



Staset® Solid-State Pressure Switches

UE Precision Sensors Division
Installation & Maintenance
Instructions

Please read all instructional literature carefully and thoroughly before starting. Refer to the final page for the listing of Recommended Practices, Liabilities and Warranties.

GENERAL


Staset® solid-state pressure switches are designed for semiconductor fabrication and OEM process equipment applications. They offer sensing ranges in either gauge pressure or absolute pressure, and a solid-state switch output. Because many applications are safety-related, the Staset® products offer a tamper-proof factory fixed set point. Deadband can also be factory fixed for any value within the setting range. Optional configurations include a backlit LCD display and/or an analog process signal. In addition, a number of process configurations are available. All configurations are UL recognized (File # E 179859) and bear the CE mark.

Note: Although Staset® products are designed around standard configurations, each application's unique requirements are detailed on a customer specific drawing. The drawing contains important information regarding set point, deadband and switch operating characteristics. That drawing should be considered part of these Installation and Maintenance Instructions.

MOUNTING

TOOLS

Appropriate fitting wrenches

 STASET® PRODUCTS ARE NOT SEALED AND MUST BE MOUNTED IN A LOCATION FREE OF LIQUID SPILLS AND CONDENSING VAPORS. AMBIENT TEMPERATURE SHOULD BE KEPT BETWEEN 0 to 50°C.

Note: Staset® switches are double bagged for cleanliness. The inner bag should only be removed when the installer is certain that the environment meets the appropriate standards of cleanliness.


Remove the switch from the inner bag and install on the appropriate process connection. Staset® switches are available with a variety of process connections. Follow procedures as outlined by the supplier of the matching connection (e.g., for "face-seal" type connections, follow

fit-up per Swagelok®, Parker®, etc. procedures). No additional mounting support is required.

WIRING

TOOLS

Wire strippers

 DISCONNECT ALL SUPPLY CIRCUITS BEFORE WIRING UNIT. WIRE IN ACCORDANCE WITH NATIONAL AND LOCAL ELECTRICAL CODES. ELECTRICAL RATINGS STATED IN LITERATURE AND ON NAMEPLATES MUST NOT BE EXCEEDED. OVERLOAD ON A SWITCH CAN CAUSE FAILURE.

Staset® switches come with a 24" cable consisting of two 22 AWG twisted, shielded pairs (three pairs of 24 AWG in the case of the optional analog signal version). Wires are Teflon® coated.

Versions EANxxx-, EGNxxx-, EANxxxD-, EGNxxxD- (standard product, either with or without LCD display):

These units require 25 mA and a 12 to 30 VDC power supply. Input power is connected to the red/black pair (see diagram 1) with black being the power negative (ground).

The switch output is an electrically isolated SPST solid-state relay rated 0.25 A at up to 50 VAC or DC. This output is factory configured to open or close at the user's alarm point (consult the specific customer drawing for this information). The switch output should be wired up to the green/white pair. The closed switch adds approximately one ohm of resistance.

 DISPLAY IS STATIC SENSITIVE AND COULD BE DAMAGED BY ESD.

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Teflon® is a registered trademark of E. I. Du Pont De Nemours and Company


Note: On powerup, if the system pressure is between the alarm set point and the reset point, the LED will be yellow, as the device does not know if it should be open or closed. If the LED is yellow on powerup, cycle to either set point or reset point to clear logic.

Note: The display has the ability to rotate a total of 270° to align for readability. DO NOT FORCE BEYOND INTERNAL STOPS.

0 TO 5 VDC AND 0.2 TO 5.2 VDC ANALOG VERSIONS


Versions EANxxxA-, EGNxxxA-, EANxxxAD-, EGNxxxAD- (includes optional VDC analog process signal, either with or without LCD display):


These units require 25 mA and a 12 to 30 VDC power supply. Input power is connected to the red/black pair (see schematic 2) with black being the power negative (ground).

 **POWER INPUT MUST NOT BE CONNECTED TO ANALOG VOLTAGE INPUT. DAMAGE TO THE PRODUCT WILL OCCUR.**

The switch output is an electrically isolated SPST solid-state relay rated 0.25 A at up to 50 VAC or DC. This output is factory configured to open or close at the user's alarm point (consult the specific customer drawing for this information). The switch output should be wired up to the green/black pair. The closed switch adds approximately 1 ohm of resistance.

