

READ THIS FIRST

Installation and Startup Guide

Digital Pressure Gauge & Switch

Revision 0.6 Document 2052



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PRODUCT DESCRIPTION

The Anderson Digital Pressure Gauge platform is designed specifically for monitoring critical pressures in sanitary applications. The product line was developed to address several trends relative to performance, safety, and readability criteria of our core customers. The Anderson Digital Pressure Gauge provides a battery-powered, local display of pressure that is 6 times more accurate than its mechanical counterpart. Additionally, this product has 3 times the over-range capacity and 5-10 times the resolution of traditional mechanical pressure indicators. The switch version includes 2 fully adjustable switches with low-voltage relay outputs for simple control and/or alarming applications.

SPECIFICATIONS

Performance

Accuracy:	±0.2% of URL (upper range limit) Complies with ASME B40.7-1998
Repeatability:	±0.06% URL
Hysteresis:	±0.07% URL
Linearity:	±0.07% URL
Temperature stability:	±0.16% / 10°F change in process or ambient
Over-range Capacity:	2X URL

Operational

Process Temp Limits:	-4° to 127°C (25° to 260°F) continuous
Ambient Temp Limits:	4° to 49°C (40° to 120°F)
Engineering Units:	Programmable by user; see matrix for selections.
Compound ranges:	Full Vacuum to selected positive pressure. If set to "HG, display reads in "HG when in the vacuum range and PSIG when there is positive pressure.
Min / Max Pressure:	Captured and stored in non-volatile memory, may be cleared via tamper-resistant toggle.

Electrical

Power:	2 "AA" replaceable batteries with one-year minimum expected life with industrial grade batteries (gauge only); 9-30 Volts external DC power (with switches) with battery back-up of non-volatile programmed values.
Relay Outputs (Switch only):	Two (2) independent, adjustable setpoint relays: One amp contact rating at 24 volts DC, SPST; Contacts open with no power to unit (failsafe) each programmable to close above or below setpoint.

Mechanical

Display:	LCD, with 0.9" height
Wetted Material:	316 "L" Stainless Steel, welded and polished to max R _a = 8 microinches (0.2 microns) for EP and max R _a = 25 microinches for EN.
Housing:	304 Stainless Steel, welded
Lens:	Polysulphone

Approvals and Documentation

Sanitary: Meet current ASME BPE-2002 standards; Authorized to display the 3-A Symbol, Third Party Verified.

PED: Complies with the Pressure Equipment Directive relative to Sound Engineering Practices.

Electrical: Tested to IEC 61326 Standard for Emissions and Immunity in Industrial locations.

Enclosure: Meets or exceeds requirements for NEMA 4X.

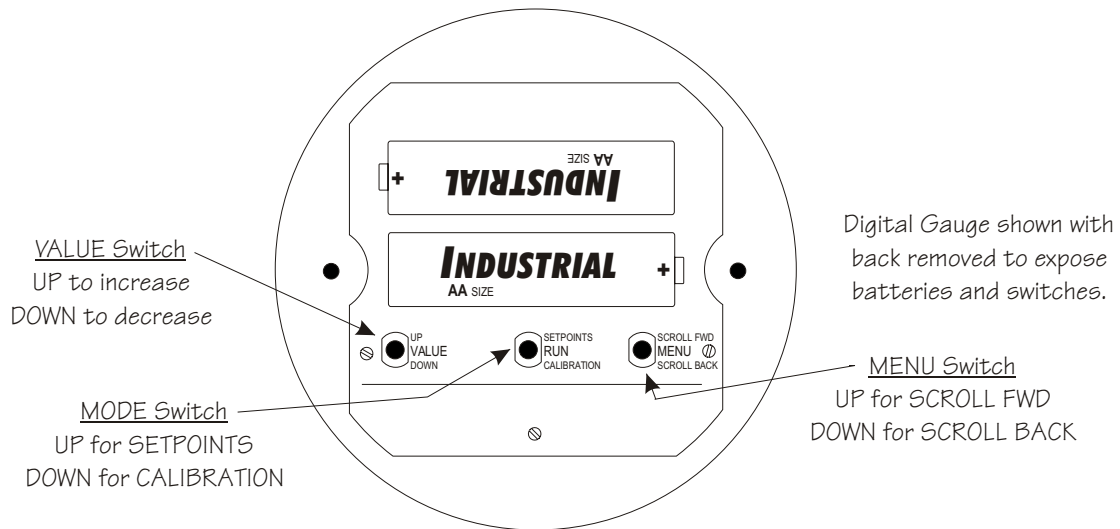
Hazardous Locations: UL for Intrinsically Safe requirements pending.

