

Barton®

Chart Recorders

Models 202E, 202ER, 202N, 242E, and J8A



Overview

Barton chart recorders are the industry standard for accurate, reliable measurement and recording of pressure, differential pressure, and temperature in a wide variety of applications. In addition, DP models utilize Barton's rupture-proof bellows DPU as the actuating unit — with features like overrange protection and pulsation dampening (on some models).

Common Components

- **Case** — is made of rugged, lightweight die-cast aluminum that features a built-in rain-shield. It is finished in polyurethane electrostatic powder paint that has a high resistance to weathering, scratches, and industrial fumes. aircraft-type door hinge (made of 302 SST) provides excellent resistance to salt spray and H 2 S. A closed neoprene gasket, non-absorbent to fluids and resistant to oils and most solvents, provides the seal between the door and the case.

Optional "S" versions use a stainless steel case for harsh saltwater environments or a corrosion resistant "offshore coating."

- **Chart Drive** — available in battery and spring-wound versions with a wide variety of chart speeds. All chart drives, with simple positive chart lock hub, are interchangeable.
- **Charts** — are made from moisture-resistant, 7-point paper with high-grade copper engravings that eliminate eccentric and elliptical errors. All models, except J8A, utilize 12-inch circular charts that are interchangeable with Graphic Controls or Bristol charts. The J8A utilizes compact 8-inch charts.
- **Recording Mechanism** — All parts are stainless steel for long life. The pen mount is exceptionally rugged and pen shafts are fitted with ball pivots to minimize friction. All links are adjustable, with micrometer adjustments for accurate calibration. A cam screw allows rotation of the pen mounting for accurate tracking of pens on the chart time arc. All adjustments have screwdriver slots to simplify calibration.

Disposable pens are standard.

- **Pressure Elements** — used in Models 202E, 242E, and J8A are precision wound helical-type available in a variety of materials — pressure ranges from 0-30" mercury vacuum (0 - 14.7 psi/1 bar) to 0 - 30,000 psi (0 - 2,068 bar). The Model 202N uses a K-Monel element — pressure ranges from 0 - 200 psi (0 - 14 bar) to 0 - 6,000 psi (0 - 414 bar). Connections available in 1/4" NPT for ranges less than 10,000 psi (689 bar). Ranges greater than 10,000 PSI (689 bar) utilize an Aminco 9/16–18 (1/4" ODT) female connection.
 - **Thermal Systems** — consist of a bourdon tube, a capillary (w/SST armor), and a bulb (w/bendable extension). All parts are SST. Systems available in Class V (mercury fill w/11/16" O.D. bulb) or Class I (hydrocarbon fill w/3/8" O.D. bulb). Invar available in Class V only. Standard temperature ranges are: 0°F to +[100, 150, 200, or 300]°F (-18°C to +[38, 66, 93, or 149]°C).
 - Class VA** (self/full compensation): -40°F/°C to +1200°F (+649°C)[self] or +600°F (+316°C)[fully]
 - Class VB** (Case compensated): -40°F/°C to +600°F (+316°C)
 - Class IA** (full) & IB (self): -200 to +500°F (-129 to +260°C)
- Accuracy:** ±1.0% of F.S.
- Hardware:** Capillary standard length is 10 ft. with additional lengths available.

Models 202E/202ER (DP)

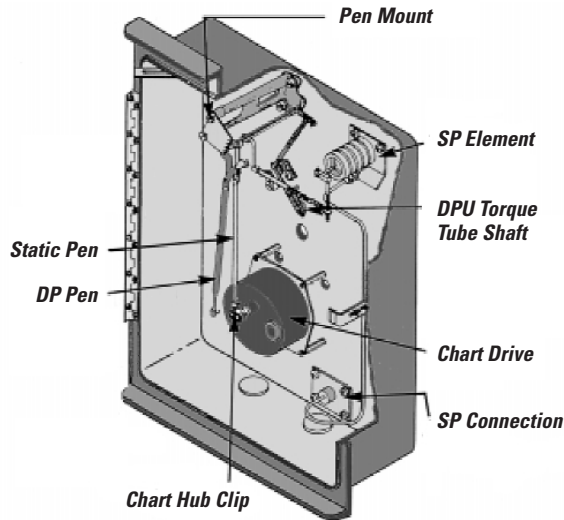
The 202E is a 12-inch chart recorder that has been widely used in gas transmission and distribution fields — accurate calibration, even under extreme variations in static pressure and ambient temperatures.

The 202E is available in 1 to 4 pen configurations (DP+3 additional pens). The additional pens can be used to record temperature and supplemental pressure data.

The unit is actuated by a Barton Model 199 DPU, with standard and NACE units available (up to 6,000 PSI/414 bar SWP) — see DPU bulletin #21700 for details. Static pressure and temperature pens are actuated by precision wound elements (see page 1).

Model 263 option uses Foxboro-type charts.

Main Components



Specifications

- Safe Working Pressure up to 6,000 PSI (414 bar)
- DP Ranges 0-10" w.c. to 0-100 PSID (0-25 mbar to 0-6.9 bar)
- Accuracy $\pm 0.5\%$ F.S.
- Temperature Limits $-40^{\circ}\text{F}/^{\circ}\text{C}$ to $+180^{\circ}\text{F}$ ($+82^{\circ}\text{C}$)

Model 202ER — a reverse-acting version that sets zero on outer perimeter of the chart for more accurate integration.