The analog process signal is proportional to the pressure sensed, with 0 VDC (or 0.2 VDC) corresponding to the lower limit of the sensing range and 5 VDC (or 5.2 VDC) to the upper limit. Minimum load resistance must be 10K ohms. The analog output should be wired up to the black/white pair for 6 wire configurations and to the green/white pair for the 4 wire no switch analog versions.

 **DO NOT SHORT ANALOG LEADS TOGETHER OR APPLY POWER TO ANALOG OUTPUT LEADS, AS PERMANENT DAMAGE WILL OCCUR.**


 **POWER COMMON AND ANALOG OUTPUT COMMON ARE NON-ISOLATED, TIED TOGETHER ON THE PC BOARD. CARE SHOULD BE TAKEN IN CERTAIN**

INSTALLATIONS TO AVOID POTENTIAL GROUND LOOPS.

4 TO 20 MA ANALOG VERSION

Versions EANxxxA-, EGNxxxA-, EANxxxAD-, EGNxxxAD- (includes optional 4 to 20 mA analog process signal, either with or without LCD display):

These units require 25 mA and a 12 to 30 VDC power supply. Input power is connected to the red/black pair (see schematic 3) with black being the power negative (ground).

 **REVERSE POLARITY ON THE ANALOG 4-20mA CIRCUIT WILL CAUSE PERMANENT DAMAGE TO UNIT.**

The switch output is an electrically isolated SPST solid-state relay rated 0.25 A at up to 50 VAC or DC. This output is factory configured to open or close at the user's alarm point (consult the specific customer drawing for this information). The switch output should be wired up to the green/black pair. The closed switch adds approximately 1 ohm of resistance.

The analog process signal is proportional to the pressure sensed, with 4mA corresponding to the lower limit of the sensing range and 20mA to the upper limit. The unit is a current sink type, electrically isolated from the input power; however, the same external power supply can be used to power the current loop and the unit.

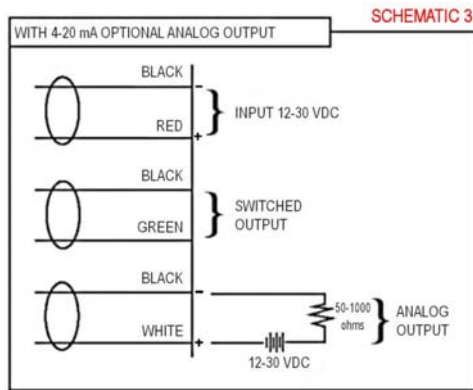
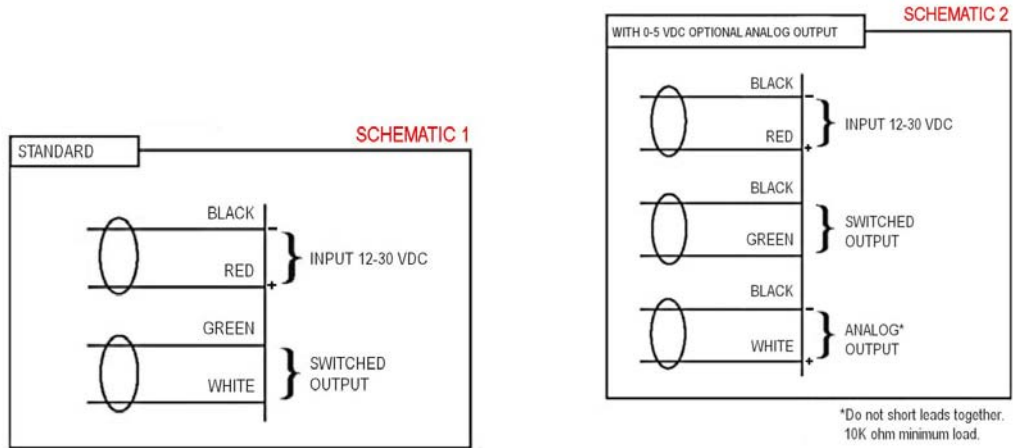
The loop power supply should be 12 to 30 VDC. The loop resistance should be between 50 and 1000 ohms.

