

Types 2074, 2174 & 2274 Digital Industrial Gauge

FEATURES

- **A Multi-Functional Digital Gauge with Optional:**
 - 4-20mA Output
 - (1) or (2) SPDT Switches
- **¼% Full Scale Terminal Point Accuracy (.13% BFSL)**
- **IP 65 Weatherproof Case**
- **Three Case Options:**
Stainless Steel, Fiberglass Reinforced Thermoplastic or Aluminum
- **Extra Large Display**
- **Intrinsically Safe, Class I, Div. 1**
- **Easy-to-Use Menu Options:**
(all password protected)
 - Five Backlite Display Options
 - Twelve Engineering Units
 - Menu Configure Feature
 - Update Rate
 - Dampen Rate
 - Auto-Off

At last, a multi-functional gauge from the experts in pressure measurement.

When any combination of local indication, a 4-20mA signal and switching are required to meet your needs, the Ashcroft® digital industrial gauge provides the solution.

PRODUCT SPECIFICATIONS

Type: 2074 (battery), 2174 (loop), 2274 (line)

Accuracy: .25% Full Scale, terminal point

Case Size: 3", 4½"

Case Material: 3" SS, 4½" fiberglass reinforced thermoplastic or black epoxy coated aluminum

Case Encl. Rating: Weatherproof, IP65

Electrical Connection for Loop or Line Power:

4½" case screw down terminals
3" case jacketed cable extended 3 feet
For different cable length use variation "JZ"

Wetted Materials: 17-4 SS (sensor), 316SS (socket)

Socket Sizes: ¼ NPT, ½ NPT, typical, see coding for complete list. Consult factory for additional fittings.

Socket Location: Lower, 3, 9 and 12 o'clock

Ranges: Vac. thru 20,000 psi (see engineering units below for other units)

Overpressure Limits (F.S.):

	15-2000	3000-5000	7500-20,000
Proof	200%	150%	120%
Burst	800%	300%	150%

Operating Temp.: 14/140°F (-10/60°C)

Temp. Error (Zero & Span): .04%/°F (<.02°F Typical)

Storage Temp.: -4/158° (-20°/70°F)

DISPLAY

Type: LCD

Display Digits: Five (5)

Character Height: 3" case: .60", 4½" case: .88"

Backlite: Optional. On model 2174 only, battery backup must also be selected. (Backlight is powered by batteries.)

Bar Graph: Yes

Battery Life: 3" >400 hrs., 4½" >2000 hrs.

Battery Backup: Optional.

Agency Approvals:

Optional Intrinsically Safe Approvals

FM (Class I Div. I, Groups A-G)

CSA (Class I Div. I, Groups A-D)

(Class II Div. I, Groups E-G)

15,000 psi Max Full Scale Range

KEYPAD FUNCTIONS

On/Off: Manually turns unit on and off (auto off options in menu)

Zero/Clear: Zeros display or clears min. and max. values when displayed

Min/Max: (down) Arrow Key: Stores min and max values, arrow key allows for scrolling thru menu items

Menu Key: Provides access to menu options

Backlite: (up) Arrow Key (Backlite optional): Manually turns backlite on and off (auto off options in menu), arrow key allows for five menu options. (up) arrow key allows for scrolling thru menu options

Enter: Selects items in the menu

MENU MODE

Engineering Units: Up to 10 units of measurement are available; psi, In. H₂O (with three temp. options: 20°C, 60°F, 4°C*), Ft. H₂O, mPa, mBar, kPa, kg/cm², Bar, inHg and mmHg. Units available are based on full scale range of gauge.

Configuration Mode (Config): Allows for changes to default settings of gauge including zero disable feature

Bar Graph (Graph): Allows for adjustment of bargraph and 4-20 (optional feature)

Auto Off (Off): Allows for changes to auto off of gauge, five options: Never, 2 min., 5 min., 15 min., 30 min.

Update Rate (Update): Four options: 100 ms, 200 ms, 500 ms, 1 sec

Dampening (Damp): Six options: None, average, 2, 4, 6, 8 times per 100ms

Backlite: Five options: Never, 10 sec., 30 sec., 1 min., 5 min.

Field Recalibration: Allows for recalibration of zero, midscale and span (password protected)

OPTIONS

4-20mA Display: 12-36 Vdc, mA with unlimited turndown (within gauge range)

Line Powered: 12-36 Vdc, 2VA max.

Switching*: (1) or (2) SPDT switches, (max. contact 30Vdc, 1 amp, 125Vac .5 Amp), Switches adjustable to 100% of range

Types 2074, 2174 & 2274 Digital Industrial Gauge

THE MULTI-FUNCTIONAL SOLUTION SAVES MONEY, TIME AND SPACE...

