADA applications (optional).

SIGMA CONTROLS MODEL 120S DUAL CHANNEL SEAL/OVERTEMP. RELAY

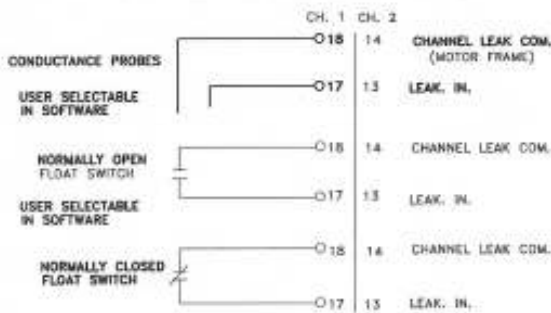


END ELEVATION

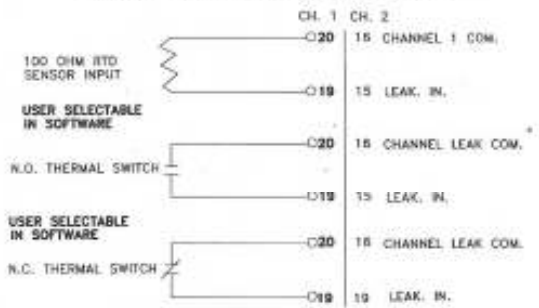


PLAN ELEVATION

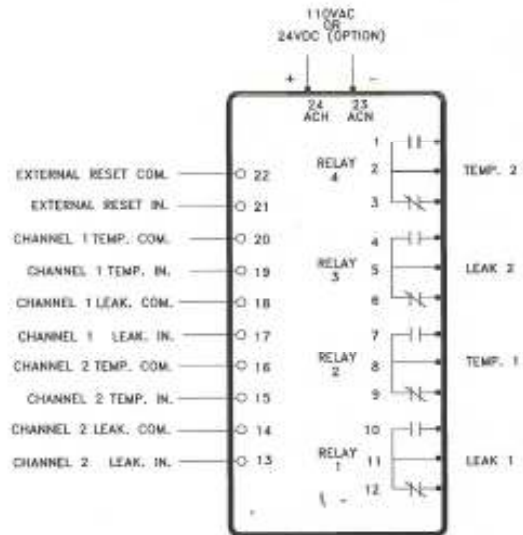
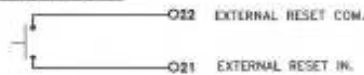
LEAK SENSOR INPUT OPTIONS



MOTOR OVERTEMP INPUT OPTIONS



EXTERNAL RESET



DUAL PUMP MONITOR

**SIGMA**  
Controls, Inc.

Dwg. No. 15-44A  
Date : 2-20-15  
Scale : N.T.S.  
Revision:

MODEL 120S  
DUAL PUMP MONITOR

## SETUP

If the reset button on the SL/OT is held while the unit is powered up, it goes into a setup mode: This mode will remain until the unit's power is cycled.

All the output relays are forced into the active or fault mode.

The 4-5 second filtering delay is removed on the inputs.

This allows for fast testing and setup of the leak input sensitivity adjustments.

The Leak Input switches have three positions, and in positions "1" & "2", the adjustment potentiometer located just above each switch is used.

In position "1" the inputs have the highest sensitivity of from about 20K to 300K – resistances below these values will cause a leak fault.

In position "2" the inputs have a reduced sensitivity of from about 7K to 100K – resistances below these values will cause a leak fault.



For positions "1" and "2" of the switch, the potentiometer in the fully counter-clockwise position is the least sensitive [lowest resistance detectable], and if fully clockwise, the unit may self-trigger even with an open circuit or a resistance well above the maximum for that range setting.

When setting a resistance threshold, if possible, with the pump leakage wires disconnected, connect a resistor of the desired trip resistance across the appropriate leak input, then, starting at the fully counter-clockwise position of potentiometer, slowly adjust it in the clockwise direction until the leak fault LED goes on.



If no resistor is available, [with the leakage input connected to the pump], at switch position “2”, turn the potentiometer fully clockwise, and then back off until the leakage LED goes off and the back off two ‘ticks’ on the dial. If this backing off is not possible, change to position “1” on the switch and repeat the above procedure.

In position “3”, a special operating mode that is only used for ‘Flygt’ type pump signaling is enabled.

The temperature inputs are designed to work with normally closed thermal switches that exhibit a resistance of less than 150 ohms when closed, or a RTD sensor with a resistance of 150 ohms or more when in an over temp fault condition.

## Operation

The Sigma model 120S seal and temperature module provides for monitoring the seal and status temperature for 2 submersible pumps.

The unit is capable of accepting the following sensors:

- A) Normally open or closed float switches.
- B) Conductance probes with sensitivity adjustment.
- C) Normally open or closed temperature switches.
- D) 100 OHM platinum RTD sensors.
- E) Remote alarm reset switch.

8 LED indicators are provided; 4 red for alarm notification and 4 green indicating that no alarms are present.

A MODBUS® data port allows for connection to SCADA systems as well as programming of the unit to change input types.

Programming software is available for Sigma Controls which permits customization of the input points to accept various probe styles.

Input power options include 110 VAC or 24 VDC.

4 integral relays rated at 10A @ 120 VAC as fault detection and offer DPDT outputs.

**Sealleak V2.2 Setup Program 09/14/2015 K-WW**

1) Find Modbus Dongle

2) Find Sealleak on Modbus

3) Read Sealleak Settings

Note that Seal Leak alarms occur when the reading drops below the threshold selected. A zero count = use pot reading as threshold value.

Unit Serial Number

**Current Unit Faults**

To Change a Setting, Enter a Value and Click the Appropriate Button

**Click tabs to see choices**

New Setting[s]:

Current Setting[s]:

4) Set Chan1 Leak detect Mode

5) Set New Chan1 Leak Sens

6) Set New Chan1 Temp Mode

7) Set New Chan1 Temp Limit

8) Set Chan2 Leak Detect

9) Set New Chan2 Leak Sens

10) Set New Chan2 Temp

11) Set New Chan2 Temp Limit

12) Save Changes to Sealleak

To Exit W/O Saving the Changes, Click "EXIT"

13) Change Modbus Node #

**Current Readings:**

Pot Reading Counts

Ch1 Leak Counts  Ch1 Temp Counts  Ch1 Temp in 'C

Ch2 Leak Counts  Ch2 Temp Counts  Ch2 Temp in 'C





## WARRANTY

All Sigma Controls, Inc. products are warranted to be free from defective materials and workmanship for one (1) year from date of shipment. Sigma reserves the right to repair or replace at its option any product found to be defective. In no event shall Sigma Controls, Inc. be liable for any consequential, incidental, or special damages and the limit of its liability shall not exceed the purchase price of the supplied equipment.

### **RETURN FOR REPAIR POLICY (WARRANTY/NON-WARRANTY REPAIR)**

Return status can be determined upon factory inspection of returned equipment.

A completed Return Authorization form must accompany all items returned for repair.

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## RETURN AUTHORIZATION

User Company Name & Address:	Name & Phone # to contact for information:
Reason for Return:	Possible Cause of Problem:

If Sensor and Cable, specify material in which equipment was installed. (This will insure proper handling in case liquid has entered sensor body.)

Urgency of Repair:
Calibration desired for sensor or meter:
PO # for Non-Warranty Repairs:
M.S.D.S. if applicable:

**NOTE: PLEASE PACK IN ANTISTATIC PROTECTION SUITABLE FOR SENSITIVE ELECTRONIC DEVICES.**