

AUF

COMPACT LOCAL ELECTRONIC DISPLAY



KOBOLD Instruments Inc.
1801 Parkway View Drive
Pittsburgh, PA 15205
Ph: (412)788-2830
Fax: (412)788-4890

- Local indication for transducers & transmitters
- 4-20 mA loop-power driven
- Works with any Hirschmann® plug
- 4 digit accuracy
- Switch available



KOBOLD AUF Compact Display

The AUF is a universal display unit usable in all 4-20 mA transmission circuits. Sandwiched directly between a standard DIN 43650 (Hirschmann style) plug and socket assembly, the AUF is the easiest of displays to install. The AUF is fully scalable through two control buttons. Programming capabilities include scaling, decimal point location, damping and, for units with a switch, setpoint value.

Power is provided to the AUF directly via the 4-20 mA loop, so no additional power supply is required. The programming information resides inside the AUF's EEPROM memory, making the unit immune to power failures up to ten years in duration (time enough to put your kids through college).

Small, easily installed . . . the AUF is the ideal way to get more from your pressure transmitter. Now you can have your signal, and see it too.

Specifications

Range: -1999 to 9999

Error Signals

“HI”:
“LO”:

Display: over-range
under-range
4-digit red LED
5/16” tall

Accuracy: ±0.2% of full scale
±1 digit

Power Supply: loop powered via
4-20 mA input line
5 volts

Voltage Load:

Connection: DIN 43 650 plug (eg. Hirschmann®)

Sampling Rate: adjustable from once per 3 sec. to once per 25.5 sec.

Programming Information

Input Mechanism: 2 button, menu driven

Parameters: scaling, sample rate, error status, switchpoint

Data Stability: non-volatile EEPROM maintains memory 10 years without power

Construction Information

Housing: Nylon®, plexiglas

Protection: NEMA 4

Alarm Switch: open collector

Max. Current: 60 mA

AUF Ordering Information

Description	Model No.
Standard Unit	AUF-1000
With Alarm	AUF-1001

DPF76 SS DIAPHRAGM PRESSURE GAUGE



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- SS design for high corrosion resistance
- Suitable for highly viscous media
- Tolerates crystal formation
- Durable diaphragm element
- Optional glycerin filled indicator



KOBOLD DPF76 Pressure Gauge

KOBOLD's DPF76 pressure gauges feature stainless steel construction for superb chemical and corrosion resistance for all your intermediate pressure applications.

Glycerin filling is available.

Specifications

Ranges: -14.7 to 300 PSIG (see table)

Over Pressure Protection
Momentary: x 1.3 range max.

Sensing Element: diaphragm

Accuracy: ±1.6% of full scale

Operating Temperature

Medium: freezing to 180°F
Ambient: freezing to 140°F

Fittings: 1/2" NPT

Materials of Construction

Wetted Parts:

Element: SS (Duatherm 600)
Fitting: 316 Ti & 304 SS

Exterior

Movement: Stainless steel
Housing: 304 SS or aluminum
Bezel: 304 SS
Pointer: Black aluminum
Indicator Dial: White aluminum
Gauge Window: Safety glass

Options:

Glycerin damped indicator assembly

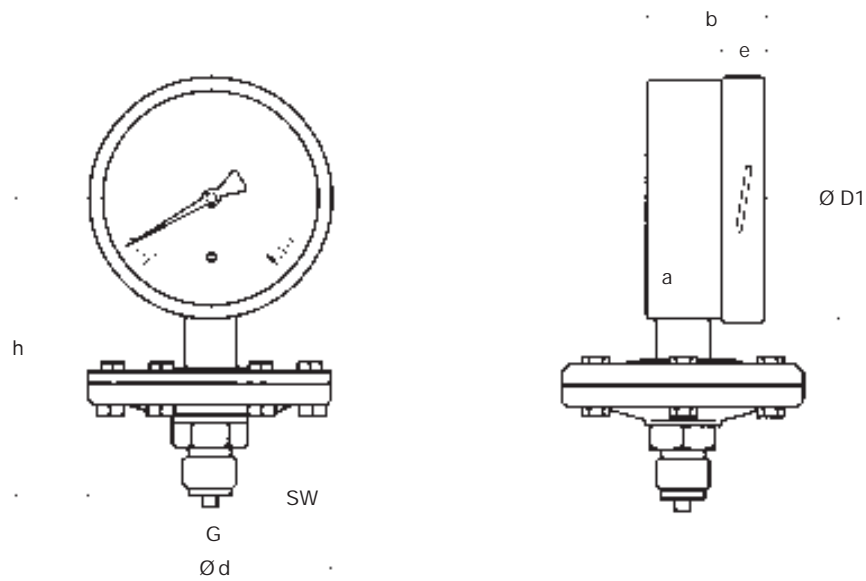


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DPF76 SS DIAPHRAGM PRESSURE GAUGE

DPF76 Ordering Information	
DPF76	= Diaphragm Pressure Gauge for Intermediate Pressures
-1	= 100 mm (4 inch) Dial Face, with Stainless Steel Housing
-2	= 160 mm (6 inch) Dial Face, with Aluminum Housing
Range	= Pressure Range Abbreviation
H00	= -30" to 0" Hg
115	= 15 PSIG
130	= 30 PSIG
160	= 60 PSIG
210	= 100 PSIG
216	= 160 PSIG
220	= 200 PSIG
230	= 300 PSIG
F	= Glycerin damped indicator assembly
Options	
Sample DPF76 Specification	
DPF76	-2 130 F

Dimensions



Dial Face	Dimensions (mm)							SW	Weight (lbs)
	Ø d	a	b	Ø D1	e	G	h±2		
4 inch	100	15.5	50	100	17.5	1/2" NPT	125	(27) 22	2.1
6 inch	100	15.5	50	160	17.5	1/2" NPT	175	(27) 22	3.0

DRF22

BRASS BOURDON TUBE PRESSURE GAUGE



KOBOLD Instruments Inc.
1801 Parkway View Drive
Pittsburgh, PA 15205
Ph: (412)788-2830
Fax: (412)788-4890

- Economical brass construction
- Highly reliable
- Rugged design
- ± 1.0 % accuracy
- Pulsation and vibration damping through optional glycerin filling



KOBOLD DRF22 Pressure Gauge

The DRF22 pressure gauge series is a versatile bourdon tube based device with brass movement. Stainless steel and brass construction offers a good combination of corrosion resistance and value.

To make installation a snap, the DRF22 is offered with or without panel mounting bezel, and either bottom or rear ports. An optional glycerin filled housing makes the unit suitable for deployment with media prone to pulsation and vibration. With ranges reaching from -30" Hg to 10,000 PSIG, the DRF22 is the right fit for most pressure sensing applications.

Specifications

Ranges: -14.7 to 10,000 PSIG (see table)

Over Pressure Protection
Momentary: 1.15 to 1.3 x range max.

Sensing Element: bourdon tube

Accuracy: ±1.0% of full scale

Operating Temperature
Medium: freezing to 180°F
Ambient: freezing to 140°F

Fittings: 1/2" NPT

Materials of Construction

Wetted Parts

Element

< 1000 PSIG: Copper
1000 PSIG & Up: Stainless Steel

Fitting: CuZn Alloy

Exterior

Movement: Brass
Housing: 304 SS or aluminum
Bezel: 304 SS
Pointer: Black aluminum
Indicator Dial: White aluminum
Window: Safety glass

Options: Glycerin damped indicator assembly

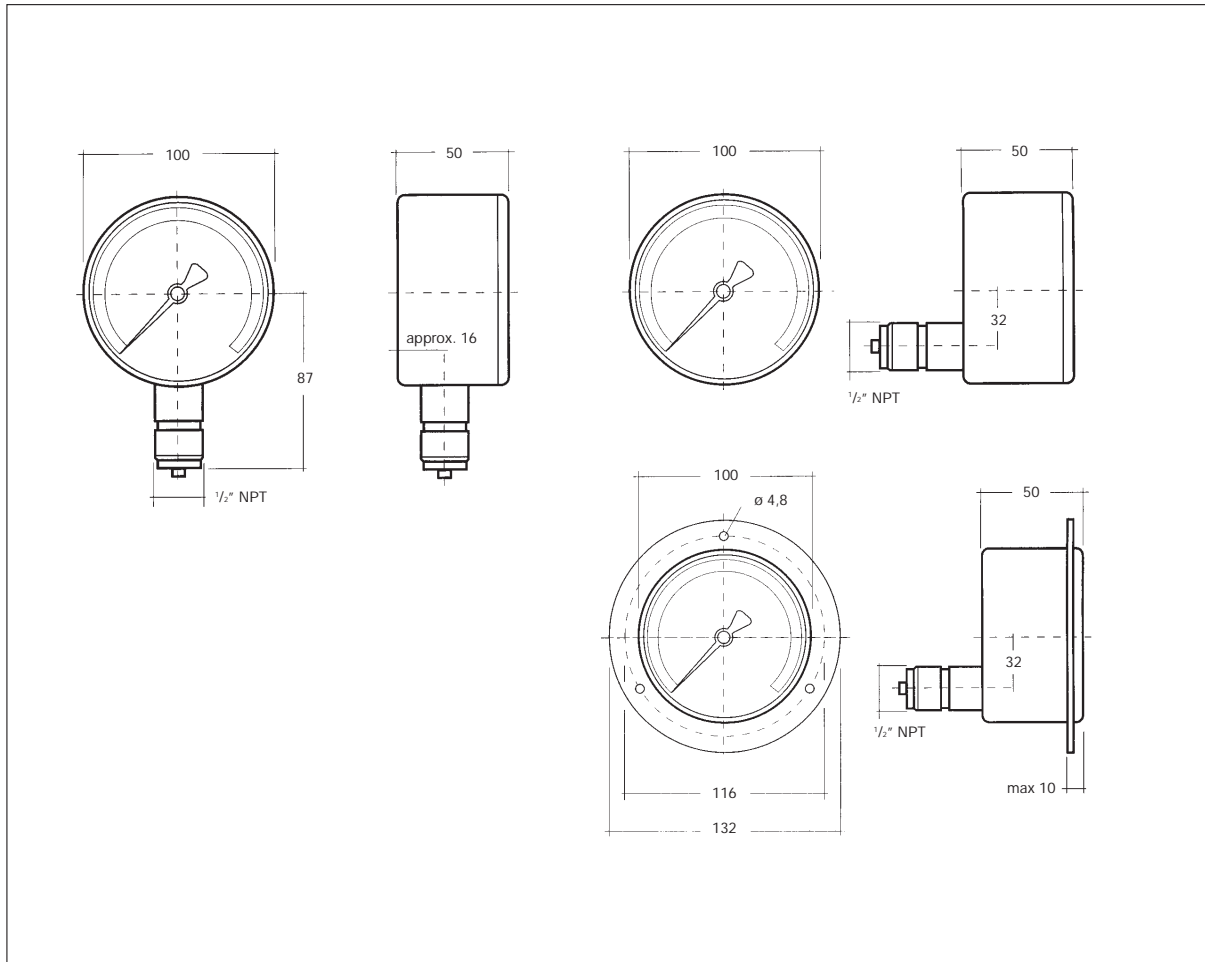


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DRF22 BRASS BOURDON TUBE PRESSURE GAUGE

DRF22 Ordering Information	
DRF22	= Copper Element High Pressure Bourdon Tube Pressure Gauge
-1	= 100 mm (4 inch) Dial Face, Bottom Process Connection
-2	= 100 mm (4 inch) Dial Face, Rear Process Connection
-3	= 100 mm (4 inch) Dial face, Rear Process Connection with Panel Mountable Bezel
Range	= Pressure Range Abbreviation
H00	= -30" to 0" Hg
115	= 15 PSIG
130	= 30 PSIG
160	= 60 PSIG
210	= 100 PSIG
216	= 160 PSIG
220	= 200 PSIG
230	= 300 PSIG
Available Measuring Ranges	
260	= 600 PSIG
310	= 1000 PSIG
320	= 2000 PSIG
330	= 3000 PSIG
350	= 5000 PSIG
410	= 10000 PSIG
F	= Optional glycerin damped indicator assembly (NOTE: DRF22-3xxxF comes with aluminum housing)
DRF22 -1 320 F	Sample DRF22 Specification

Dimensions (mm)



DRF34

BRASS PRESSURE GAUGE WITH SWITCHES



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Pittsburgh, PA 15205
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- Combination pressure gauge & switch
- 1 or 2 SPST switches possible
- Bourdon tube design
- $\pm 1\%$ accuracy
- Pulsation and vibration damping through optional paraffin oil filling



KOBOLD DRF34 Pressure Gauge

Should pressure switching be required in addition to pressure indicating capability, the DRF34 pressure gauge series is there to fill the need. Copper alloy components make up the bourdon tube sensing element and the indicator movement. The housings with fittings oriented at the bottom are made of stainless steel. With fittings oriented rearward, the housings are uniformly aluminum and feature a panel mounting bezel.