- Battery powered local indication standard
 - Optional 4-20mA output with turndown adjustable within range of gauge*
 - Optional line powered (12-36 Vdc)
 - Optional (1) or (2) SPDT switches with dead-band adjustable to pressure range of gauge
- *Accuracy based on full scale range of gauge

The benefit, one digital pressure gauge replaces three instruments... mechanical pressure gauge, transducer and switch

- Saves installation costs
- Saves on instrument costs
- Save on additional pipe cut-out(s)
- Save space

INDUSTRY LEADING FEATURES Rugged design

- Three case styles: all welded stainless steel, fiberglass reinforced thermoplastic or cast aluminum case
 - Weatherproof, NEMA4, IP 65 case
 - SS and aluminum case offered with FM certification, Class 1, Div. 1
- Polyester window protects display from damage
- Strain relief to protect wiring while replacing batteries

Industry leading display

- Extra large display height of .88" (4½" case)
- Five digit display
- 10 units of measure
- % of full scale range bar graph

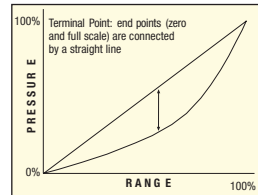
Safety

- Meets ASME B40.7
- Pressure range on keypad and bar graph reduces accidental overpressure
- Proof pressure = 2X gauge range

What you should know about digital gauge accuracy... Terminal Point versus Best Fit Straight Line Accuracy.

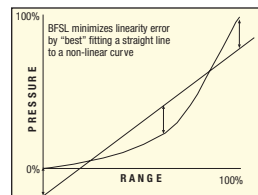
Ashcroft Type 2070 Digital Gauge with Terminal Point Accuracy

BENEFIT



- All points between zero and full-scale will be within stated accuracy
- Allows zeroing of gauge at start-up to eliminate any sensor offset

Competitive Digital Gauges with Best Fit Straight Line (BFSL) Accuracy



- Linearity error minimized by "best" fitting a straight line to a non-linear curve
- BFSL gauges may have a zero offset at calibration that must be maintained to ensure accuracy throughout range

PROBLEM

- Re-zeroing gauge may invalidate published accuracy specification
- Zero offset at start-up may be the result of either:
 - BFSL Calibration
 - Zero Drift

OPTIONS		
Description	Code	Case Size
Case Options		
Aluminum Case (black epoxy coated)	AY	4½" only
(Glass reinforced thermoplastic case standard)		
Electropolished Case (Brushed SS case standard)	EC	3" only
Switch Options		
(1) SPDT Switch (12-36Vdc)	U1	3", 4½"
(2) SPDT Switch (12-36Vdc)	U2	3", 4½"
Line Power with 4-20mA output (Line power (Type 2274) required for switching options.)	A0	3", 4½"
(Terminal blocks standard with 4½" case.) (Flying leads standard with 3")		
Wiring Options		
Jacketed cable 3 ft.	EN	4½"
Jacketed cable custom length	JZ	3", 4½"
Keypad Options		
Backlite	BL	3", 4½"
Miscellaneous Options		
Battery Backup (Battery standard with Type 2074) (Available with Types 2174 & 2274)	BK	3", 4½"
Weatherproof ABS Gauge Carrying Case	S7	3" only
Protective Rubber Boot (black)	B1	3" only
Protective Rubber Boot (orange)	B2	3" only
Protective Front Cover	PP	3" only
AccuSeal™ (%NPT lower only)	SU	4½" only
Intrinsically Safe FM/CSA	FM	

.88" high digital display (4½" case)

Bar graph % of full scale range

Press to display minimum or maximum pressure gauge measured by

Breakthru AccuSeal™ Gauge Isolator*

- Integral to gauge
- Virtually eliminates process dead-leg
- Eliminates need for standard diaphragm seal
- Eliminating seal reduces temperature error



Range on keypad, complies with ASME B40.7 to reduce the possibility of accidental overpressure

Battery level indicator

Optional:

- 4-20mA output (adjustable within pressure range)
- Line power (12/36Vdc, 1 amp)
- (1) or (2) SPDT switch(es) (adjustable to 100% of pressure range)

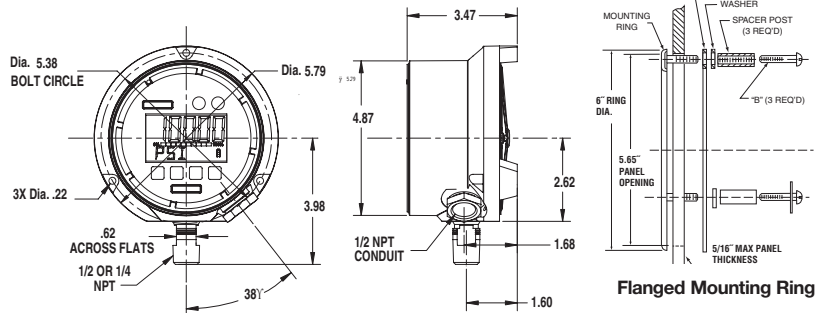
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PRESSURE RANGES

