

## 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-<br>2000 | 3000-<br>5000 | 7500-<br>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, battery backup is also required on 2174 loop powered gauge

**Bar Graph:** Yes

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

**Battery Backup:** Optional, required when "BL" option is ordered on 2174 loop powered gauge.

**Agency Approvals:**

CE (3" case only),  
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. H<sub>2</sub>O (with three temp. options: 20°C, 60°F, 4°C\*), Ft. H<sub>2</sub>O, mPa, mBar, kPa, kg/cm<sup>2</sup>, 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, mid-scale and span (password protected)

### OPTIONS

**4-20mA Display:** 12-36 Vdc, mA with unlimited turn-down (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



LOOK FOR THESE AGENCY MARKS ON OUR PRODUCTS

\*3" Case Only

# 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 turnout 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

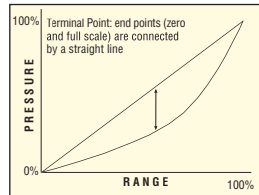
### Safety

- ▶ 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.

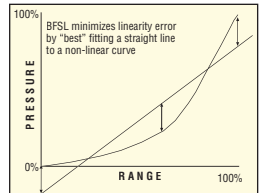
### Ashcroft Type 2070 Digital Gauge with Terminal Point Accuracy

#### 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

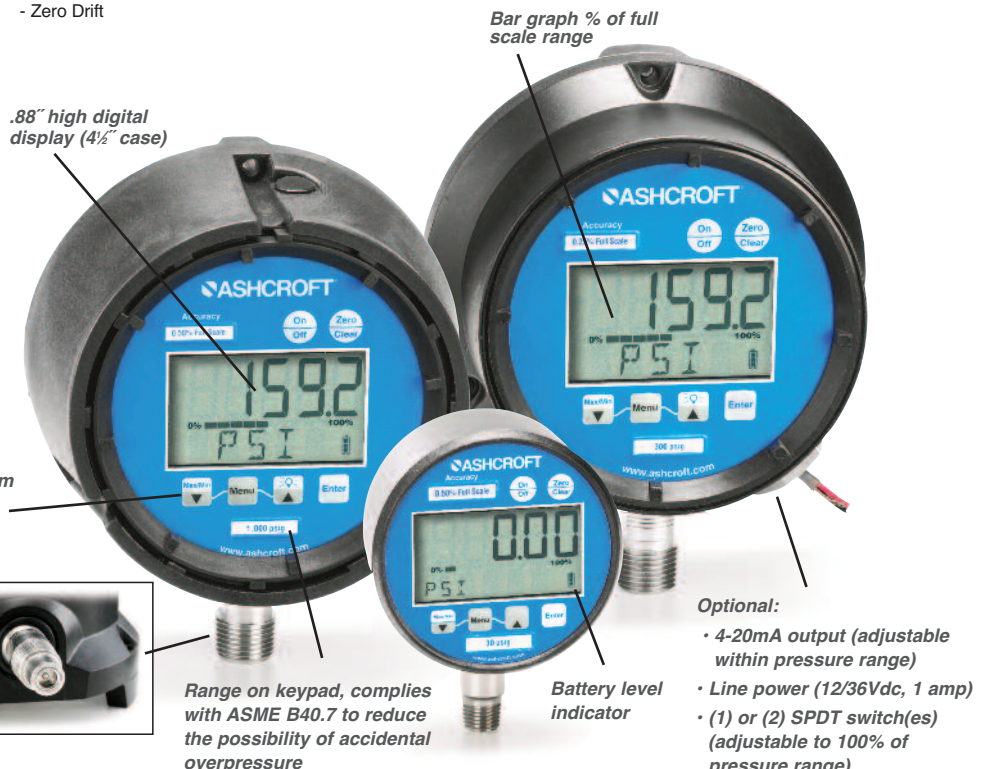


- Linearity error minimized by "best" fitting a straight line to a non-linear curve
- BFSL gauges may have a zero offset at calibration that must be maintained to ensure accuracy throughout range

#### 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 |
| <b>Case Options</b>                                      |      |           |
| Aluminum Case (black epoxy coated)                       | AY   | 4½" only  |
| (Glass reinforced thermoplastic case standard)           |      |           |
| Electropolished Case                                     | EC   | 3" only   |
| (Brushed SS case standard)                               |      |           |
| <b>Switch Options</b>                                    |      |           |
| (1) SPDT Switch (12-36Vdc)                               | U1   | 3", 4½"   |
| (2) SPDT Switch (12-36Vdc)                               | U2   | 3", 4½"   |
| Line Power with 4-20mA output                            | A0   | 3", 4½"   |
| (Line power (Type 2274) required for switching options.) |      |           |
| (Terminal blocks standard with 4½" case.)                |      |           |
| (Flying leads standard with 3")                          |      |           |
| <b>Wiring Options</b>                                    |      |           |
| Jacketed cable 3 ft.                                     | EN   | 4½"       |
| Jacketed cable custom length                             | JZ   | 3", 4½"   |
| <b>Keypad Options</b>                                    |      |           |
| Backlite   | BL   | 3", 4½"   |
| <b>Miscellaneous Options</b>                             |      |           |
| Battery Backup   | BK   | 3", 4½"   |
| (Battery standard with Type 2074)                        |      |           |
| (Available with Types 2174 & 2274)                       |      |           |
| 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™ (½ NPT lower only)                             | SU   | 4½" only  |
| Intrinsically Safe                                       | FM   |           |
| FM/CSA   |      |           |