The DRF34 offers a choice of either one or two magnetically coupled or inductive switches. Paraffin oil filling is available to damp movement caused by pressure surges and pulsations.

Specifications

Ranges: -14.7 to 10,000 PSIG (see table)

Usable Range
Static Load: 0-100% of full scale

Dynamic Load: 0-90% of full scale

Sensing Element: bourdon tube

Accuracy

20 PSIG & Less: $\pm 1.6\%$ of full scale

30 PSIG & Up: $\pm 1.0\%$ of full scale

Operating Temperature

Medium: freezing to 180°F

Ambient: freezing to 140°F

Fittings: 1/2" NPT

Materials of Construction

Wetted Parts

Element

< 1000 PSIG: Copper

1000 PSIG & Up: Stainless Steel

Fitting: CuZn Alloy

Exterior

Movement: Brass

Housing: 304 SS or aluminum

Bezel: 304 SS

Pointer: Black aluminum

Indicator Dial: White aluminum

Window: Safety glass

Magnetic Spring Contacts

Repeatability: $\pm 5\%$ of full scale

Ratings (max.): 250 V, 0.6 A

30 W or 50 VA

Inductive Contacts

Repeatability: $\pm 0.5\%$ of full scale

Logic: NAMUR

On: > 3 mA

Off: < 1 mA

Power Requirements

Voltage: 5-25 VDC @ 20 mA

Environmental Protection

Unfilled Housings: NEMA 3

Paraffin Oil Filled: NEMA 4

Options: Paraffin oil damped indicator assembly

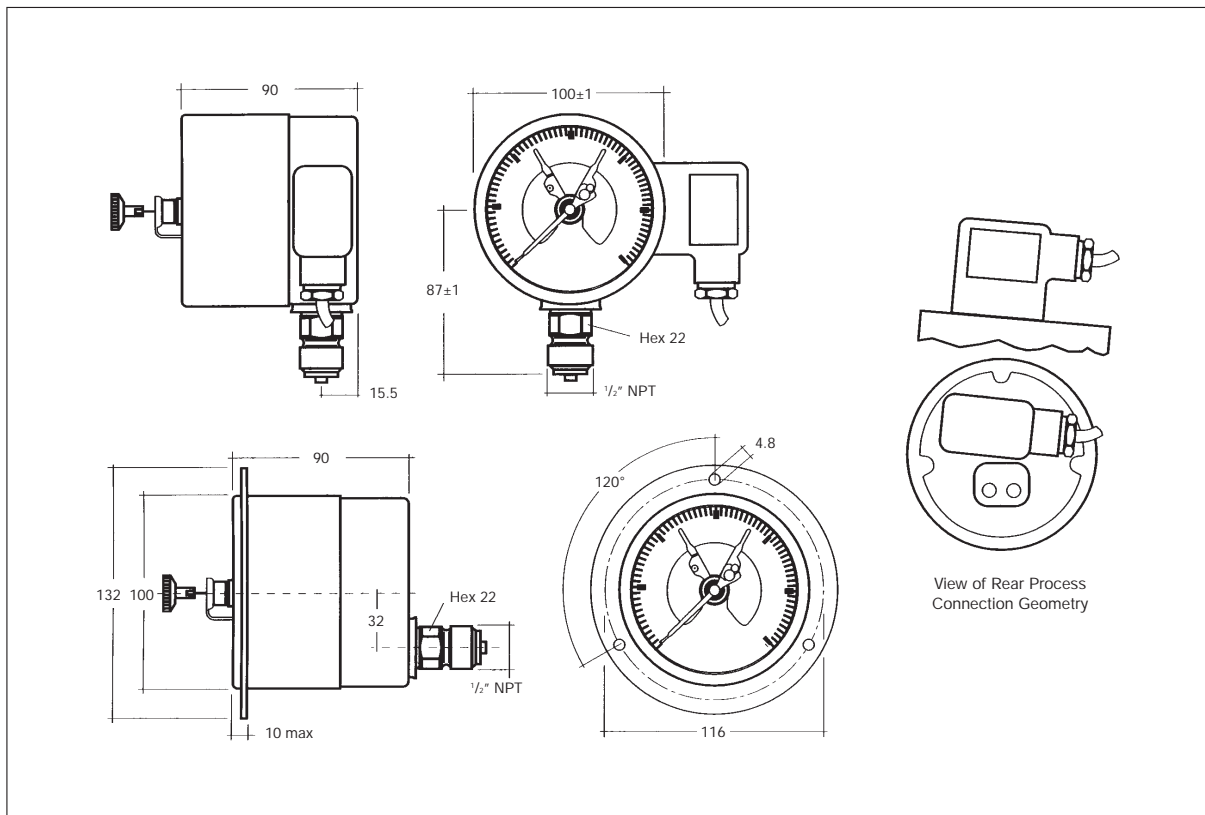


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DRF34 BRASS PRESSURE GAUGE WITH SWITCHES

DRF34 Ordering Information	
DRF34	= Brass Bourdon Tube Pressure Gauge with Switches
-1	= 100 mm (4 inch) Dial Face, Bottom Process Connection, Stainless Steel Housing
-2	= 100 mm (4 inch) Dial Face, Rear Process Connection, Aluminum Housing
Range	= Pressure Range Abbreviation
H00	= -30" to 0" Hg
115	= 15 PSIG
130	= 30 PSIG
160	= 60 PSIG
210	= 100 PSIG
216	= 160 PSIG
220	= 200 PSIG
230	= 300 PSIG
260	= 600 PSIG
310	= 1000 PSIG
320	= 2000 PSIG
330	= 3000 PSIG
350	= 5000 PSIG
410	= 10000 PSIG
M	= Magnetic spring contact switch(es)
I	= Inductive switch(es)
Function	= Desired Switching Behavior
1	= Single N/O
2	= Single N/C
11	= N/O Low & N/O High
21	= N/C Low & N/O High
12	= N/O Low & N/C High
22	= N/C Low & N/C High
F	= Paraffin oil damped indicator assembly
	Type of Switches
	High/Low Function
	Options
DRF34 -1 H00 M 21 F	Sample DRF34 Specification

Dimensions (mm)



DRG26 SS PRESSURE GAUGE WITH SWITCHES



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Pittsburgh, PA 15205
Ph: (412)788-2830
Fax: (412)788-4890

- 4" or 6" combination pressure gauge & switch
- 1 or 2 SPST switches possible
- Stainless steel construction
- ± 1% accuracy
- Pulsation and vibration damping through optional paraffin oil filling



KOBOLD DRG26 Pressure Gauge

For those users needing a pressure gauge with switching capability and stainless steel construction, KOBOLD provides the model DRG26. Stainless steel movement, wetted parts and housing provide elevated resistance to corrosive chemicals. A rear blow-out membrane in the housing provides users with an added level of protection from catastrophic failure caused by overpressure.

Mounting options are: stem supported or panel mount with rear fittings. The DRG26 is fitted with up to two magnetically coupled or inductive switches. Paraffin oil filling is available to damp movement caused by pressure surges and pulsations.

Either four inch or six inch housings and dials are available ... letting the user choose whatever level of readability desired.

Specifications

Ranges: -14.7 to 10,000 PSIG (see table)

Usable Range
Static Load: 0-100% of full scale
Dynamic Load: 0-90% of full scale
Sensing Element: bourdon tube

Accuracy (Range Specific)
20 PSIG & Less: ±1.6% of full scale
30 PSIG & More: ±1.0 % of full scale

Operating Temperature
Medium: freezing to 180°F
Ambient: freezing to 140°F

Fittings: 1/2" NPT

Materials of Construction

Wetted Parts
Element: Stainless steel
Fitting: 316-Ti SS
Exterior
Movement: Stainless steel

Housing: 304 SS
Bezel: 304 SS
Pointer: Black aluminum
Indicator Dial: White aluminum
Window: Safety glass

Magnetic Spring Contacts
Repeatability: ±5% of full scale
Ratings (max.): 250 V, 0.6 A
 30 W or 50 VA

Inductive Contacts
Repeatability: ±0.5% of full scale
Logic: NAMUR
On: > 3 mA
Off: < 1 mA

Power Requirements
Voltage: 5-25 VDC @ 20 mA

Environmental Protection
Unfilled Housings: NEMA 3
Paraffin Oil Filled: NEMA 4
Options: Paraffin oil damped indicator assembly

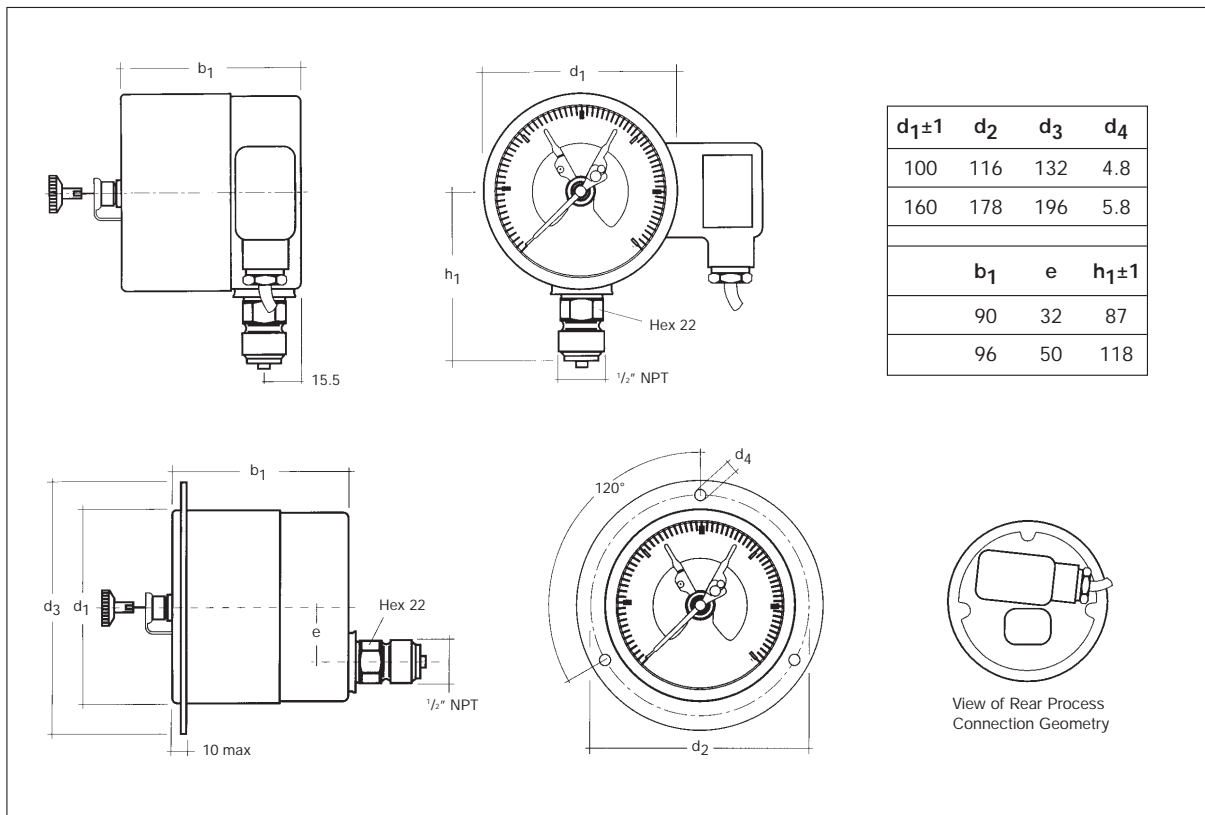


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DRG26 SS PRESSURE GAUGE WITH SWITCHES

DRG26 Ordering Information	
DRG26	= Stainless Steel Bourdon Tube Pressure Gauge with Switches
-1	= 100 mm (4 inch) Dial Face, Bottom Process Connection
-2	= 100 mm (4 inch) Dial Face, Rear Process Connection
-3	= 160 mm (6 inch) Dial Face, Bottom Process Connection
-4	= 160 mm (6 inch) Dial Face, Rear Process Connection
Range	= Pressure Range Abbreviation Available Measuring Ranges
H00	= -30" to 0" Hg 210 = 100 PSIG 260 = 600 PSIG 350 = 5000 PSIG
115	= 15 PSIG 216 = 160 PSIG 310 = 1000 PSIG 410 = 10000 PSIG
130	= 30 PSIG 220 = 200 PSIG 320 = 2000 PSIG
160	= 60 PSIG 230 = 300 PSIG 330 = 3000 PSIG
M	= Magnetic spring contact switch(es)
I	= Inductive switch(es)
Function	= Desired Switching Behavior High/Low Function
1	= Single N/O 11 = N/O Low & N/O High 12 = N/O Low & N/C High
2	= Single N/C 21 = N/C Low & N/O High 22 = N/C Low & N/C High
F	= Paraffin oil damped indicator assembly Options
DRG26	Sample DRG26 Specification

Dimensions (mm)





- Economical brass construction with aluminum housing
- Large 6" Dial Face
- Pressures up to 10,000 PSIG
- ± 1.0 % accuracy



KOBOLD DRG64 Pressure Gauge

With its six inch face, the DRG64 pressure gauge is readily visible from across a room. An aluminum housing, copper bourdon tube element, and brass movement combine to keep the DRG64 affordable. Accuracy is kept at an uncompromising ±1.0% of full scale.