REPLACEMENT PARTS/ USER SERVICE

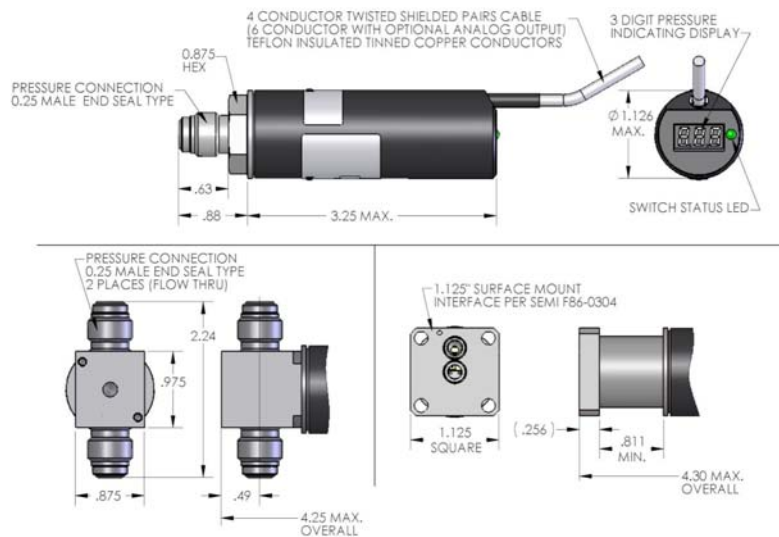
There are no user serviceable parts in this product. Should a product require service, it must be returned to the factory for evaluation.

NOTES:

SCHEMATICS



DIMENSIONAL DIAGRAMS



RECOMMENDED PRACTICES AND WARNINGS

Precision Sensors recommends careful consideration of the following factors when specifying and installing Precision Sensors pressure and temperature units. Before installing a unit, the Installation and Maintenance instructions provided with unit must be read and understood.

- To avoid damaging unit, proof pressure and max. temperature limits stated in literature and on nameplates must never be exceeded, even by surges in the system. Operation of the unit up to proof pressure or max. temperature is acceptable on a limited basis (i.e. start-up, testing) but continuous operation must be restricted to the designated adjustable range. Excessive cycling at proof pressure or maximum temperature limits could reduce sensor life.
- A back-up unit is necessary for applications where damage to a primary unit could endanger life, limb or property. A high or low limit switch is necessary for applications where dangerous runaway conditions could result.
- Install unit where shock, vibration and ambient temperature fluctuations will not damage unit or affect operation. Orient unit so that moisture does not enter the unit.
- Unit must not be altered or modified after shipment. Consult Precision Sensors if modification is necessary.
- Monitor operation to observe warning signs of possible damage to unit, such as drift in set point. Check unit immediately.
- Preventative maintenance and periodic testing is necessary for critical applications where damage could endanger property or personnel.
- For all applications, a factory set unit should be tested before use.
- Electrical ratings stated in literature and on nameplate must not be exceeded. Overload on a switch can cause damage, even on the first cycle. Wire unit according to local and national electrical codes, using wire size recommended in installation sheet.
- Do not mount unit in ambient temp. exceeding published limits.

LIMITED WARRANTY OF REPAIR

AND REPLACEMENT Precision Sensors warrants that the product hereby purchased is, upon delivery, free from defects in material and workmanship and that any such product which is found to be defective in such workmanship or material will be repaired or replaced by Precision Sensors (F.O.B. Precision Sensors); provided, however, that this warranty applies only to equipment found to be so defective within a period of 60 months after delivery by the seller. Precision Sensors shall not be obligated under this warranty for alleged defects which examination discloses are due to tampering, misuse, neglect, improper storage, and in any case where products are disassembled by anyone other than authorized Precision Sensors representatives.

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SELLER'S LIABILITY TO BUYER FOR ANY LOSS OR CLAIM, INCLUDING LIABILITY INCURRED IN CONNECTION WITH (I) BREACH OF ANY WARRANTY WHATSOEVER EXPRESSED OR IMPLIED, (II) A BREACH OF CONTRACT, (III) A NEGLIGENT ACT OR ACTS (OR NEGLIGENT FAILURE TO ACT) COMMITTED BY SELLER, OR (IV) AN ACT FOR WHICH STRICT LIABILITY WILL BE IMPUTED TO SELLER, IS LIMITED TO THE LIMITED WARRANTY OF REPAIR AND REPLACEMENT STATED HEREIN. IN NO EVENT SHALL THE SELLER BE LIABLE FOR ANY SPECIAL, INDIRECT, CONSEQUENTIAL OR OTHER DAMAGES OF A LIKE GENERAL NATURE, INCLUDING, WITHOUT LIMITATION, LOSS OF PROFITS OR PRODUCTION, OR LOSS OR EXPENSES OF ANY NATURE INCURRED BY THE BUYER OR ANY THIRD PARTY.



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