Model 202N (DP) (NACE)

The 202N is a 12-inch chart recorder designed to measure flow, static pressure, and temperature in sour

gas applications. The 202N meets all NACE requirements for H₂S environments, per MR-01-75 (1991 Revision) — SWP upto 2,000 PSI (138 bar).

For ranges between 2,000 PSI (138 bar) and 6,000 PSI (414 bar), see optional NACE version of M202E.

The 202N is actuated by Barton's M199 NACE DPU — see DPU PB for details. Static pressure measurements are provided by precision wound K-Monel helical-type elements.

All other features and benefits are the same as the 202E.

Specifications

- Safe Working Pressure up to 2,000 PSI (138 bar)
- DP Ranges 0-10" w.c. to 0-100 PSID (0-25 mbar to 0-6.9 bar)
- Accuracy $\pm 0.5\%$ F.S.
- Temperature Limits $-40^{\circ}\text{F}/^{\circ}\text{C}$ to $+180^{\circ}\text{F}$ ($+82^{\circ}\text{C}$)

Model 242E (Temperature/Pressure)

The 242E is a 12-inch chart Temperature and Pressure Recorder-Receiver designed for general pressure applications. When functioning as a recorder-receiver, it uses a bellows-type element for pneumatic transmitter or controller input.

An optional pen mount allows use of Foxboro-type charts.

Receiver Bellows

Our receiver bellows are made from either phosphor bronze or 316 stainless steel. Phosphor bronze units are assembled and oven-bronzed; SST units are welded. They can receive pneumatic output signals of 3-15 PSI (207 mbar-1 bar) and 6-30 PSI (414 mbar - 2 bar).

Specifications

- Safe Working Pressure up to 30,000 PSI (2,068 bar)
- DP Ranges 0-10" w.c. to 0-100 PSID (0-25 mbar to 0-6.9 bar)
- Accuracy $\pm 1.0\%$ F.S.
- Temperature Limits $-40^{\circ}\text{F}/^{\circ}\text{C}$ to $+180^{\circ}\text{F}$ ($+82^{\circ}\text{C}$)

Model J8A (Temperature/Pressure)

The J8A is a compact 8-inch chart Temperature and Pressure Recorder designed for general pressure applications. Available as a single or dual pen unit, it can use any combination of pressure measuring helical elements or temperature measuring thermal systems.

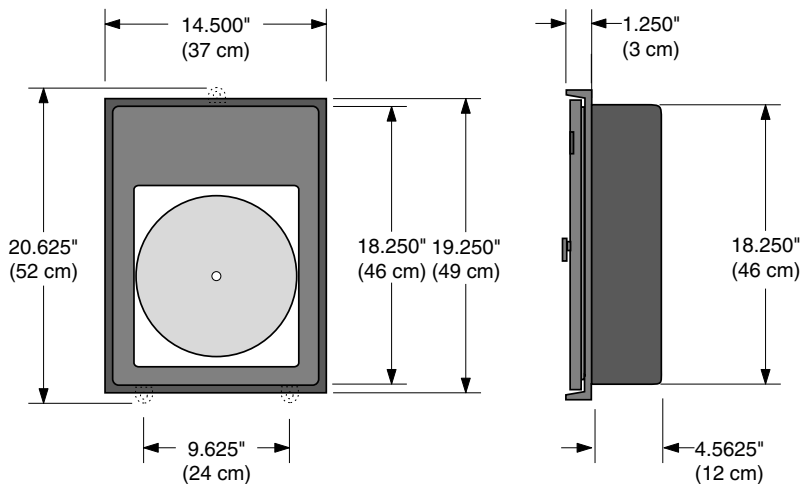
Pressure Elements – same as those supplied for 12-inch recorders, with pressure ranges from 0-30" Hg to 30,000 PSI (0-14.7 PSI/1 bar to 2,068 bar).

Case – a smaller version of the 242E, the J8A case is 3/16-inch thick, with a closed cell neoprene gasket. The standard door comes with an 8-inch square piece of glass, Plexiglas (Lexan), or 16-gauge steel plate for solid door applications. Overall dimensions of standard unit are: 14-1/2" x 10-3/4" x 14-1/2".



Recorder Dimensions

Overall case dimensions for Models 202, 242, and 208:



Recorder Weights

202E / 202ER / 202N							
	Aluminum		Forged Steel		Forged SST		
Ind. Model	1000	2500	4500	6000	1000	3000	6000
Safe Working Pressure (psi)	47 (21)	68 (31)	69 (31)	71 (32)	59 (27)	69 (31)	71 (32)

The M242E or M25A gross weight is approx. 25 lbs (11 kg). For SST "S" versions, add 10 lbs (6 kg) to standard weights.

Mounting Options

- Panel
- Wall
- Pipe mount, slip-on, non-thread (1-1/2" or 2" std. pipe)
- Portable Stand, w/handle
- Wall Shock-Mounting Kit

Ordering

When ordering recorder, please specify the following items:

- Model Number
- Housing Pressure Rating (SWP) (DPU Models)
- Housing and Bellows Materials (DPU Models)
- Process Material Contacting Bellows (DPU Models)
- Differential Pressure Range (DPU Models)
- Pressure Elements (Range, Material)
- Pens (disposable)
- Chart Drive (type and rotation)
- Thermal Systems (range, capillary length, Class)
- Mounting (pipe, wall, flush panel, portable stand) or shock mount
- Charts



North America: 1.800.654.3760 nufflo@nufflo.com	Singapore: 65.6737.0444 singapore@nufflo.com	Bognor Regis, UK: 44.1243.826741 uk@nufflo.com
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