Mounting options abound: freestanding with fittings at either the bottom or rear, as well as rear fitting panel mountable versions. The panel mountable versions come in two styles; one bezel is fastened via screws, while the other uses a rear pressure bracket.

Pulsation and vibration in the medium may be accommodated with an optional glycerin filling for the indicator mechanism.

Specifications

Ranges: -14.7 to 10,000 PSIG (see table)

Over Pressure Protection
Momentary: 1.15 to 1.3 x range max.

Sensing Element: bourdon tube

Accuracy: ±1.0% of full scale

Operating Temperature
Medium: freezing to 180°F
Ambient: freezing to 140°F

Fittings: 1/2" NPT

Materials of Construction

Wetted Parts:
Element
< 1000 PSIG: Copper
1000 PSIG & Up: Stainless Steel
Fitting: Cu Alloy

Exterior
Movement: Brass
Housing: Aluminum

Bezel
Standard: Aluminum
DRG64-4xxx: Chrome plated Al
Pointer: Black aluminum
Indicator Dial: White aluminum
Window: Plexiglass

Options: Glycerin damped indicator assembly



6" BRASS BOURDON TUBE PRESSURE GAUGE

DRG64 Ordering Information

DRG64 = Copper Element High Pressure Bourdon Tube Pressure Gauge

- 1 = 160 mm (6 inch) Dial Face, Bottom Process Connection
- 2 = 160 mm (6 inch) Dial Face, Rear Process Connection
- 3 = 160 mm (6 inch) Dial Face, Rear Process Connection with Flange Style Panel Mountable Bezel
- 4 = 160 mm (6 inch) Dial Face, Rear Process Connection with Compression Mountable Bezel

Range = Pressure Range Abbreviation

H00 = -30" to 0" Hg	210 = 100 PSIG	260 = 600 PSIG	350 = 5000 PSIG
115 = 15 PSIG	216 = 160 PSIG	310 = 1000 PSIG	410 = 10000 PSIG
130 = 30 PSIG	220 = 200 PSIG	320 = 2000 PSIG	
160 = 60 PSIG	230 = 300 PSIG	330 = 3000 PSIG	

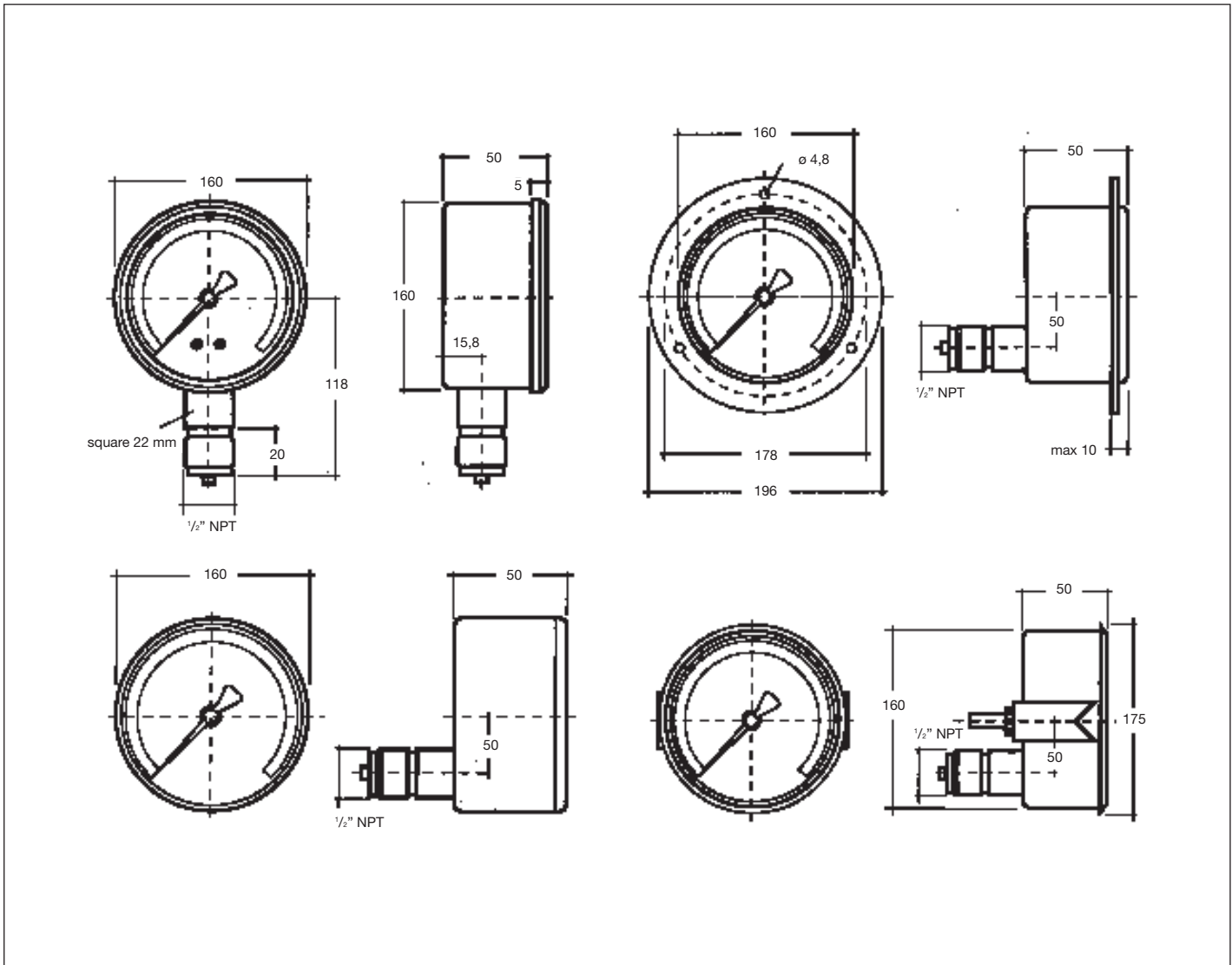
Available Measuring Ranges

F = Glycerin damped indicator assembly

Options

DRG64 -4 216 F Sample DRG64 Specification

Dimensions (mm)



DZF26

SS PRESSURE GAUGE WITH ANALOG OUTPUT



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Fax: (412)788-4890

- 4-20 mA, 2-wire analog output
- 4" nominal dial face
- Stainless steel construction
- ± 0.5% accuracy
- Pulsation and vibration damping via optional oil filling



KOBOLD DZF26 Pressure Gauge

Specifications

Are you looking for traditional analog pressure indication, but want the convenience of a modern 4-20 mA communication link? The KOBOLD DZF26 is the meter you're looking for. We construct the DZF26 from corrosion resistant stainless steel to allow installation into the widest variety of process applications. The fast reacting pointer indicator may be oil damped to allow easy reading with surging or pulsating media.

Ranges:	0-5,000 PSIG (see table)	Exterior	
Over Pressure Protection		Housing:	304 SS
 Momentary:	1.15 to 1.3 x range max.	Bezel:	304 SS
Sensing Element:	Ceramic transducer	Pointer:	Black aluminum
Accuracy		Indicator Dial:	White aluminum
 No Oil Filling	±0.5% of full scale	Window:	Safety glass
 With Oil Filling:	±1.0% of full scale	Electrical	
Operating Temperature		Output:	4-20 mA, 2-wire
 Medium:	15 to 150°F	Supply Voltage:	10-32 VDC
 Ambient:	15 to 140°F	Temperature Coefficients	
Fittings:	1/2" NPT	 Compensation:	15 to 100°F
Materials of Construction		 Drift:	<0.05% per °F in comp. range
Wetted Parts		Connector:	Hirschmann style
 Element:	Ceramic	Environmental Protection	
 Seals:	PTFE	Unfilled Housings:	NEMA 4
 Fitting:	304 SS	Paraffin Oil Filled:	NEMA 4
		Options:	Oil damped indicator assembly



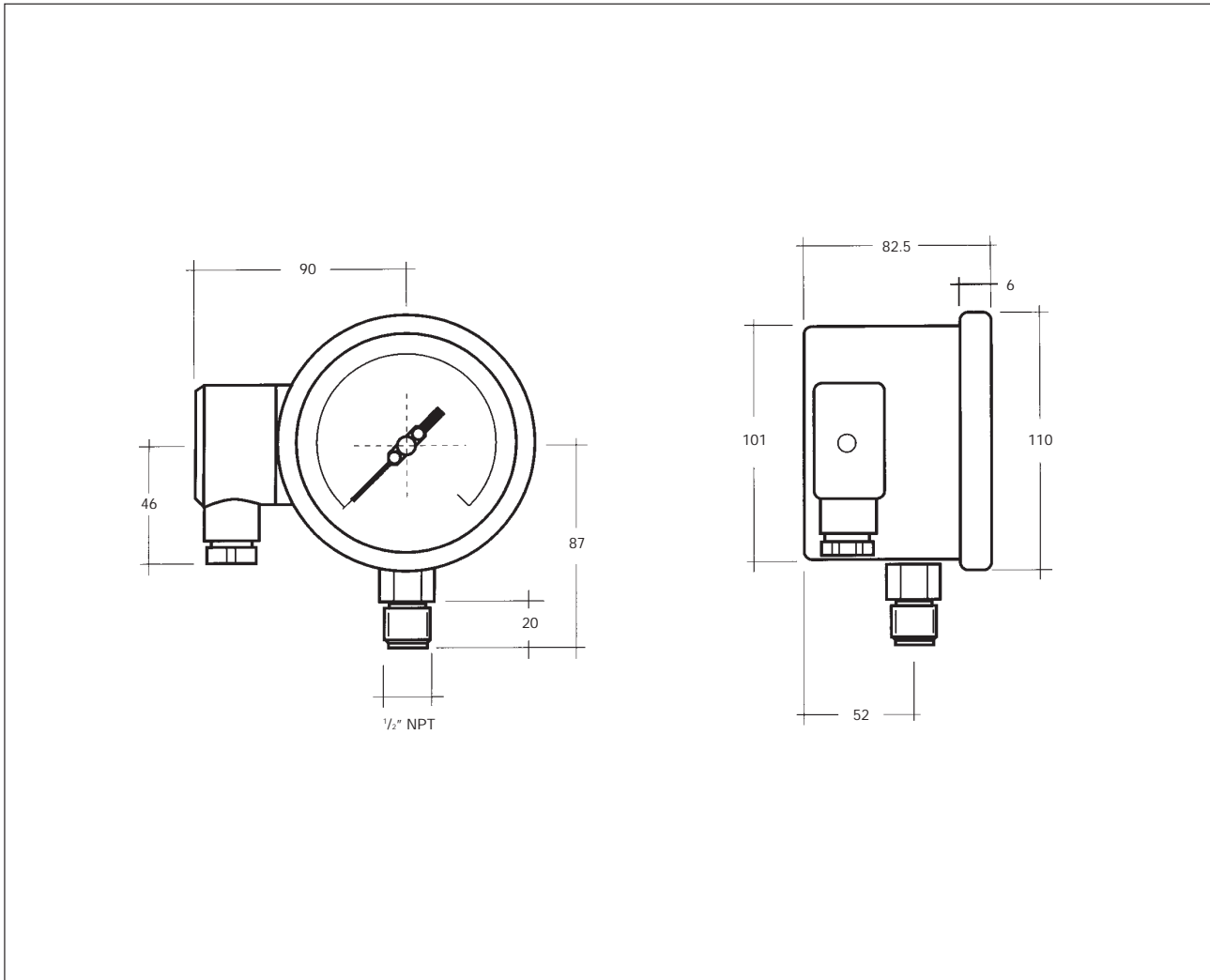
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DZF26