Material, Conformance and Calibration: Certificates provided with product, also available on-line using serial number (applies to EP only).

USER INTERFACE GUIDE

The Anderson Digital Pressure Gauge and Switch is factory calibrated and configured to the range and units specified by the order matrix number. Displayed pressure units, alarm setpoint, hysteresis and action values may be easily modified by the user. The calibrated range of the gauge, however, may not be modified in the field. Gauge calibration may be performed through the following User Interface Guide.

The Digital Pressure Gauge configuration parameters are sorted into three different user modes, and are accessible via the three switches located under the protection of the removable gauge back. To access the switches simply remove the two screws, and the cover with gasket. While the cover is removed, do not allow moisture to enter the gauge housing.



RUN Mode

(read values only)

Normal Display: Pressure & Units
 Alarm Setpoint and Action
 Alarm 1 Hysteresis
 Alarm 2 Setpoint and Action
 Alarm 2 Hysteresis
 Low Range Limit
 Upper Range Limit
 Dampening Factor
 Maximum Captured Pressure
 Minimum Captured Pressure
 Calibration Offset Value
 Calibration Gain Value

SETPOINTS Mode

(modify alarm values)

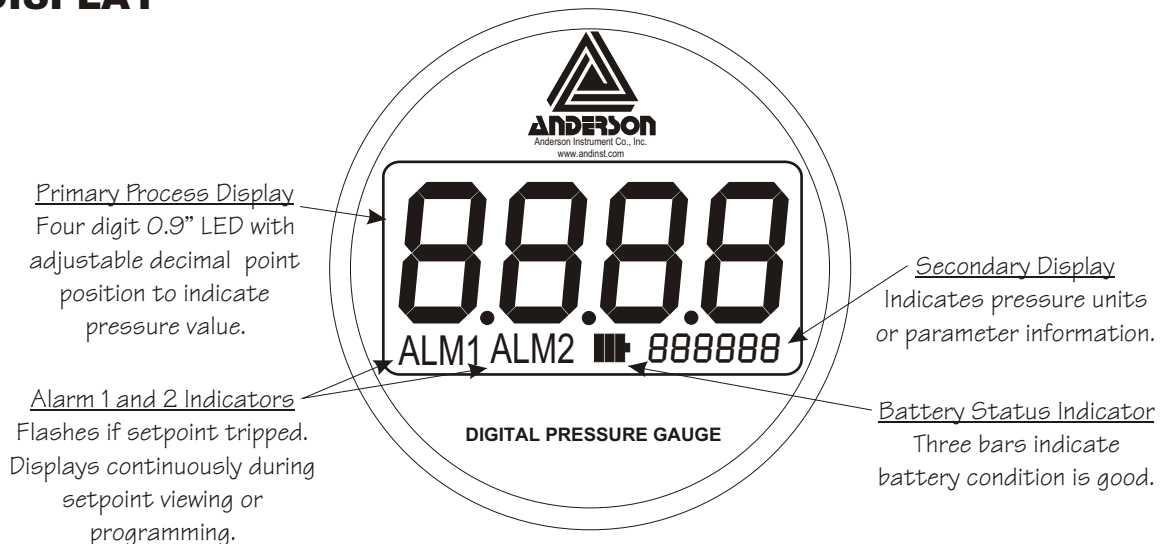
Alarm 1 Setpoint Value
 Alarm 1 Action
 Alarm 1 Hysteresis
 Alarm 2 Setpoint Value
 Alarm 2 Action
 Alarm 2 Hysteresis

