

+ BARTON 202E, 202N, 242E and J8A

Chart Recorders

Sensia's BARTON® chart recorders are the industry standard for accurate, reliable measurement and recording of pressure, differential pressure and temperature in a variety of applications. Differential pressure models, like the 202E and 202N, utilize the BARTON rupture-proof bellows DPU as the actuating unit, featuring over-range protection and pulsation dampening.

COMMON COMPONENTS

- + **Case** – The case is made of rugged, lightweight die-cast aluminum that features a built-in rainshield. It is finished in polyurethane electrostatic powder paint that has a high resistance to weathering, scratches, and industrial fumes. An aircraft-type door hinge (made of 302 SST) provides excellent resistance to salt spray and H₂S. The seal between the door and the case is made of neoprene, a material that is non-absorbant and resistant to oils and most solvents.
- + **Chart Drive** – Chart drives are available in battery and spring-wound versions with a wide variety of rotation speeds. All chart drives have a simple, positive chart lock hub and are interchangeable.
- + **NUFLO™ Charts** – The charts are made from wood-free paper – a special, low-shrinkage, high quality product that eliminates eccentric and elliptical errors. Charts are shrink-wrapped to help maintain the factory default size until the package is opened by the user. Once a box of charts is opened, it can be stored in the supplied, plastic, resealable storage bag.
- + **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. All adjustments have screwdriver slots to simplify calibration. Disposable pens are standard.

- + **Thermal Systems** – The systems consist of a bourdon tube, a capillary with stainless steel armor and a bulb with a bendable extension. All parts are stainless steel. Systems are available in Class I liquid fill with a 3/8" OD bulb. Temperature ranges for each design are listed below. A thermal system must have a span of more than 50° F (27° C) and the high temperature limit must be greater than 95° F (35° C).

- **Class IB** (liquid environmental fill – case compensated) 14° F to 300° F (-20° C to 150° C)
- **Class IA** (liquid hydrocarbon, fully compensated) – temperature range varies with fill material
 - Ethyl-benzene: -125° F to 350° F (-87° C to 177° C)
 - Consult factory for other fill materials and ranges
- **Class IB** (liquid hydrocarbon, case compensated) – temperature range varies with fill material
 - Ethyl-benzene: -125° F to 350° F (-87° C to 177° C)
 - Consult factory for other fill materials and ranges
- **Uncertainty** ± 1.0% of Full Scale
- **Hardware** Capillary standard length is 10'. Case compensated available up to 20'. Lengths longer than 20' feet must be fully compensated



Models 202E

- + **Pressure Elements** – Used in Models 202E, 242E, and J8A, genuine BARTON pressure elements are a precision wound helical-type, available in a variety of pressure ranges from 0 to 25 psi (1.72 bar), up to 0 to 30,000 psi (2,068 bar). The Model 202N uses a Monel K500 pressure element in ranges from 0 to 250 psi (17 bar), up to 0 to 6,000 psi (414 bar). Connections available in 1/4" NPT for ranges up to 10,000 psi (689 bar). Ranges greater than 10,000 psi (689 bar) utilize an Aminco 9/16–18 (1/4" ODT) female connection.
- **Uncertainty** ± 1.0% of Full Scale

MODELS 202E (DP)

The 202E is a 12" chart recorder, widely used in gas transmission and in production fields because of its high accuracy recording mechanism, even under extreme variations in flowing 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 pressure data.

The 202E is actuated by a BARTON Model 199 DPU. Standard materials available with working pressures up to 6,000 psi (414 bar SWP) – see DPU bulletin #NF00039 for details. Static pressure and temperature pens are actuated by precision wound elements (see page 1).

MODEL 202N (DP) (NACE)

The 202N is a 12" 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 (2009) and ISO 15156:2009.

Static pressure is measured by precision wound helical elements, constructed of Monel K500. Temperature systems are isolated from the process using NACE-compliant thermowells. All other features and benefits are the same as the 202E recorder.

The 202N is actuated by BARTON's M199 NACE DPU. The standard version has a SWP up to 2,000 psi (138 bar). For higher working pressures, see optional NACE versions of 202N.

Standard Service DPU Configurations

SWP (psi)		Materials of Construction				
Standard	CRN*	Bolts	Hsng & Center Plate	Bellows	Gasket	Torque Tube
1,000 psi	800 psi	B7	316 SS	316 SS	Nickel	BeCu
2,500 psi	1,500 psi	B7	C1018 CS	316 SS	Fiber	BeCu
3,000 psi	3,000 psi	E4140 CS	316 SS	316 SS	Nickel	BeCu
4,500 psi	3,500 psi	E4140 CS	E4142 CS	316 SS	Fiber	BeCu
6,000 psi	n/a	E4140 CS	E4142 CS	316 SS	Fiber	BeCu