SS PRESSURE GAUGE WITH ANALOG OUTPUT

DZF26 Ordering Information													
DZF26	= Stainless Steel Pressure Gauge with Analog Output												
-Range	= Pressure Range Abbreviation												
	<table border="0"> <tr> <td>115 = 15 PSIG</td> <td>210 = 100 PSIG</td> <td>230 = 300 PSIG</td> <td>320 = 2000 PSIG</td> </tr> <tr> <td>130 = 30 PSIG</td> <td>216 = 160 PSIG</td> <td>260 = 600 PSIG</td> <td>330 = 3000 PSIG</td> </tr> <tr> <td>160 = 60 PSIG</td> <td>220 = 200 PSIG</td> <td>310 = 1000 PSIG</td> <td>350 = 5000 PSIG</td> </tr> </table>	115 = 15 PSIG	210 = 100 PSIG	230 = 300 PSIG	320 = 2000 PSIG	130 = 30 PSIG	216 = 160 PSIG	260 = 600 PSIG	330 = 3000 PSIG	160 = 60 PSIG	220 = 200 PSIG	310 = 1000 PSIG	350 = 5000 PSIG
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160 = 60 PSIG	220 = 200 PSIG	310 = 1000 PSIG	350 = 5000 PSIG										
F	= Paraffin oil damped indicator assembly												
	Options												
DZF26	220 F												
	Sample DZF26 Specification												

Dimensions (mm)



KPG HIGH PRECISION PRESSURE TRANSDUCER



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1801 Parkway View Drive
Pittsburgh, PA 15205
Ph: (412)788-2830
Fax: (412)788-4890

KOBOLD KPG series transducers are intended for heavy duty, high accuracy applications. Utilizing either thin film or piezoresistive technologies, the KPG can achieve accuracies of $\pm 0.12\%$ at pressures up to 60,000 PSIG while offering shock resistance, extreme long term sensor stability and excellent noise immunity (CE compliance.) Along with these features, the KPG offers "snafu" protection against common installation problems such as reverse polarity wiring, overvoltage and short circuiting.

As with all sensors in the KP line, KPG sensors undergo 100% inspection and testing to ensure a trouble-free installation process.

Features

- Advanced thin film or piezoresistive sensing technology
- Variety of output signals
- CE EMI compliant
- Absolute or Gauge measuring ranges
- High overpressure protection
- Fast response time
- Stainless steel construction
- Pressures to 60,000 PSIG
- Easy-to-use Hirschmann connectors standard



KOBOLD KPG Pressure Transducer

Specifications

Accuracy

Standard: $\pm 0.25\%$ of full scale
Optional: $\pm 0.12\%$ of full scale

Included Components

Repeatability: $\pm 0.05\%$ of full scale
Hysteresis: $\pm 0.1\%$ of full scale

Fittings:

$1/4"$, $1/2"$ male NPT
or 9/16-18 aminco

Materials of Construction

Wetted Parts: 316 SS
Case: 304 SS

Temperature Information

Compensation: 32°F to 175°F
Drift: $\pm 0.02\%/50^\circ\text{F}$
Medium: -22°F to 212°F
Ambient: 14°F to 175°F
Storage: -40°F to 212°F

Shock Sensitivity:

$< \pm 0.05\%$ full scale
@100g for 20 ms

Vibration Sensitivity: $< \pm 0.01\%$ full scale
@20g & 0-2000 Hz

Pressure Limitations

Vacuum & 15-7,500 PSI Ranges

Proof Pressure: 2 x range
Burst Pressure: 4 x range

10,000-60,000 PSI Ranges

Proof Pressure: 1.2 x range
Burst Pressure: 2 x range

Electrical Data

Output: -See ordering table
Adjustability: $\pm 5\%$ of span
Input Power: 12-30 VDC
Response Time: < 1 ms, 10-90% FS
Frequency Limit: 150 Hz

Protection

Environmental: NEMA 4X
Fault: Reverse polarity, overvoltage, short circuit

Applications

- Hydraulic & pneumatic systems
- Industrial machinery & machine tools
- Injection molding machines
- Stamping & forming presses
- Pumps & compressors
- Laboratory & test equipment
- Railroad equipment
- HVAC systems
- Refrigeration equipment
- Marine
- Power generation
- Construction
- Petrochemical
- Water management



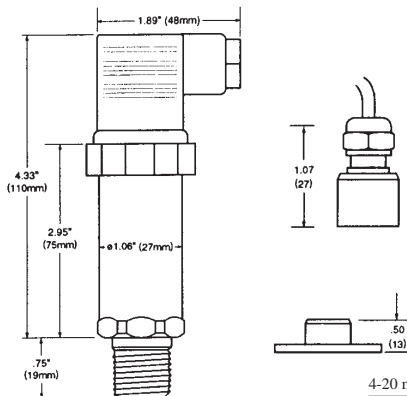
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KPG

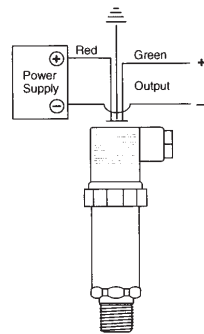
ORDERING INFORMATION & DIMENSIONS

KPG Ordering Information	
KPG = High Precision, Heavy Duty Pressure Transducer	
-Range	<p>= Pressure Range Abbreviation</p> <p>0030V = 0 to 30" Hg Abs 00002 = 2 PSIG 00100 = 100 PSIG 01000 = 1000 PSIG 15000 = 15000 PSIG</p> <p>30/15 = - 30" Hg to 15 PSIG 00003 = 3 PSIG 00150 = 150 PSIG 02000 = 2000 PSIG 20000 = 20000 PSIG</p> <p>30/30 = - 30" Hg to 30 PSIG 00005 = 5 PSIG 00200 = 200 PSIG 03000 = 3000 PSIG 30000 = 30000 PSIG</p> <p>30/45 = - 30" Hg to 45 PSIG 00010 = 10 PSIG 00300 = 300 PSIG 05000 = 5000 PSIG 40000 = 40000 PSIG</p> <p>30/60 = - 30" Hg to 60 PSIG 00015 = 15 PSIG 00500 = 500 PSIG 07500 = 7500 PSIG 50000 = 50000 PSIG</p> <p>000.5 = 0.5 PSIG 00030 = 30 PSIG 00750 = 750 PSIG 10000 = 10000 PSIG 60000 = 60000 PSIG</p> <p>00060 = 60 PSIG</p>
1	= ± 0.25% of full scale (standard) Accuracy
2	= ± 0.12% of full scale
1	= 4-20 mA, 2-wire (standard) Output Signal
2	= 0-5 VDC, 3-wire
3	= 1-5 VDC, 3-wire
5	= 0-10 VDC, 3-wire
2	1/4" NPT Fittings
6	9/16 - 18 aminco (standard on 30,000 to 60,000 PSI versions)
8	1/2" NPT male (standard)
1	= 36" cable with Hirschmann connector Electrical Connections
3	= 6 pin Bendix (Ni-plated aluminium)
6	= 1/2" NPT male conduit with 36" cable (polyurethane cladding)
8	= Hirschmann with mating connector (standard)
D	= Surge damping orifice Options
Sample KPG Specification	
KPG -00500 -1 -2 -8 -8 -D	
Diaphragm Seals	
KP-1240	1 1/2" Tri clamp® diaphragm Seal with glycerine fill
KP-1250	2" Tri clamp® diaphragm Seal with glycerine fill
KP-2002 SSG	3/4" NPT 316 SS Flush diaphragm Seal with glycerine fill
KP-2002 HB2H	3/4" NPT Hastelloy B2 Flush diaphragm Seal with halocarbon fill

Dimensions

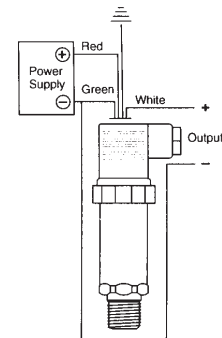


Wiring Diagrams and Electrical Connections



4-20 mA 2-Wire Current Loop

Signal	DIN 43650	Wire Color
Supply + (12-30 VDC)	Pin 1, A	RED/BROWN
Signal - (4-20mA)	Pin 2, B	GREEN



3-Wire Voltage Output

Signal	DIN 43650	Wire Color
Supply + (14-30 VDC)	Pin 1, A	RED/BROWN
- Supply, - Signal	Pin 2, C	GREEN
Signal + -	Pin 3, B	WHITE

KPH COMPACT PRESSURE SWITCH



KOBOLD Instruments Inc.
1801 Parkway View Drive
Pittsburgh, PA 15205
Ph: (412)788-2830
Fax: (412)788-4890

- Rugged compact design
- Long cycle life
- Ranges: Vacuum to 6100 PSIG
- Suitable for pneumatic or hydraulic applications
- Easily adjusted setpoint
- Plug-in connector standard

The KOBOLD KPH pressure switch is a highly reliable, small footprint pressure switch ideal for OEM installations. Its long cycle life and rugged mechanical design are your assurance that it will provide your customer with reliable service during the life of your product.

Usable with air, gas, lubricating oil, light fuel, or any one of many other industrial media, the KPH is at home in many different applications. Its single pole double throw switch has mechanical reliability typically found only in reed switches. Unlike reed switches, however, the KPH is capable of switching AC loads of up to five amps, at 220 volts.

Rugged, compact and reliable ... the perfect switch for your pressure applications.



KOBOLD KPH Pressure Switch

Specifications

Range: -14.0 to 6100 PSIG

Media
KPH-8000: Gases or liquids
KPH-8200: Liquids only
Cleanliness: Non-depositing
Max. Viscosity: 97 cSt (450 SSU)

Repeatability: ±3% of full scale

Sensing Mechanism
KPH-8000: Diaphragm
KPH-8200: Piston

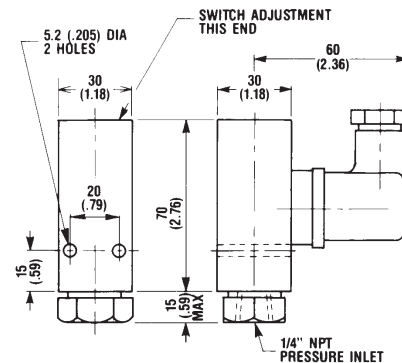
Fittings: 1/4" NPT
Optional: SAE (KPH-8200)

Wetted Parts
KPH-8000: Aluminum, Buna-N, Al, Buna-N, 420-SS, PTFE
KPH-8200: Aluminum, Buna-N, Al, Buna-N, 420-SS, PTFE

Mechanical Data
Switching Rate: 100 Hz max.
Switch Life: 10⁷ cycles min.
Vibration: 15g max.
Weight: 0.4 lbs

Electrical Data
Switch Type: SPDT snap-action
Maximum Resistive Loads
AC: 220 V @ 5 A
DC: 120 V @ 0.4 A

Switch Life
100% Load: 5 x 10⁴ cycles
50% Load: 10⁵ cycles
Protection: NEMA 4



KPH Ordering Information

Range (PSIG)	Deadband (non-adjustable) (PSI)	Burst Pressure (PSIG)	Temperature Range		Order Number
			Ambient (°F)	Medium (°F)	
-14.0 - 0	2 - 3	1200	15 to 175	-5 to 175	KPH-8021
3 - 30	2 - 4	1200	15 to 175	-5 to 175	KPH-8022
7.5 - 120	4 - 9	1200	15 to 175	-5 to 175	KPH-8023
15 - 230	4 - 13	1200	15 to 175	-5 to 175	KPH-8024
70 - 1000	150 - 220	5800	30 to 175	30 to 210	KPH-8221
150 - 2300	160 - 245	5800	30 to 175	30 to 210	KPH-8222
360 - 3600	160 - 245	5800	-10 to 175	-10 to 210	KPH-8223
580 - 6100	245 - 505	8700	-10 to 175	-10 to 210	KPH-8224
Options					
SAE fittings. Available in series KPH-8200 switches					S
Splash protection cover for adjustment screw mechanism					EC

KPK COMPACT HIGH PRECISION PRESSURE



KOBOLD Instruments Inc.
1801 Parkway View Drive
Pittsburgh, PA 15205
Phone: (412)788-2830
Fax: (412)788-4890
www.koboldusa.com

KOBOLD KPK series transducers are designed to provide unequalled levels of performance. Utilizing either thin film or piezoresistive technologies, the KPK offers high precision, shock resistance and extreme long term sensor stability. Noise immunity is assured by compliance with the IEC 801 standard (CE compliant) and installation is simplified by providing protection against common installation snafus such as reverse polarity wiring, overvoltage and short circuiting.