CALIBRATE Mode

(modify calibration parameters)

Calibration Offset
 Calibration Gain
 Pressure Units Displayed
 Dampening Factor
 Decimal Point Position
 Maximum Pressure Captured
 Minimum Pressure Captured
 Restore Factory Configuration

USER DISPLAY



ALARM SETPOINT PROGRAMMING

(MODE Switch in the UP position)

Alarm 1 Setpoint



Alarm 1 Setpoint
0 - 100 % of Range
(in pressure units)

Pressure at which
Relay 1 Closes

Alarm 2 Setpoint



Alarm 2 Setpoint
0 - 100 % of Range
(in pressure units)

Pressure at which
Relay 2 Closes

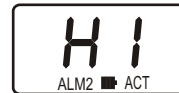
Alarm 1 Action



Relay 1 Closed
Above Setpoint

Relay 1 Closed
Below Setpoint

Alarm 2 Action



Relay 2 Closed
Above Setpoint

Relay 2 Closed
Below Setpoint

Alarm 1 Hysteresis



Alarm 1 Hysteresis
0 - 100 % of Range
(in pressure units)

Alarm 2 Hysteresis



Alarm 2 Hysteresis
0 - 100 % of Range
(in pressure units)

CALIBRATION / CONFIGURATION PROGRAMMING

(MODE Switch in the DOWN position)

Calibration Menu



Calibration mode.
MENU SCROLL BACK
to proceed.

Calibration Offset



Offset calibration
adjustment.
Adds to reading.
Range: +/- 10% of Span

Calibration Span



Span calibration
adjustment.
Multiplies reading.
Range: 0.90-1.10

Displayed Units



PSI Gau, PSI ABS, in
H₂O, Kg/cm², mmHg,
inHg, MPa, kPa, Bar

Compound Ranges with
units set to inHG, or
mmHG will read PSIG if
measuring positive pressure.

Gauge (G, M, B, C) and Absolute
(A) pressure units may not be
interchanged, and must match
original hardware configuration.

Dampening Factor



Digital Filter settable
from 0.0 to 10.0
(no dampening = 0.0)

Decimal Position



Decimal point position.
(Setting is not stored in non-
volatile memory)

Maximum Pressure
Captured



Hold UP switch for 3
seconds to reset.



Minimum Pressure
Captured



Hold UP switch for 3
seconds to reset.



Restore Factory
Defaults



Hold UP switch for 3
seconds to reset all
factory defaults.

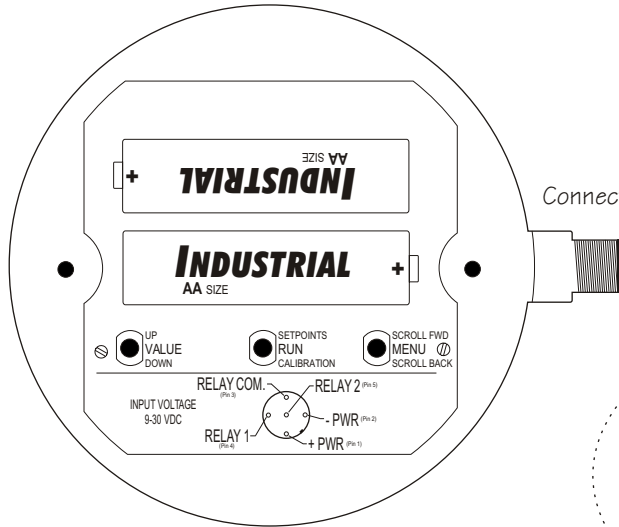


RELAY WIRING (DIGITAL PRESSURE SWITCH ONLY)

9-30 VDC, 250 mA typical
external power required to
energize relays.

