Versatile 9284PA

Indicating Alarm Meter

Features

- Direct replacement for Bach Simpson model 5624 MK2
- EMC qualified
- Meets seismic qualifications for use in safety related systems
- Available as an indicator or an indicator with single of dual alarms
- Scales custom drawn to suit any application
- Available in seven different configurations

Description

Model 9284PA analog indicating alarm meter is the latest generation in indicating alarm meters from Scientech. It is a direct replacement for Bach Simpson model 5624 MK2. The 9284PA uses all solid-state electronic components with no embedded firmware. With modern electronic components, model 9284PA provides superior accuracy, drift, and electromagnetic interference immunity over the legacy designs of the 5624 MK2.

The model 9284PA utilizes a proven taut band meter movement design. The meter is housed in the same enclosure design as the legacy meters it was designed to replace, eliminating mechanical retrofit issues.

Three adjustments are accessible at the front panel. The three adjustments include the mechanical zero adjustment and the setpoint adjustments for the high and low relays.

An electrical slide wire pickup and precision window comparator are used to process and activate the 9284PA's two SPDT relays. This allows the alarms to function independently in the event of a failure of the mechanical meter movement.

Relays are factory configured for single low, single high, dual low / low, dual high / high or dual high / low operation. Standard relay setpoint trip accuracy is 0.5% of span with an adjustable hysteresis / deadband. The relays operate as fail safe which means the relays are energized when the process is in the non-alarm state. When the process goes into an alarm condition the relay de-energizes. The status of the relays are displayed by LEDs visible thru the front panel. The logic of the relay status LEDs are configured through the model matrix.

The model 9284PA accepts input signals from RTDs, Thermistors, Current and Voltage sources. Linear current and voltage inputs are scaled and processed through scaling amplifiers. RTD and Thermistor inputs are processed with a high impedance instrumentation amplifier with high common mode rejection and with self-zeroing adjustments. There is automatic lead wire compensation up to 25 ohm series resistance in each leg. All measuring circuits provide a linear output, which is used to drive the meter movement and actuate the relays.

Housed in a rugged steel enclosure with an ABS plastic bezel, the model 9284PA is available in both vertical and horizontal orientations. The meter can be installed in any orientation, in any panel material up to 1/2" thick and is shipped complete with a set of two specially designed panel mounting brackets.

External electrical connections are accomplished via a 16 pin Wire-Pro connector.

The model 9284PA has been designed and built to be a rugged, reliable instrument, providing years of trouble free operation. The meter is also seismically qualified for use in safety related systems.

Ordering Information

9284PA - ____ - ____ - ____ - ____ - ____ - ____ - ____

Meter Series

9284PA	9284PA

Set point Mode

Indicator only, no setpoints, with amplifier	00
Indicator only, no setpoints, no amplifier	01
One arm, one setpoint, high	10
One arm, one setpoint, low	11
Two arms, one setpoint each arm, high/low	20
Two arms, one setpoint each arm, high/high	21
Two arms, one set point each arm, low/low	22

Input

Reserved	A
RTD	B
Thermistor	C
Voltage	D
Current	E

Mounting and Scale Orientation

Vertical top zero	VT
Vertical center zero	VC
Vertical bottom zero	VB
Horizontal left zero	HL
Horizontal center zero	HC
Horizontal right zero	HR

Accuracy

±1% of span	13
±½% of span	11

Indicator Light Wiring

With output relay(s) de-energized	M
With output relay(s) energized	T
No arm(s), indicators only	N

Design Alternatives (leave blank if none)

Front electrical zero	J1160
High setpoint actuate both sets of contacts	J1166
Front electrical zero and span	J1224
One relay for low alarm with internal jumpers between relay terminals	J1242A
One relay for high alarm with internal jumpers between relay terminals	J1242B

Note: Model number description must include (1) all of the dash numbers defined above, (2) the input range, and (3) the scale specifications (range and minor/major markings).