Use of a modern high quality manufacturing process makes it possible to offer these sensors at a surprisingly low price without compromising quality. All KOBOLD KPK sensors undergo 100% inspection and testing to guarantee a pleasant "out-of-the-box" experience.

Features

- Advanced thin film or piezoresistive sensing technology
- 4-20 mA output signal
- CE EMI compliant
- Absolute or Gauge measuring ranges
- High overpressure protection
- Fast response time
- Stainless steel construction
- Compact
- Easy-to-use Hirschmann connectors standard

Specifications

Accuracy

Standard: $\pm 0.5\%$ of full scale
Optional: $\pm 0.25\%$ of full scale

Included Components

Repeatability: $\pm 0.05\%$ of full scale
Hysteresis: $\pm 0.1\%$ of full scale
Stability: $\pm 0.2\%$ full scale/yr

Fittings: $\frac{1}{4}$ " male NPT or
7/16-20 SAE

Materials of Construction

Wetted Parts: 316 SS
Case: 304 SS

Temperature Information

Compensation: 32°F to 175°F
Drift: $\pm 0.03\%/50^\circ\text{F}$
Medium: -22°F to 212°F
Ambient: 14°F to 175°F
Storage: -40°F to 212°F

Shock Sensitivity: $< \pm 0.05\%$ full scale
@100g for 20 ms



KOBOLD KPK Pressure Transducer

Vibration Sensitivity: $< \pm 0.05\%$ full scale
@35g & 5-2000 Hz

Pressure Limitations

5, 10, 7500-15000 PSI Ranges

Proof Pressure: 1.5 x range
Burst Pressure: 2 x range

15-6000 PSI Ranges

Proof Pressure: 2 x range
Burst Pressure: 5 x range

Electrical Data

Output: 4-20 mA, 2-wire
Adjustability: $\pm 5\%$ of span
Input Power: 12-30 VDC
Response Time: < 1 ms, 10-90% FS
Frequency Limit: 150 Hz
Protection
Environmental: NEMA 4X
Fault: Reverse polarity, overvoltage, short circuit

Applications

- Hydraulic & pneumatic systems
- Industrial machinery & machine tools
- Injection molding machines
- Stamping & forming presses
- Pumps & compressors
- Laboratory & test equipment
- Railroad equipment
- HVAC systems
- Refrigeration equipment



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Pittsburgh, PA 15205
Phone: (412)788-2830
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KPK ORDERING INFORMATION & DIMENSIONS

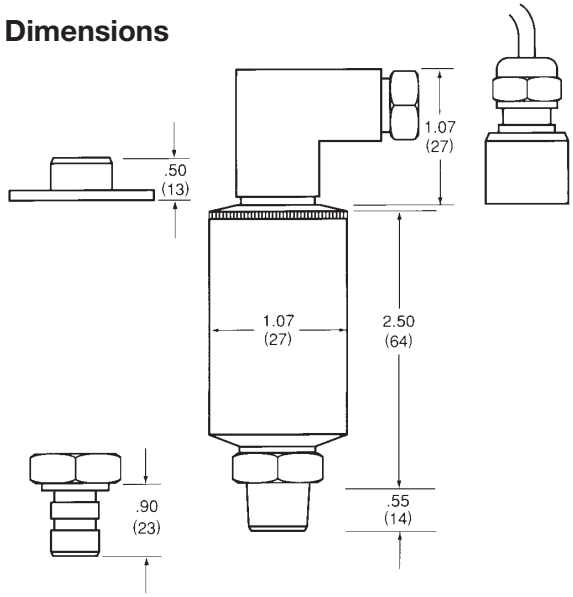
KPK Ordering Information	
KPK	= Compact High Precision Pressure Transducer
-Range	= Pressure Range Abbreviation
0030V	= 0 to 30" Hg Abs
30/15	= -30" Hg to 15 PSIG
30/30	= -30" Hg to 30 PSIG
30/60	= -30" Hg to 60 PSIG
30100	= -30" Hg to 100 PSIG
30150	= -30" Hg to 150 PSIG
30200	= -30" Hg to 200 PSIG
30300	= -30" Hg to 300 PSIG
00005	= 5 PSIG
00010	= 10 PSIG
00015	= 15 PSIG
00030	= 30 PSIG
00060	= 60 PSIG
00100	= 100 PSIG
00150	= 150 PSIG
00200	= 200 PSIG
00300	= 300 PSIG
05000	= 5000 PSIG
06000	= 6000 PSIG
07500	= 7500 PSIG
10000	= 10000 PSIG
15000	= 15000 PSIG
0100A	= 100 PSIA
0150A	= 150 PSIA
0200A	= 200 PSIA
0300A	= 300 PSIA
0060A	= 60 PSIA
1	= ± 0.5% of full scale (standard)
2	= ± 0.25% of full scale
1	= 4-20 mA Output
2	1/4" NPT (standard)
3	7/16 - 20 SAE
1	= 36" cable with Mini-Hirschmann connector
2	= 4 pin Bendix (Ni-plated aluminium)
3	= 6 pin Bendix Ni-plated aluminium
6	= 1/2" NPT male conduit with 36" cable (polyurethane cladding)
7	= Mini-Hirschmann with mating connector (standard)
D	= Surge damping orifice
KPK	
-30/60	
-2	
-1	
-2	
-7	
-D	

Sample KPK Specification

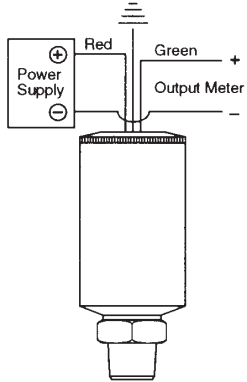
Diaphragm Seals

KP-1240	1 1/2"	Tri clamp® diaphragm Seal with glycerine fill
KP-1250	2"	Tri clamp® diaphragm Seal with glycerine fill
KP-2002 SSG	3/4"	NPT 316 SS Flush diaphragm Seal with glycerine fill
KP-2002 HB2H	3/4"	NPT Hastelloy B2 Flush diaphragm Seal with halocarbon fill

Dimensions



Wiring Diagrams and Electrical Connections



2 WIRE WIRING DIAGRAM EXAMPLE

100 Series	4-20mA 2 WIRE
+ Supply	Red/A/1
+ Output	Green/B/2

Example: Red/A = Applicable color wire/bendix pin or din plug number.

Load Limitations 4-20mA Output

Only
 $V_{min} = 10V + (.022 \times R_L)$
 $R_L = R_s + R_w$
 R_L = Loop Resistance (ohms)
 R_s = Sense Resistance (ohms)
 R_w = Wire Resistance (ohms)

Specifications subject to change without notice.

KPW SUBMERSIBLE PRESSURE TRANSDUCER



KOBOLD Instruments Inc.
1801 Parkway View Drive
Pittsburgh, PA 15205
Phone: (412)788-2830
Fax: (412)788-4890
www.koboldusa.com

When nothing but a submersible pressure sensor will do, you can count on the KOBOLD KPW series transducers to provide superior performance at affordable prices. Utilizing the same pressure sensing technologies and advanced manufacturing techniques as the rest of our KP line, the KPW can achieve accuracies of $\pm 0.12\%$ at pressures to 300 PSIG. All this with our typical high shock resistance, excellent long term sensor stability and CE compliant noise immunity.

Along with these features, the KPW offers “snafu” protection against common installation problems such as reverse polarity wiring, overvoltage and short circuiting. Our 100% inspection and testing program ensures a trouble-free installation process.

Features

- Advanced piezoresistive sensing technology
- Variety of output signals
- CE EMI compliant
- High overpressure protection
- Fast response time
- Stainless steel construction
- Submersible cable connection standard



KOBOLD KPW Pressure Transducer

Specifications

Accuracy

Standard: $\pm 0.25\%$ of full scale

Optional: $\pm 0.12\%$ of full scale

Included Components

Repeatability: $\pm 0.05\%$ of full scale

Hysteresis: $\pm 0.1\%$ of full scale

Process Connection: Nose cone only or nose cone w/ weight

Materials of Construction

Wetted Parts

Metals: 316 SS

Nose Cone: ABS Plastic

Optional: 316 SS (weighted)

Cable: Polyurethane, PVC

Temperature Information

Compensation: 32°F to 122°F

Drift: $\pm 0.2\%/50^\circ\text{F}$

Medium: 14°F to 175°F

Storage: -22°F to 175°F

Shock Sensitivity: $< \pm 0.05\%$ full scale
@100g for 20 ms

Vibration Sensitivity: $< \pm 0.01\%$ full scale
@20g & 0-2000 Hz

Pressure Limitations

Proof Pressure: 2 x range

Burst Pressure: 4 x range

Electrical Data

Output: -See ordering table

Adjustability: $\pm 5\%$ of span

Input Power: 14-30 VDC

Response Time: < 1 ms, 10-90% FS

Frequency Limit: 150 Hz

Protection

Environmental: NEMA 6

Fault: Reverse polarity, overvoltage, short circuit

Applications

- Irrigation
- Food and beverage
- Waste water
- Water distribution
- Level and depth
- Bore hole
- Wells
- Offshore
- Research and Development
- Marine

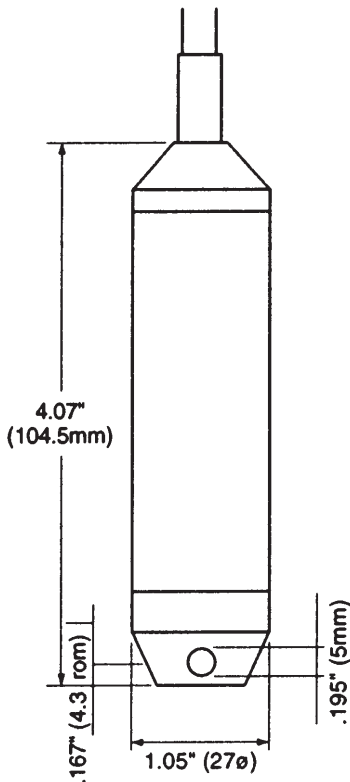


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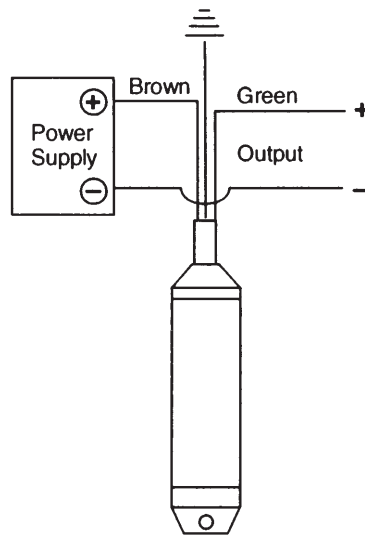
KPW ORDERING INFORMATION & DIMENSIONS

KPW Ordering Information					
KPW	= Submersible Pressure Transducer				
-Range	= Pressure Range Abbreviation		Available Measuring Ranges		
	002 = 2 PSIG	010 = 10 PSIG	030 = 30 PSIG	100 = 100 PSIG	200 = 200 PSIG
	003 = 3 PSIG	015 = 15 PSIG	060 = 60 PSIG	150 = 150 PSIG	300 = 300 PSIG
	005 = 5 PSIG				
1	= ± 0.25% of full scale (standard)		Accuracy		
2	= ± 0.12% of full scale				
1	= 4-20 mA, 2-wire (standard)		Output Signal		
2	= 0-5 VDC, 3-wire				
5	= 0-10 VDC, 3-wire				
6	= 0.5-2.5 VDC, 3-wire (operates on 6 VDC input power)				
N	ABS Nose Cone (standard)		Nose Cones		
W	316 SS Nose Cone (weighted)				
LXXX	= Submersible cable (L = cable length in feet)			Electrical Connections	
KPW	-060	-1	-5	-W	-L16
Sample KPW Specification with 16' of cable					

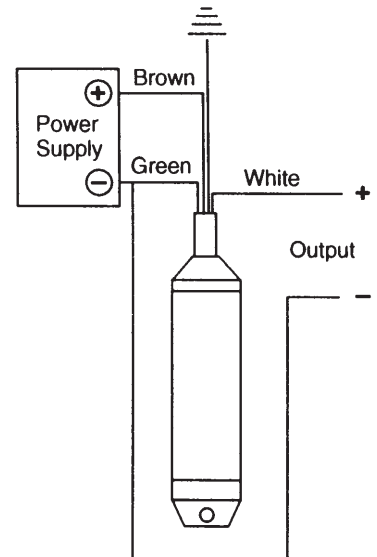
Dimensions



Wiring Diagrams and Electrical Connections



2 WIRE WIRING DIAGRAM EXAMPLE



3 WIRE WIRING DIAGRAM EXAMPLE

	4...20 mA	0...10VDC
Supply: +	brown	brown
Supply: -		green
Signal: +	green	white
Signal: -		
Case earth	blue	blue

MAN-SD Series Digital Pressure Gauge

- Large 4 digit LCD Display
- Battery Operated with On/Off Switch
- Ranges 30" Hg Vacuum to 0 to 6000 PSIG
- Accuracy: 0.5% of Full Scale
- Optional Peak Hold, Auto-off and Programmable Relay Available

An economical replacement for mechanical pressure gauges.