**.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)

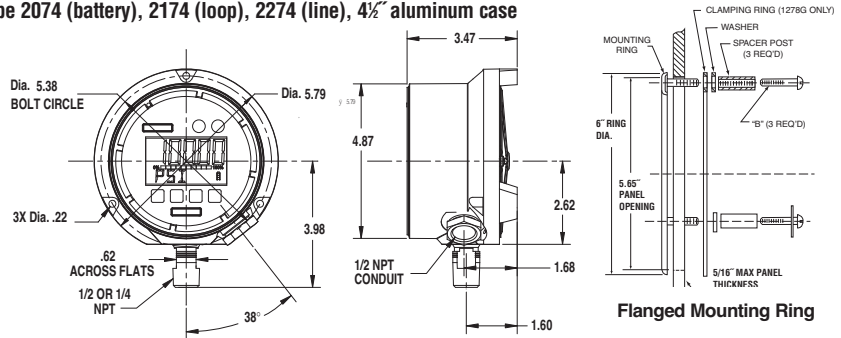
# Types 2074, 2174 & 2274 Digital Industrial Gauge

## PRESSURE RANGES

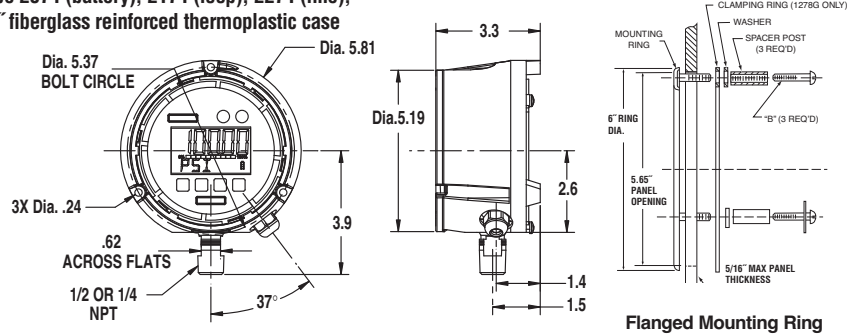
| psi    | in. Hg (vacuum) | Comp. (psi) | mmHg (pressure) | in. Hg (pressure) | in. H <sub>2</sub> O | mBar | ft. H <sub>2</sub> O | mPa     | kPa  | Bar/ KSC |
|--------|-----------------|-------------|-----------------|-------------------|----------------------|------|----------------------|---------|------|----------|
| 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                    | 4       | 400  | 4        |
| 160    |                 |             | 5000            | 200               | 4000                 | 400  | 6                    | 6       | 600  | 6        |
| 200    |                 |             | 10,000          | 300               | 5000                 | 600  | 10                   | 10      | 1000 | 10       |
| 300    |                 |             |                 | 400               | 6000                 | 1000 | 16                   | 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

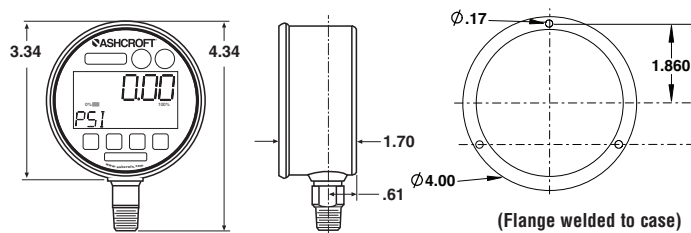
### Type 2074 (battery), 2174 (loop), 2274 (line), 4 1/2" aluminum case



### 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    | <b>45 ONLY</b>  | L Lower<br>E 9 O'Clock<br>D 3 O'Clock<br>T Top |            | XBK Battery Backup, for none Bat power Gauge<br>XBL Back light for display (6)<br>XAO 4-20mA, Output for Line Power Gauges<br>XU1 1 SPDT Switch (1), (2)<br>XU2 2 SPDT Switches (1), (2)<br>XFM Factory Manual Approval (see note 4)<br>XNH Metal tag wired to case<br>XNN Paper tag bonded to case<br>X6B Cleaned for gaseous oxygen service<br>XC4 CD-4 error plot<br>XMF Free from mercury certificate<br>XTS Throttle screw<br>XJZ Special cable length |
| 30 3"   | 2174 Ashcroft 4-20 Loop .25%      |             |            | 04 1/2 NPT<br>15 G 1/2 B<br>09 9/16-18 UNF 2B Female<br>LF 7/16-20 w/O-ring Seat          |  |            | <b>For 3.0" gauges only</b><br>XHN Mini Hirschmann Connector<br>XTU Throttle plug<br>XFF Front flange for panel mounting<br>XPP Protective front cover<br>XB1 Black rubber protective boot<br>XB2 Orange rubber protective boot   |
|         | 2274 Ashcroft 24V Line Power .25% |             |            | <b>30 ONLY</b>  |  |            | <b>For 4.5" gauges only</b><br>XEN Flying leads (standard on "Size 30")<br>XAY Aluminum case<br>XSU Accu-Seal, sensor at end of socket, 2000 psi max. 1/2 NPT only  |
|         |                                   |             |            | RX 9/16-18 LH w/Cone<br>KJ 1/4 BSPF<br>SF 1/4 VCR Swivel Female<br>SM 1/4 VCR Swivel Male |  |            |   |
|         |                                   |             |            | <b>BOTH</b>   |  |            |   |
|         |                                   |             |            | 02 1/4 NPT<br>13 G 1/4 B  |  |            |   |

### 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, NN, NN, MN, HN, AY. 4 1/2" includes aluminum case.
- Battery back-up required with BL option on 2174 loop powered gauge only.

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