Contact Information: Curtiss-Wright Nuclear Division / I&C Products
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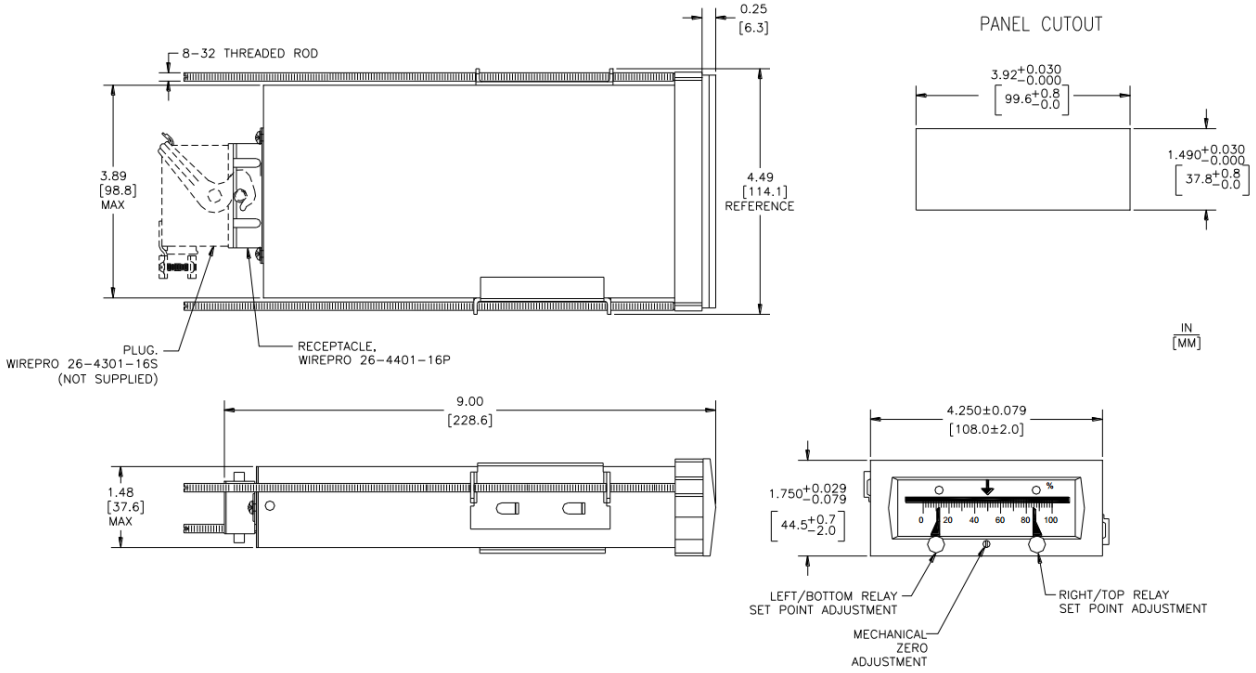
(208) 497-3333

Specifications

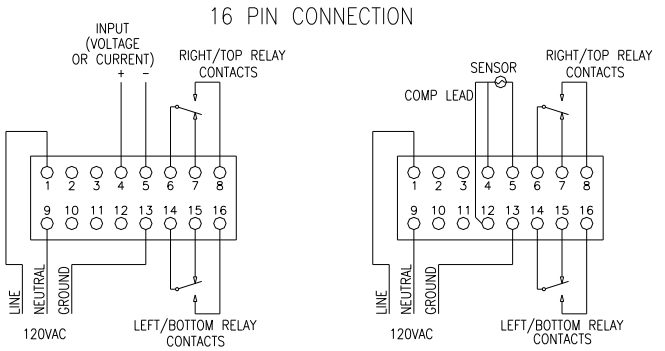
<table>
<tr><th colspan="3">Parameter</th><th>Acceptance Criteria</th></tr>
<tr><td rowspan="12">General</td><td>1</td><td>Ambient Conditions</td><td>5 °C to 50 °C; 10% to 90% RH</td></tr>
<tr><td>2</td><td>Mounting</td><td>Panel</td></tr>
<tr><td>3</td><td>Body</td><td>Black steel, NEMA type 1</td></tr>
<tr><td>4</td><td>Bezel</td><td>Surf green</td></tr>
<tr><td>5</td><td>Pointer</td><td>Black</td></tr>
<tr><td>6</td><td>Scale Length</td><td>2.36” (60 mm)</td></tr>
<tr><td>7</td><td>Scale Lettering</td><td>Black on white</td></tr>
<tr><td>8</td><td>Electrical Supply</td><td>120 Vac ±10%; 60 Hz ± 2 Hz</td></tr>
<tr><td>9</td><td>Power</td><td>6 VA</td></tr>
<tr><td>10</td><td>Dielectric Strength</td><td>500 Vac signal input lines; 1000 Vac power and relay contacts</td></tr>
<tr><td>11</td><td>Electrical Connection</td><td>16-pin Wire-Pro 26-4401-16P</td></tr>
<tr><td>12</td><td>Weight</td><td>≤ 1.2 kg (2.6 lbs.)</td></tr>
<tr><td rowspan="15">Meter</td><td>13</td><td>Signal Input Range and Input Impedance</td><td>Voltage (DC)
<table>
<tr><th rowspan="2">Input</th><th colspan="2">Impedance</th></tr>
<tr><th>Powered</th><th>Non-Powered</th></tr>
<tr><td>0 to 1 V</td><td rowspan="5">> 150 kΩ</td><td>N/A</td></tr>
<tr><td>1 to 5 V</td><td>N/A</td></tr>
<tr><td>0 to 5 V</td><td>> 1 kΩ/V</td></tr>
<tr><td>0 to 10 V</td><td>> 1 kΩ/V</td></tr>
<tr><td>±10 V</td><td>N/A</td></tr>
<tr><td>0 to 75 V</td><td>≥ 75 kΩ</td><td>N/A</td></tr>
<tr><td>0 to 300 V</td><td>> 300 kΩ</td><td>N/A</td></tr>
</table>
Current (DC)
<table>
<tr><th rowspan="2">Input</th><th colspan="2">Impedance</th></tr>
<tr><th>Powered</th><th>Non-Powered</th></tr>
<tr><td>0 to 50 µA</td><td>< 600 Ω</td><td>N/A</td></tr>
<tr><td>±100 µA</td><td>< 600 Ω</td><td>N/A</td></tr>
<tr><td>0 to 1 mA</td><td>< 12.5 Ω</td><td>N/A</td></tr>
<tr><td>10 to 18 mA</td><td>< 75 Ω</td><td>N/A</td></tr>
<tr><td>10 to 50 mA</td><td>< 12.5 Ω</td><td>< 75 Ω</td></tr>
<tr><td>4 to 20 mA</td><td>< 12.5 Ω</td><td>< 75 Ω</td></tr>
<tr><td>0 to 1.78 mA</td><td>N/A</td><td>< 25 Ω</td></tr>
</table>
Note: Each range can be split into a bi-polar input (e.g., 0 to 1 V can be ±0.5 V; and suppression of zero is available up to 30% of span (e.g., 0 to 5 Vdc input range can have zero suppressed to make the range 0.5 V to 4.9 V).
NOTE: Contact Scientech for input ranges not listed above</td></tr>
<tr><td>14</td><td>Accuracy</td><td>(standard) ±1% of span; ±2% of span for input < 500 µA
(special) ±0.5% of span</td></tr>
<tr><td>15</td><td>Response Time</td><td>≤ 2.0 seconds</td></tr>
<tr><td>16</td><td>Hysteresis Meter</td><td>±0.5% of span</td></tr>
<tr><td>17</td><td>Deadband</td><td>±0.5% of span</td></tr>
<tr><td>18</td><td>Drift</td><td>±0.1% of span per 24 hours; ±0.2% of span per 30 days</td></tr>
<tr><td>19</td><td>Over-Range</td><td>≤ 0.5% of span change in zero shift after 5X full scale input</td></tr>
<tr><td>20</td><td>Repeatability</td><td>±0.25% of span</td></tr>
<tr><td>21</td><td>Zero Adjustment</td><td>Standard</td></tr>
<tr><td>22</td><td>Accuracy Temperature Coefficient</td><td>±0.42% of span/10 °C</td></tr>
<tr><td rowspan="8">Alarm</td><td>23</td><td>Setpoint Accuracy</td><td>±0.5% of span</td></tr>
<tr><td>24</td><td>Response Time</td><td>≤ 100 ms</td></tr>
<tr><td>25</td><td>Contact Rating</td><td>5 A @ 120 Vac; 1A @ 48 Vdc</td></tr>
<tr><td>26</td><td>Contact Form</td><td>SPDT</td></tr>
<tr><td>27</td><td>Lamp</td><td>High-brightness LED</td></tr>
<tr><td>28</td><td>Action</td><td>Single Low, Single High, Dual High & Low, Dual High & High, Dual Low & Low</td></tr>
<tr><td>29</td><td>Hysteresis/Deadband</td><td>0.3% to 1% of span</td></tr>
<tr><td>30</td><td>Repeatability</td><td>±0.25% of span</td></tr>
</table>