The latest in solid state design, the MAN-SD series incorporates a ceramic pressure sensing element which provides superior stability and exceptionally long cycle life. The MAN-SD features a 4 digit LCD display which is rotatable 360°. Zero (tare), peak hold, and relays are controlled by push-button access to the programming menu which is password-protect capable.

Specifications

Range:	30" Hg Vacuum to 6000 PSIG
Overpressure	
To 500 PSIG:	3X full scale
500 to 3000 PSIG:	2X full scale
above 3000 PSIG:	1.5X full scale
Zero Adjust (Tare):	Standard, via setup menu
Accuracy:	0.5% of full scale
Wetted materials:	316 SS, ceramic, Buna-N
Optional:	Viton or EPDM seal
Housing Material:	Polyester
Temperature Range	
Storage:	-20 to 140°F
Process:	-20 to 185°F
Ambient:	32 to 140°F
Fitting:	1/4" NPT
Battery Type:	9 Volt (included)
Battery Life	
Standard Alkaline:	5000 hours
Lithium:	10000 hours
Display:	4 digit LCD 0.5" digits
Protection:	NEMA 4X/IP 65
Relay (optional):	Max 230 VAC/220 VDC, 50 VA, 2 amps @30 VDC

KOBOLD Instruments, Inc
1801 Parkway View Drive
Pittsburgh, PA 15205
Ph: 800-998-1020
www.koboldusa.com



MAN-SD Ordering Data

Range	Model Number
0-30" Hg Vacuum	DSD-5001
0-20 PSIG	DSD-5002
0-50 PSIG	DSD-5005
0-100 PSIG	DSD-5010
0-200 PSIG	DSD-5020
0-500 PSIG	DSD-5050
0-1000 PSIG	DSD-5100
0-2000 PSIG	DSD-5200
0-3000 PSIG	DSD-5300
0-6000 PSIG	DSD-5600

Description	Option Code
Auto Shutoff (not available with relay)	
8 Minutes	B08
16 Minutes	B16
32 Minutes	B32
64 Minutes	B64
Relay	R
Peak Hold	P
Viton Seal	OR2
EPDM Seal	OR3
Special Range (specify range/units)	E

MAN - SD PROGRAMMING MENU

1 x P = On

LCD Display

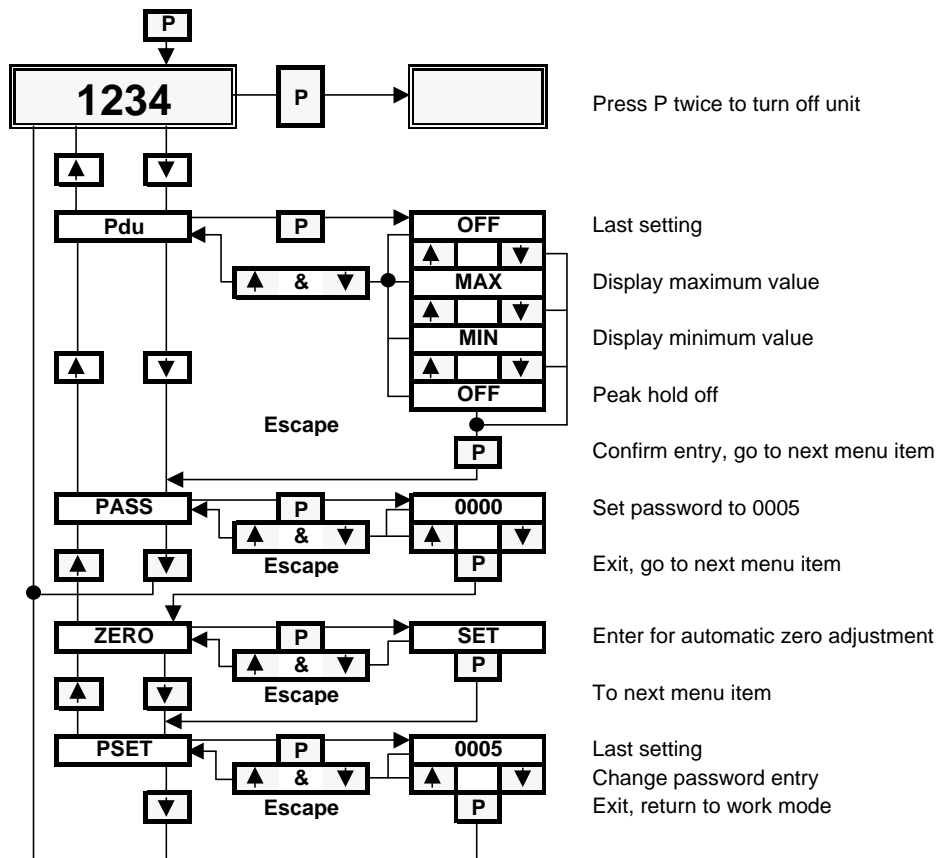
Peak hold (maximum value)

Enter Password

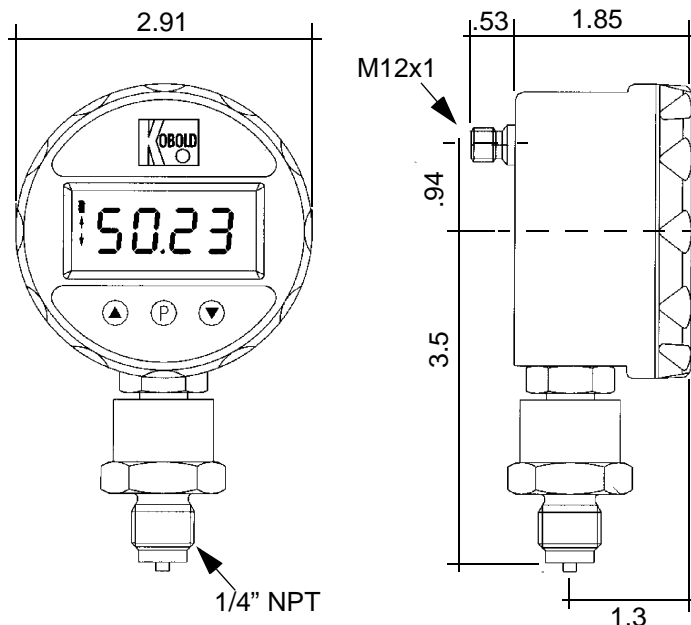
Automatic zero (tare)

Password

Return to display



Dimensions (inches)



PDA SERIES DIGITAL PRESSURE TRANSMITTER

Features

- Ranges 0-30" Hg Vacuum to 0-5800 PSIG
- Fully Scalable 4-20 mA Output
- Accuracy $\pm 0.5\%$ of Full Scale
- Large Easy to Read LED Display
- Ceramic Pressure Sensing System for High Cycle Life

The PDA series digital pressure transmitter integrates the latest solid state sensing technology into a very versatile, simple to operate package. Programming features include programmable span adjustment, pulsation dampening, zero (tare) adjustment and user settable lockout code. The ceramic sensing system ensures an exceptionally long cycle life with virtually no calibration drift. These features along with the compact, robust stainless steel package make the PDA an ideal choice for OEM applications.



PDA Series Digital Pressure Transmitter

Specifications

Measuring Ranges:	0-30" Hg vacuum to 0-5800 PSIG
Display Type:	3 digit LED
Accuracy:	$\pm 0.5\%$ of full scale
Sensor Element:	Piezoresistive ceramic
Operating Temp. Range	
Process & Compensated	
Medium:	-4 to 176°F
Ambient:	-4 to 140°F
Overpressure Ratings:	
-30" Hg to 1450 PSIG:	2x Max. range
>1450 PSIG:	1.5x Max. range
Process Wetted Parts	
Sensing Element:	Ceramic
Connection:	316L SS
O-Ring:	Viton; others available on request

Housing Material:	304 Stainless Steel
Response Time:	0.5 Sec.
Dampening:	Programmable averaging over 1, 2, 4, 8, 16, 32 or 64 samples
Electrical Data	
Power Supply:	24 VDC $\pm 20\%$, 80 mA max.
Output:	0(4)-20 mA 3-wire
Max. Loop Burden:	500 ohms
Electrical Connection:	4-Pin Micro-DC male (mating connector sold as accessory)
Electrical Protection:	NEMA 4/IP 65

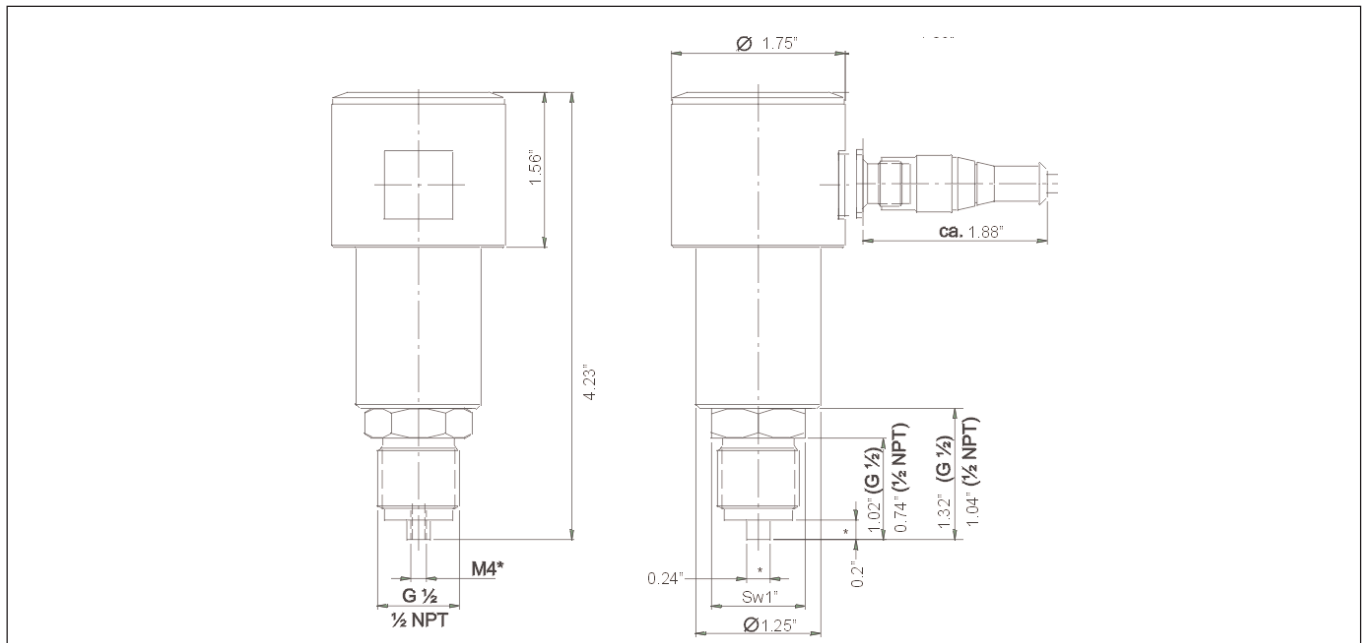
Programmable Features

- Zero (Tare)
- Span
- Dampening
- Output Type (0-20/4-20 mA)
- Lockout Code
- Display Scaling

PDA SERIES DIGITAL PRESSURE TRANSMITTER

PDA Series Ordering Codes	
PDA	= Digital Electronic Pressure Transmitter
153	Output Type = 0(4)-20 mA
N2	Fitting = 1/4" NPT
N4	= 1/2" NPT (standard)
Ranges Available Measuring Ranges	
H315	= 30" to 0" Hg
P025	= 15 PSIG
P045	= 30 PSIG
P055	= 50 PSIG
P065	= 100 PSIG
P075	= 150 PSIG
P085	= 200 PSIG
E	= Special Range
P090	= 300 PSIG
P100	= 500 PSIG
P115	= 1000 PSIG
P125	= 1450 PSIG
P130	= 2000 PSIG
P140	= 3000 PSIG
P150	= 5000 PSIG
P155	= 5800 PSIG
Accessories	
Part#: 807.037 = Mating 4-Pin Micro-DC connector w/ 6ft. cable	
PDA - 153 - N4 - P065	Example

DIMENSIONS



PDD SERIES DIGITAL PRESSURE SWITCH

Features

- Ranges 0-30" Hg Vacuum to 0-5800 PSIG
- Fully Programmable with Setpoint, Reset Point and Window Capability
- Accuracy $\pm 0.5\%$ of Full Scale
- Large Easy to Read LED Display
- Ceramic Pressure Sensing System for High Cycle Life

The PDD series digital pressure switch integrates the latest solid state sensing technology into a very versatile, simple to operate package. Programming features include setpoint, reset point, window mode, pulsation dampening, switch logic, zero (tare) adjustment and user settable lockout code. The ceramic sensing system and solid state transistor switch ensure an exceptionally long cycle life with virtually no calibration drift. These features along with the compact, robust stainless steel package make the PDD an ideal choice for OEM applications.