CABLE REQUIREMENTS

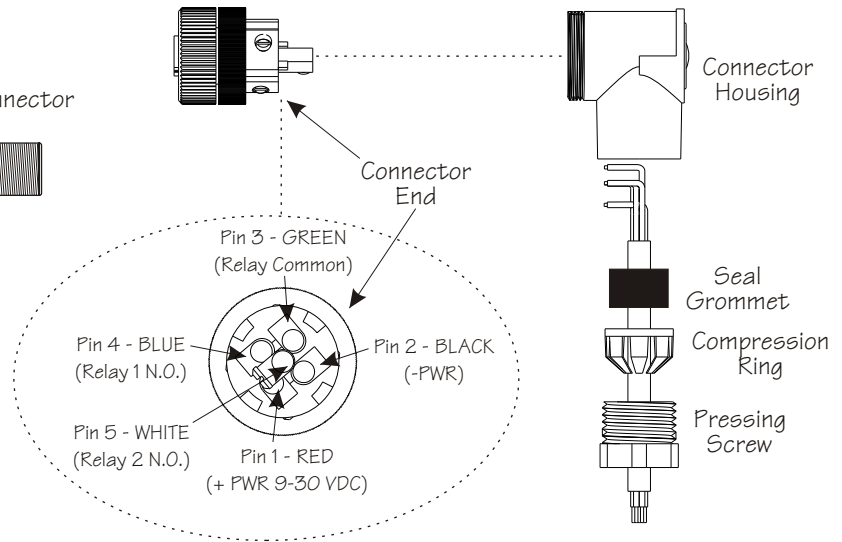
- 5 conductor, stranded, 18-24 AWG.,
- 4-8 mm (0.16-0.31") Cable Sheath OD



Normally Open relay contacts
rated for 1 amp max. at 24 VDC.
(Not suitable for AC voltage)

Retaining
Ring

Connector p/n: 42119-A0000
(Turck eurofast®, 5-wire, 5-pin, female)



Digital Pressure Switch must be externally powered to utilize relays.

ORDERING MATRIX

SERIES

N Sanitary
P Life Sciences

RANGE (Available units/URL)

025 Full vacuum to 0 psi (M,B/30 psig)
028 Full vacuum to 0 to 15 psi (C,B/30 psig)
029 Full vacuum to 0 to 30 psi (C,B/30 psig)
031 Full vacuum to 0 to 60 psi (C,B/100 psig)
032 Full vacuum to 0 to 100 psi (C,B/100 psig)
059 0-5 psig (G,B/5 psig)
063 0-15 psi (G,B/30 psig; A/15 psia)
066 0-30 psi (G,A,B/30 psi)
068 0-50 psi (G,A,B/100 psi)
069 0-60 psi (G,A,B/100 psi)
071 0-100 psi (G,A,B/100 psi)
073 0-150 psi (G,A,B/200 psi)
074 0-160 psi (G,A,B/200 psi)
075 0-200 psi (G,A,B/200 psi)
077 0-300 psi (G,A,B/300 psi)
081 0-500 psi (G,B/500 psig)

ENGINEERING UNITS

G PSIG
M Hg(inches Mercury)
A PSIA
B BAR
C Vacuum/Pressure("Hg&PSIG)

NAME ON DIAL

01 Anderson Instrument Co.

DIAPHRAGM MATERIAL

1 316L Stainless Steel (std.)
2 Hastelloy

MOUNTING

1 Bottom
5 Left
6 Right

FITTINGS/PROCESS CONNECTIONS

002 3/4 Tri-Clamp†
004 1-1/2" Tri-Clamp
005 2" Tri-Clamp
006 3" Tri-Clamp*
016 1-1/2" Cherry-Burrell I-line(male)*
017 2" Cherry-Burrell I-line (male)*
045 2" #14 Bevel Seat w/ 13-H nut*,‡
049 2" #15 Bevel Seat (threaded male)*,‡
059 1-1/2" NPT male*
123 Anderson CPM Flushmount†

SWITCHING/CONNECTOR

0 No Switching
1 Switching with 2 Normally Open Relays

* Allow an extra 10 days for delivery

† Available on EP Series only

‡ Available on EN Series only