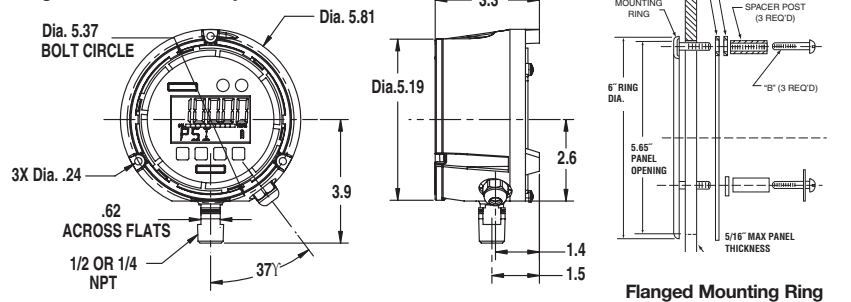
psi	in. Hg (vacuum)	Comp. (psi)	mmHg (pressure)	in. Hg (pressure)	in. H ₂ O	mBar	ft. H ₂ O	MPa	KPa	Bar/ KSC
15	30	-15/0/15	800	30	400	1000	60	1	100	1
30		-15/0/30	1000	60	800	1500	160	1.6	160	1.6
60		-15/0/60	2000	100	1000	2000	200	2.5	250	2.5
100		-15/0/100	3000	160		2500	300	4	400	4
160			5000	200		4000	400	6	600	6
200			10,000	300		5000	600	10	1000	10
300				400		6000	1000	16	1600	16
600				600		10,000		25	2500	25
800				800		15,000		40	4000	40
1000						20,000		60	6000	60
1500							100	10,000	100	
2000								140	16,000	160
3000									25,000	250
5000									40,000	400
8000									60,000	600
10,000									100,000	1000
15,000									140,000	1400
20,000										

DIMENSIONS

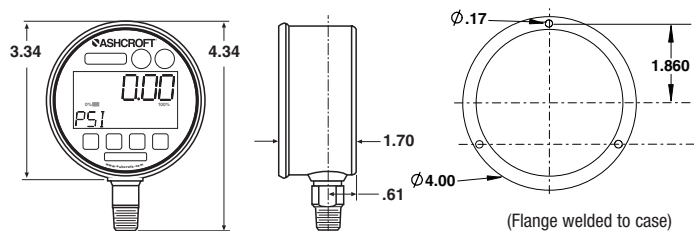
Type 2074 (battery), 2174 (loop), 2274 (line), 4 1/2" aluminum case



Type 2074 (battery), 2174 (loop), 2274 (line), 4 1/2" fiberglass reinforced thermoplastic case



Type 2074 (battery), 2174 (loop), 2274 (line), 3" stainless steel case



45	2072	S	D	04	L	100#	X6W
Size	Type	System	Case Style	Connection Size	Connection Location	Range Code	Product Variations for all Gauge Sizes
45 4.5"	2074 Ashcroft Battery Power .25%	S St. Sl.	D Dry	45 ONLY	L Lower		XBK Battery Backup, for none Bat power Gauge
30 3"	2174 Ashcroft 4-20 Loop .25%			04 1/2 NPT	E 9 O'Clock		XBL Back light for display (6)
	2274 Ashcroft 24V Line Power .25%			15 G 1/2 B	D 3 O'Clock		XAO 4-20mA, Output for Line Power Gauges
				09 9/16-18 UNF 2B Female	T Top		XU1 1 SPDT Switch (1), (2)
				LF 7/16-20 w/O-ring Seat			XU2 2 SPDT Switches (1), (2)
							XFM Factory Manual Approval (4)
							XNH Metal tag wired to case
							XNN Paper tag bonded to case
							XGB Cleaned for gaseous oxygen service
							XC4 CD-4 error plot
							XMF Free from mercury certificate
							XTS Throttle screw
							XJZ Special cable length
							For 3.0" gauges only
							XHN Mini Hirschmann Connector
							XTU Throttle plug
							XFF Front flange for panel mounting
							XPP Protective front cover
							XB1 Black rubber protective boot
							XB2 Orange rubber protective boot
							For 4.5" gauges only
							XEN Flying leads (standard on "Size 30" 3 ft.)
							XAY Aluminum case
							XSU Accu-Seal, sensor at end of socket, 2000 psi max. 1/2 NPT only

NOTES:

- Line power (Type 2274) required for switch options.
- Screw down terminals standard with 4 1/2" case. 3 feet of jacketed cable standard with 3" case.
- FM not available with variation codes U1, U2, BL, Ao, NH, NN, MN, HN, AY.
4 1/2" includes aluminum case.
- On 2174 loop powered gauge only with BL option. BK option also must be specified in product code (XBKBL).