PDD Series Digital Pressure Switch

Specifications

Measuring Ranges:	0-30" Hg vacuum to 0-5800 PSIG
Display Type:	3 digit LED
Switch Status Indicator:	Single red LED, on when pressure is above setpoint
Accuracy:	$\pm 0.5\%$ of full scale
Sensor Element:	Piezo-resistive ceramic
Operating Temp. Range	
Process Medium:	-4 to 176°F
Ambient:	-4 to 140°F
Overpressure Ratings:	
-30" Hg to 1450 PSIG:	2x Max. range
>1450 PSIG:	1.2x Max. range
Process Wetted Parts	
Sensing Element:	Ceramic
Connection:	316L SS
O-Ring:	Viton; others available on request

Housing Material:	304 Stainless Steel
Response Time:	0.5 Sec.
Dampening:	User programmable averaging over 1, 2, 4, 8, 16, 32 or 64 samples
Electrical Data	
Switch Type:	Transistor NPN or PNP based on model number
Switch Rating:	300 mA Max. short circuit protected
Switch Logic:	User programmable
Electrical Connection:	4-Pin Micro-DC, male
Electrical Protection:	NEMA 4/IP 65

Programmable Features

- Zero (Tare)
- Setpoint
- Hysteresis
- Window Mode
- Dampening
- Switching Logic
- Lockout Code

PGE ECONOMICAL PRESSURE GAUGE



KOBOLD Instruments Inc.
1801 Parkway View Drive
Pittsburgh, PA 15205
Ph: (412)788-2830
Fax: (412)788-4890

- Brass wetted parts
- Steel case
- 2 1/2" or 4" dial
- Rugged design
- 3 - 2 - 3% accuracy



KOBOLD economical PGE pressure gauges are designed for long and reliable service under rugged conditions. Typical applications include pumps, hydraulic systems, pneumatic systems, compressors and other applications where the liquids and gases do not corrode brass. The PGE is available with either 2 1/2" or 4" dials featuring dual psi/kPa scales.

Applications

- Measurement of steam, air, oil, water and other pressure media which have no effect on brass.

KOBOLD PGE Pressure Gauge

Specifications

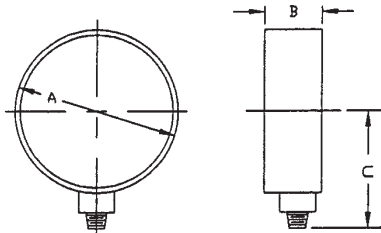
Ranges:	0-300 PSIG
Over Pressure Protection:	1.25 x full scale range
Sensing Element:	Bourdon tube
Accuracy:	3-2-3%
Operating Temperature:	
Medium:	-40°F to 158°F
Ambient:	-40°F to 158°F
Fitting:	1/4" NPT

Materials of Construction Wetted Materials

Tube:	Brass
Fitting:	Brass

Exterior

Movement:	Brass
Housing:	Black painted steel
Bezel:	Chrome plated steel (2 1/2") Black painted steel (4")
Dial:	White painted aluminum
Window:	Plastic



Size	A	B	C
2.5"	2.500"	1.100"	2.00"
4"	3.950"	1.400"	3.00"

PGE Ordering Data

Range (PSIG)	Dial Size	Model Number
0-100	2 1/2"	PGE-2140
	4"	PGE-2230
0-200	2 1/2"	PGE-2160
	4"	PGE-2250
0-300	2 1/2"	PGE-2170
	4"	PGE-2260

PGF LIQUID FILLED PRESSURE GAUGE



KOBOLD Instruments Inc.
1801 Parkway View Drive
Pittsburgh, PA 15205
Ph: (412)788-2830
Fax: (412)788-4890

Features

- Brass wetted parts
- Stainless steel case
- 2 1/2" or 4" dial
- Glycerin filled
- ±1.6% accuracy

KOBOLD PGF liquid filled pressure gauges are designed for heavy duty service on compressors, pumps and other systems producing excessive vibration and pulsation. The PGF features brass wetted parts and a rugged stainless steel case. The PGF is available in pressure ranges up to 5000 PSIG and has an accuracy of ±1.6%. The economical PGF is available with either 2 1/2" or 4" dials featuring dual psi/kPa scales.



Specifications

Ranges: Vacuum to 5000 PSIG

Over Pressure Protection

To 600 PSIG: 30%

600 - 1400 PSIG: 25%

Over 1400 PSIG: 15%

Sensing Element: Bourdon tube

Accuracy: ±1.6%

Operating Temperature

Medium: -13°F to 149°F

Ambient: -13°F to 149°F

Operating Pressure: 2/3 of full scale

Fill Liquid: Glycerin

Fitting: 1/4" NPT

Materials of Construction

Wetted Parts

Tube:

2 1/2": 316Ti SS

4": 316L SS

Fitting: 316L SS

Exterior

Movement: 304 SS

Housing: 304 SS

Dial: White painted aluminum

Pointer

2 1/2": Black painted aluminum

4": Black anodized aluminum

Window

2 1/2": Acrylic

4": Plexiglas

Seals

Housing/block: Buna N / EPDM

Lens: Monoprene

Protection: NEMA 4

KOBOLD PGF Pressure Gauge

PGF Ordering Data

Range (PSIG)	Dial Size	Fitting Size	Model Number
-30-0" Hg	2 1/2"	1/4"	PGF-8010
	4"	1/4"	PGF-7000
0-15	2 1/2"	1/4"	PGF-8000
	4"	1/4"	PGF-7080
0-30	2 1/2"	1/4"	PGF-8020
	4"	1/4"	PGF-7090
0-60	2 1/2"	1/4"	PGF-8030
	4"	1/4"	PGF-7100
0-100	2 1/2"	1/4"	PGF-8040
	4"	1/4"	PGF-7110
0-200	2 1/2"	1/4"	PGF-8060
	4"	1/4"	PGF-7130
0-300	2 1/2"	1/4"	PGF-8070
	4"	1/4"	PGF-7140
0-600	2 1/2"	1/4"	PGF-8080
	4"	1/4"	PGF-7160
0-1000	2 1/2"	1/4"	PGF-8090
	4"	1/2"	PGF-7170
0-2000	2 1/2"	1/4"	PGF-8100
	4"	1/2"	PGF-7190
0-5000	2 1/2"	1/4"	PGF-8120
	4"	1/2"	PGF-7210

PGI LARGE DIAL PRESSURE GAUGE



KOBOLD Instruments Inc.
1801 Parkway View Drive
Pittsburgh, PA 15205
Ph: (412)788-2830
Fax: (412)788-4890

- 4 1/2", 6" and 8" dials
- Black aluminum case
- Brass or stainless steel internals
- 0.5% accuracy
- 1/4" NPT up to 600 PSIG
- 1/2" NPT 1000-20,000 PSIG



KOBOLD PGI Pressure Gauge

KOBOLD PGI pressure gauges are designed for industrial and laboratory applications where a very accurate gauge is required. The PGI gauges feature a large easy-to-read dial and rugged brass or stainless steel internal construction.

Applications

- Steam, air, oil, fresh and salt water, freon and other pressure media.

Specifications

Ranges:	Vacuum to 20,000 PSIG
Over Pressure Protection:	1.25 x full scale range to 1400 PSIG 1.15 x full scale range > 1400 PSIG
Sensing Element:	Bourdon tube
Accuracy:	±0.5%
Operating Temperature:	
Medium:	149°F Max to 600 PSIG 428°F Max > 600 PSIG
Ambient:	-40°F to 149°F
Operating Pressure:	75% of full scale
Fitting:	1/4" NPT to 600 PSIG 1/2" NPT > 600 PSIG

Materials of Construction

Wetted Parts

Tube:	Bronze to 600 PSIG* 316 L SS > 600 PSIG *if SS internals selected, then all ranges 316 L SS
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Fitting:	Brass or 316L SS
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Exterior

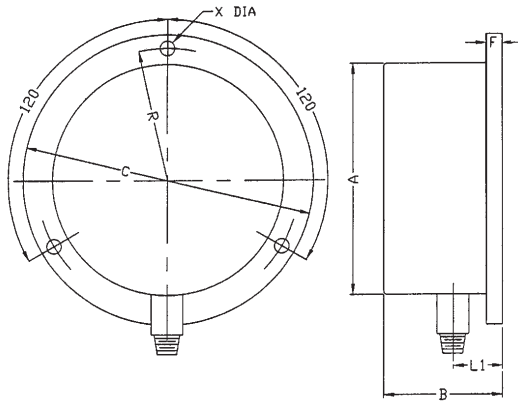
Movement:	Brass or stainless steel
Housing:	Black painted aluminum
Ring:	Aluminum
Dial:	Aluminum
Pointer:	Anodized black aluminum
Window:	Plexiglas

Protection:	NEMA 4
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PGI LARGE DIAL PRESSURE GAUGE



Dimensions

	A	B	C	F	L1	R	X Dia.
4.5"	4.925"	2.225"	5.900"	0.175"	0.825"	2.640"	0.310"
6"	6.175"	2.250"	7.600"	0.300"	0.850"	3.350"	0.275"
8"	8.675"	2.250"	10.300"	0.275"	0.825"	4.700"	0.275"

PGI Ordering Data

Tube, Socket, Movement	Dial Size					
	4 1/2" inch		6 inch		8 inch	
	Brass	Stainless Steel	Brass	Stainless Steel	Brass	Stainless Steel
- 30" Hg / 0 PSIG	PGI-6000	PGI-6025	PGI-6075	PGI-6260	PGI-6200	PGI-6300
- 30" Hg / 15 PSIG	PGI-6001	PGI-6026	PGI-6076	PGI-6261	PGI-6201	PGI-6301
- 30" Hg / 30 PSIG	PGI-6002	PGI-6027	PGI-6077	PGI-6162	PGI-6202	PGI-6302
- 30" Hg / 60 PSIG	PGI-6003	PGI-6028	PGI-6078	PGI-6163	PGI-6203	PGI-6303
- 30" Hg / 100 PSIG	PGI-6004	PGI-6029	PGI-6079	PGI-6164	PGI-6204	PGI-6304
- 30" Hg / 160 PSIG	PGI-6005	PGI-6030	PGI-6080	PGI-6265	PGI-6205	PGI-6305
- 30" Hg / 200 PSIG	PGI-6006	PGI-6031	PGI-6081	PGI-6266	PGI-6206	PGI-6306
- 30" Hg / 300 PSIG	PGI-6007	PGI-6032	PGI-6082	PGI-6267	PGI-6207	PGI-6307
0 - 15 PSIG	PGI-6008	PGI-6033	PGI-6083	PGI-6098	PGI-6208	PGI-6308
0 - 30 PSIG	PGI-6009	PGI-6034	PGI-6084	PGI-6099	PGI-6209	PGI-6309
0 - 60 PSIG	PGI-6010	PGI-6035	PGI-6085	PGI-6100	PGI-6210	PGI-6310
0 - 100 PSIG	PGI-6011	PGI-6036	PGI-6086	PGI-6101	PGI-6211	PGI-6311
0 - 160 PSIG	PGI-6012	PGI-6037	PGI-6087	PGI-6102	PGI-6212	PGI-6312
0 - 200 PSIG	PGI-6013	PGI-6038	PGI-6088	PGI-6103	PGI-6213	PGI-6313
0 - 300 PSIG	PGI-6014	PGI-6039	PGI-6089	PGI-6104	PGI-6214	PGI-6314
0 - 400 PSIG	PGI-6015	PGI-6040	PGI-6090	PGI-6105	PGI-6215	PGI-6315
0 - 600 PSIG	PGI-6016	PGI-6041	PGI-6091	PGI-6106	PGI-6216	PGI-6316
0 - 1000 PSIG	PGI-6017	PGI-6042	PGI-6092	PGI-6107	PGI-6217	PGI-6317
0 - 1500 PSIG	PGI-6018	PGI-6043	PGI-6093	PGI-6108	PGI-6218	PGI-6318
0 - 2000 PSIG	PGI-6019	PGI-6044	PGI-6094	PGI-6109	PGI-6219	PGI-6319
0 - 3000 PSIG	PGI-6020	PGI-6045	PGI-6095	PGI-6110	PGI-6220	PGI-6320
0 - 5000 PSIG	PGI-6021	PGI-6046	PGI-6096	PGI-6111	PGI-6221	PGI-6321
0 - 10000 PSIG	PGI-6022	PGI-6047	PGI-6170	PGI-6180	PGI-6222	PGI-6322
0 - 15000 PSIG	PGI-6023	PGI-6160	PGI-6171	PGI-6181	PGI-6223	PGI-6323
0 - 20000 PSIG	PGI-6024	PGI-6161	PGI-6172	PGI-6182	PGI-6224	PGI-6324

NOTE: For back connection, add the suffix "B" to the corresponding bottom connection product codes.
Front flange is standard on all back connected models. If back flange required, add suffix "BF."