Note: All specifications listed above are for the standard 9284PA model. Not all options have been listed. If your requirement is outside the specified values, please contact Scientech for specific product modification options. All specifications listed above are in accordance with ANSI/ISA S51.1 and ANSI C39.1.

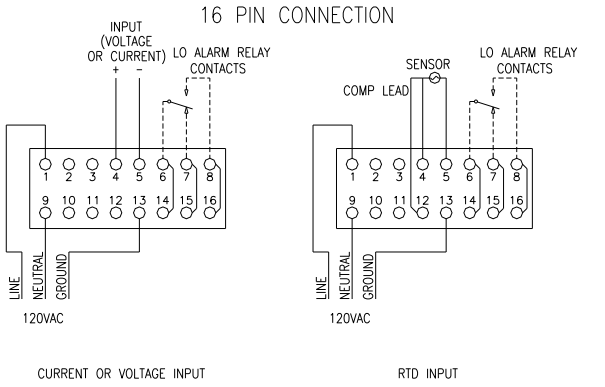
Outline and Mounting Dimensions



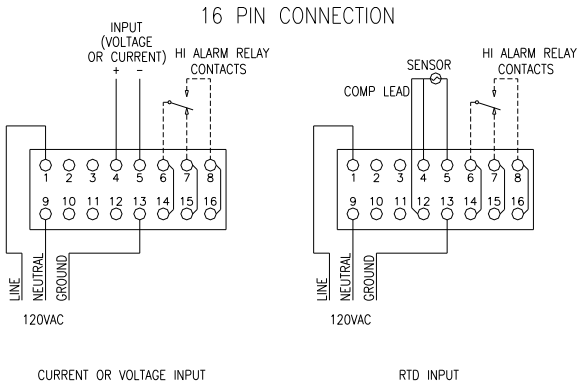
Connection Diagrams



Standard



LO ALARM 9282PA-11-J1242A



HI ALARM 9282PA-10-J1242B