Standard Service DPU Configurations

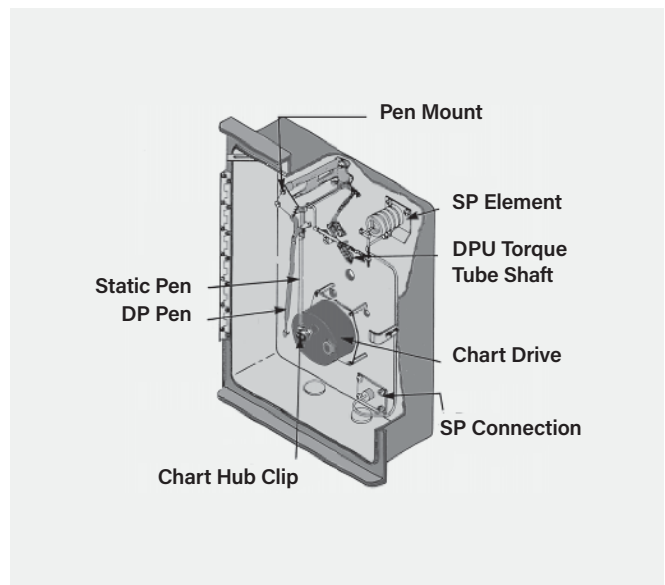
SWP (psi)		Materials of Construction				
Standard	CRN*	Bolts	Hsng & Center Plate	Bellows	Gasket	Torque Tube
1,000 psi	800 psi	LB7M	C1018 CS	316 SS	VITON	Monel
3,000 psi	2,000 psi	LB7M	316 SS	Inconel	TFE/SS	BeCu
CRN only	2,000 psi	LB7M	E4142 CS	316 SS	TFE/SS	Monel
4,500 psi	2,000 psi	LB7M	E4142 CS	Inconel	TFE/SS	BeCu

Specifications

Safe Working Pressure	up to 6,000 psi (414 bar)
DP Ranges	Minimum span of 0-10" WC (0-25 mbar) Maximum span of 0-100 PSID (0-6.9 bar)
Uncertainty	± 0.5% Full Scale
Ambient Temperature Limits	-40° F to 180° F (-40° C to 82° C)

202E / 202N Chart Recorder Weights

DPU Material	Forged Steel			Forged SST	
	2,500	4,500	6,000	1,000	3,000
DPU SWP					
Weight in lbs (kgs)	68 (31)	69 (31)	71 (32)	59 (27)	69 (31)



MODEL 242E (TEMPERATURE/PRESSURE)

The 242E is a 12" chart recorder with pressure and/or temperature elements. Configurations can be any combination of pressure and temperature elements, up to 4 pens.

Specifications

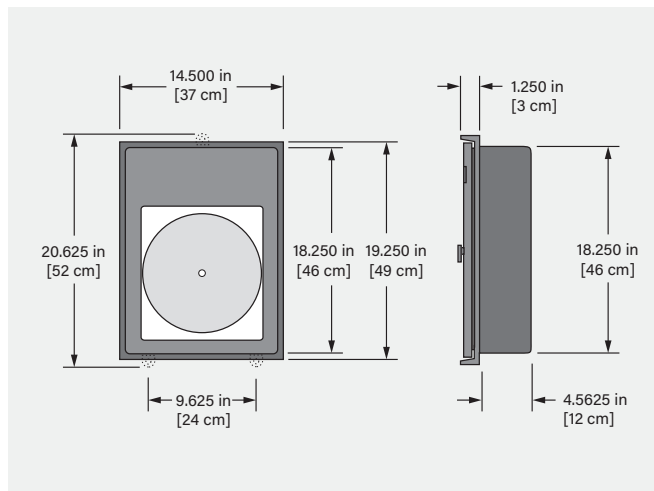
Pressure Element Range	Minimum span of 0-25 psig (0-1.72 bar) Maximum span of 0-30,000 psig (0-2068 bar)
Uncertainty	± 1.0% Full Scale
Ambient Temperature Limits	-40° F to 180° F (-40° C to 82° C)

MODEL J8A (TEMPERATURE/PRESSURE)

The J8A is a compact 8" chart recorder designed to record pressure and/or temperature. 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** – Pressure and Temperature Elements – Same as those supplied with 12" recorders
- + **Case** – A smaller version of the 242E, the J8A has a thick and rugged case, with a closed cell neoprene gasket. The standard door comes with an 8" square piece of glass, Plexiglas (Lexan), or 16-gauge steel plate for solid door applications
- + **Overall dimensions of standard unit** – 10.5" wide x 13.75" tall x 4 5/8" deep

Recorder Dimensions for Models 202 and 242



242E / J8A Chart Recorder Weights

Weight in lbs (kgs)	242E	J8A
	35 (16)	25 (11)



Model J8A and Model 202N

ORDERING INFORMATION

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 or shock mount)
- + Charts

MOUNTING OPTIONS

- + Panel
- + Wall
- + Pipe mount, slip-on, non-thread (1-1/2" or 2" std. pipe)
- + Portable stand, with handle
- + Wall shock-mounting kit