PGP PRESSURE GAUGE WITH PBT HOUSING



KOBOLD Instruments Inc.
1801 Parkway View Drive
Pittsburgh, PA 15205
Ph: (412)788-2830
Fax: (412)788-4890

- 4" or 6" dials
- 1% accuracy (ANSI Grade A)
- Brass / Bronze or SS internals
- Rugged polybutylene housing
- Optional liquid filling



KOBOLD PGP pressure gauges are designed for heavy duty service in the process industry where accuracy and reliability are critical. The PGP is suitable for chemical, petrochemical, power generation, food and beverage, agricultural, pulp and paper, and many other environments.

The PGP features brass/bronze or stainless steel wetted parts and a rugged polybutylene (PBT) case. The PGP is available in pressure ranges up to 5000 PSIG and has an accuracy of $\pm 1.0\%$ of full scale (ANSI Grade A). The PGP is equipped with a $\frac{1}{4}$ " NPT fitting and a large easy-to-read 4" or 6" dial. Options include a $\frac{1}{2}$ " NPT fitting, liquid filling and a glass lens.

KOBOLD PGP Pressure Gauge

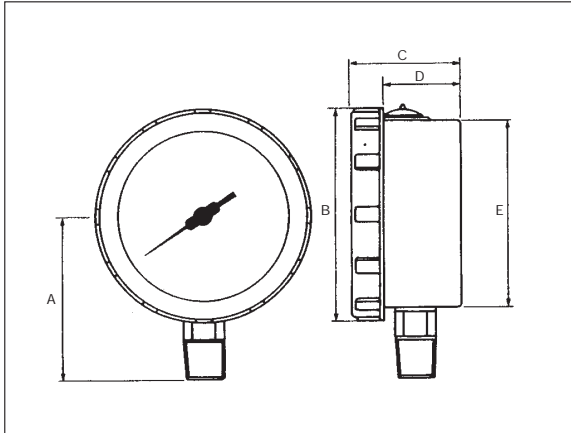
Specifications

Ranges:	0–5000 PSIG	Materials of Construction	
Sensing Element:	Bourdon tube	Wetted Parts	
Accuracy:	$\pm 1.0\%$ of full scale ANSI Grade A	Tube:	Bronze or 316 SS
Operating Temperature:		Fitting:	Brass or 316 SS
Medium:	250°F Max	Exterior	
Ambient:	250°F Max	Housing:	Polybutylene
Fitting:	$\frac{1}{4}$ " NPT standard $\frac{1}{2}$ " NPT optional	Bezel:	Polybutylene
Protection:	NEMA 4	Pointer:	Black enameled aluminum
		Window:	Acrylic standard Glass optional
		Fill Liquid:	Glycerin (optional)



KOBOLD Instruments Inc.
 1801 Parkway View Drive
 Pittsburgh, PA 15205
 Ph: (412)788-2830
 Fax: (412)788-4890

PGP PRESSURE GAUGES WITH PBT HOUSING



PGP Dimensions

Model Size	Dimensions				
	A	B	C	D	E
4" Size	3.47"	4.50"	2.29"	1.61"	3.94"
6" Size	4.33"	6.38"	2.32"	1.65"	5.69"

PGP Ordering Data

Range (PSIG)	Dial Size	Model Number	
		Brass	SS
0-15	4"	PGP-3101	PGP-3201
	6"	PGP-3102	PGP-3202
0-30	4"	PGP-3103	PGP-3203
	6"	PGP-3104	PGP-3204
0-60	4"	PGP-3105	PGP-3205
	6"	PGP-3106	PGP-3206
0-100	4"	PGP-3107	PGP-3207
	6"	PGP-3108	PGP-3208
0-160	4"	PGP-3109	PGP-3209
	6"	PGP-3110	PGP-3210
0-200	4"	PGP-3111	PGP-3211
	6"	PGP-3112	PGP-3212
0-250	4"	PGP-3113	PGP-3213
	6"	PGP-3114	PGP-3214
0-300	4"	PGP-3115	PGP-3215
	6"	PGP-3116	PGP-3216
0-400	4"	PGP-3117	PGP-3217
	6"	PGP-3118	PGP-3218
0-500	4"	PGP-3119	PGP-3219
	6"	PGP-3120	PGP-3220
0-600	4"	PGP-3121	PGP-3221
	6"	PGP-3122	PGP-3222
0-800	4"	PGP-3123	PGP-3223
	6"	PGP-3124	PGP-3224
0-1000	4"	PGP-3125	PGP-3225
	6"	PGP-3126	PGP-3226
0-1200	4"	PGP-3127	PGP-3227
	6"	PGP-3128	PGP-3228
0-1500	4"	PGP-3129	PGP-3229
	6"	PGP-3130	PGP-3230
0-2000	4"	PGP-3131	PGP-3231
	6"	PGP-3132	PGP-3232
0-3000	4"	PGP-3133	PGP-3233
	6"	PGP-3134	PGP-3234
0-4000	4"	PGP-3135	PGP-3235
	6"	PGP-3136	PGP-3236
0-5000	4"	PGP-3137	PGP-3237
	6"	PGP-3138	PGP-3238

PGP Options (Add suffix to Model No.)	1/2" NPT fitting	Suffix "B"
	Liquid Filling	Suffix "F"
	Glass Lens	Suffix "G"

PGS LOW COST PRESSURE GAUGE



KOBOLD Instruments Inc.
1801 Parkway View Drive
Pittsburgh, PA 15205
Ph: (412)788-2830
Fax: (412)788-4890

- Brass / Bronze wetted parts
- ABS housing
- Polycarbonate window
- 2 1/2" dial
- 3-2-3% accuracy



KOBOLD PGS Pressure Gauge

KOBOLD PGS pressure gauges are ideal for rugged applications and harsh environments. The PGS features an ABS housing and a full view polycarbonate window. The PGS movement design offers superior shock, vibration and pulsation resistance.

Specifications

Ranges:	0-200 PSIG
Maximum Operating Pressure:	75% of full scale
Sensing Element:	Bourdon tube
Dial size:	2 1/2"
Accuracy:	3-2-3% Grade B
Operating Temperature:	
Medium:	-40 to 150°F Max
Fitting:	1/4" NPT

Materials of Construction

Wetted Parts

Tube:	Bronze
Fitting:	Brass

Exterior

Movement:	Brass/Polyester
Housing:	ABS (Acrylonitrile Butadiene Styrene)
Dial:	Black figures on white painted steel
Pointer:	Black painted aluminum
Window:	Polycarbonate snap-in

PGS Ordering Data

Range (PSIG)	Model Number
0-30	PGS-1030
0-60	PGS-1060
0-100	PGS-1100
0-200	PGS-1200

SEN SERIES OEM PRESSURE TRANSMITTER

Features

- Ranges 0-30" Hg Vacuum to 0-7500 PSIG
- 0.5% or 1.0% of Full Scale Accuracy
- 4-20 mA, 0-5 VDC or 0-10 VDC Outputs
- Ceramic Pressure Sensing System for High Cycle Life
- Economical Price for OEM Applications

The SEN series pressure transmitters combine the reliability of a solid state ceramic sensor with an economical price. The SEN series is available in accuracy classes of either $\pm 1.0\%$ or $\pm 0.5\%$ of full scale value. 4-20 mA, 0-5 VDC or 0-10 VDC outputs are available allowing the SEN to interface with virtually any control system. The heart of the SEN is its ceramic piezo-resistive sensing element. Ceramic sensors are known for exceptionally long cycle life with virtually no calibration drift. These features, along with the compact, robust stainless steel package, make the SEN an ideal choice for OEM applications.



SEN Series OEM Pressure Transmitter

Specifications

Measuring Ranges: 0-30" Hg vacuum to 0-7500 PSIG; compound ranges available on request

Accuracy: $\pm 0.5\%$ or $\pm 1.0\%$ of full scale

Compensated Temp. Range: -4 to 185°F

Temperature Drift Zero: $< \pm 0.011\%/^{\circ}\text{F}$ for accuracy = 0.5%
 $< \pm 0.022\%/^{\circ}\text{F}$ for accuracy = 1.0%

Span: $< \pm 0.016\%/^{\circ}\text{F}$ for accuracy = 0.5%
 $< \pm 0.011\%/^{\circ}\text{F}$ for accuracy = 1.0%

Stability (annual): $< \pm 0.2\%$ of full scale

Sensor Element: Piezo-resistive ceramic

Operating Temp. Range
Process Medium: -40 to 212°F
Ambient: -40 to 150°F
Storage: -40 to 185°F

Overpressure Ratings
30" Hg to 500 PSIG: 2x Max. range
>500 PSIG: 1.2x Max. range

Process Wetted Parts
Sensing Element: Ceramic
Connection: 304 stainless steel
O-Ring: Buna-N, others available on request

Housing Material: 303 stainless steel

Power Supply: 16-32 VDC
Output: 4-20 mA, 0-5 VDC, 0-10 VDC

Max. Loop Load: $(V_{\text{supply}} - 15) / 0.02$
(for 4-20 mA)

Response Time: < 1 ms from 10% to 90% of scale

Electrical Connection: Hirschmann Plug (DIN 43650 A) with PG 11 cable gland

Electrical Protection: NEMA 4/IP 65

SEN SERIES OEM PRESSURE TRANSMITTER

SEN Series Ordering Codes																	
SEN	= OEM Pressure Transmitter																
	<p>Fitting/Accuracy</p> <p>8600N4 = 1/2" NPT/0.5% of full scale</p> <p>8601N4 = 1/2" NPT/1.0% of full scale</p> <p>8700N2 = 1/4" NPT/0.5% of full scale</p> <p>8701N2 = 1/4" NPT/1.0% of full scale</p>																
	<p>Output Type</p> <p>0 = 4-20 mA (standard)</p> <p>1 = 0-5 VDC (10 piece Min. Order)</p> <p>2 = 0-10 VDC (10 piece Min. Order)</p>																
	<p>Range</p> <p>Available Measuring Ranges</p> <table border="0"> <tr> <td>H315 = -30" to 0" Hg</td> <td>P100 = 500 PSIG</td> </tr> <tr> <td>P025 = 15 PSIG</td> <td>P115 = 1000 PSIG</td> </tr> <tr> <td>P045 = 30 PSIG</td> <td>P125 = 1450 PSIG</td> </tr> <tr> <td>P055 = 50 PSIG</td> <td>P130 = 2000 PSIG</td> </tr> <tr> <td>P065 = 100 PSIG</td> <td>P140 = 3000 PSIG</td> </tr> <tr> <td>P075 = 150 PSIG</td> <td>P150 = 5000 PSIG</td> </tr> <tr> <td>P085 = 200 PSIG</td> <td>P170 = 7500 PSIG</td> </tr> <tr> <td>P090 = 300 PSIG</td> <td></td> </tr> </table>	H315 = -30" to 0" Hg	P100 = 500 PSIG	P025 = 15 PSIG	P115 = 1000 PSIG	P045 = 30 PSIG	P125 = 1450 PSIG	P055 = 50 PSIG	P130 = 2000 PSIG	P065 = 100 PSIG	P140 = 3000 PSIG	P075 = 150 PSIG	P150 = 5000 PSIG	P085 = 200 PSIG	P170 = 7500 PSIG	P090 = 300 PSIG	
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P085 = 200 PSIG	P170 = 7500 PSIG																
P090 = 300 PSIG																	
	<p>Accessories</p> <p>Part#: REED-P931970100 = DIN 43650 A plug with 1/2" NPT conduit connection</p>																
<p>↓</p> <p>↓</p> <p>↓</p> <p>↓</p>	<p>SEN - 8701N2 - 0 - P065 Example</p>																

DIMENSIONS

