# 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

*3˝ Case Only

**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
**Wetted Materials:** 17-4 SS (sensor), 316SS (socket)
**Socket Size:** ¼ or ½ NPT, JIS, DIN, SAE, (½ NPT only with 4½˝ case, others on application)
**Socket Location:** Lower, 3, 9 and 12 o'clock
**Ranges:** Vac. thru 20,000 psi (see engineering units below for other units)
**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
**Bar Graph:** Yes
**Battery Life:** 3˝ >1000 hrs., 4½˝ >3600 hrs.
**Agency Approvals:**
(FM, CSA optional), CE (3˝ case only), FM (Intrinsically Safe Class I, Div. 1, Groups A-G, CSA

## 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:** 10 units of measurement are available; psi, In. $H_2O$ (with three temp. options: 20°C, 60°F, 4°C*), Ft. $H_2O$, mPa, mBar, kPa, kg/cm², Bar, inHg and mmHg
**Configuration Mode (Config):** Allows for changes to default settings of gauge including zero disable feaure
**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

## HOW TO ORDER (Typical example)

| TYPICAL PRODUCT CODING | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| | 45 | 2074 | SD | 02L | 100# |

1. Case Size: 4½˝
2. Type: 2074
3. Wetted Parts: 316 SS Socket, 17-4SS Sensor
4. Connection: ¼ NPT lower
5. Range: 100 psi

All specifications are subject to change without notice.
All sales subject to standard terms and conditions.
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# 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)
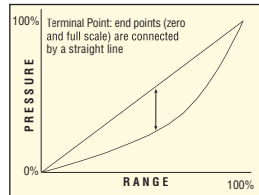▶ Five digit display
▶ 12 units of measure
▶ % of range bar graph

### Safety

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

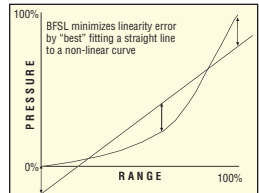## What you should know about digital gauge accuracy... Terminal Pointversus Best Fit Straight Line Accuracy.

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

**BENEFIT**



Terminal Point: end points (zero and full scale) are connected by a straight line

PRESSURE — RANGE

• 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



BFSL minimizes linearity error by "best" fitting a straight line to a non-linear curve

PRESSURE — RANGE

• 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) (Glass reinforced thermoplastic case standard) | AY | 4½˝ only |
| 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.) (Terminal blocks standard with 4½˝ case.) (Flying leads standard with 3˝) | AO | 3˝, 4½˝ |
| **Wiring Options** | | |
| Flying leads (Terminal blocks standard with 4½˝ case.) Flying leads standard with 3˝ case. | EN | 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℠ (½ NPT lower only) | SU | 4½˝ only |
| Intrinsically Safe FM/CSA | FM | |

Bar graph % of full scale range

.88˝ high digital display (4½˝ case)



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
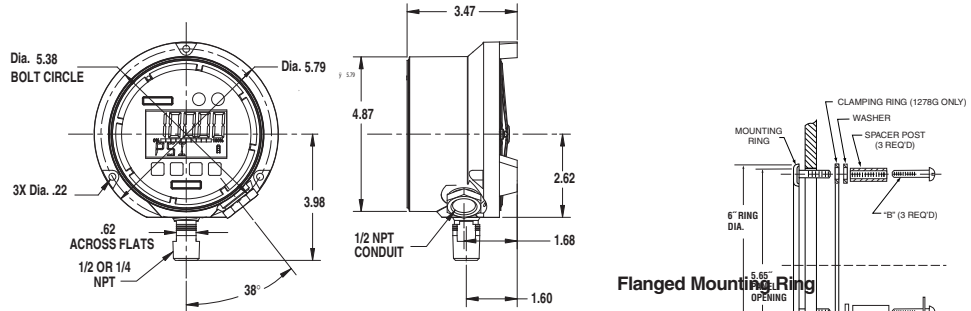
Battery level indicator

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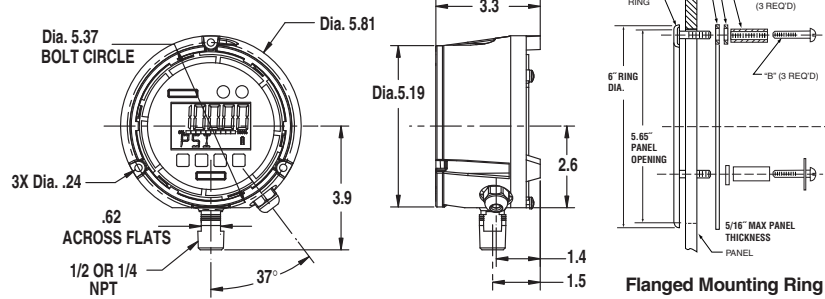• (1) or (2) SPDT switch(es) (adjustable to 100% of pressure range)

# Types 2074, 2174 & 2274
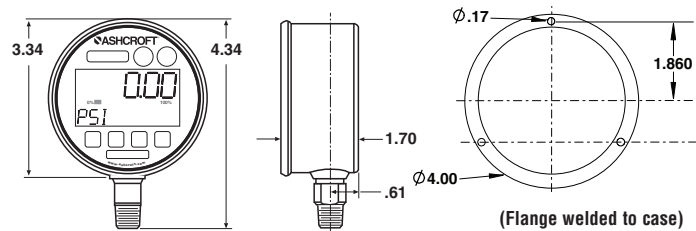# Digital Industrial Gauge

## DIMENSIONS

**Type 2074 (battery), 2174 (loop), 2274 (line), 4½˝ aluminum case**



**Flanged Mounting Ring**

**Type 2074 (battery), 2174 (loop), 2274 (line), 4½˝ fiberglass reinforced thermoplastic case**



**Flanged Mounting Ring**

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



**(Flange welded to case)**

## PRESSURE RANGES

| psi | in.Hg (vacuum) | Comp. (psi) | mmHg (pressure) | in.Hg (pressure) | in. H₂O | mBar | ft. H₂O | 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 | | | | | | | | | | |