


TWO-WIRE, PROCESS-LOOP INDICATOR IN NEMA-4X HOUSING



NEWPORT PRODUCT INFO

- [MANUAL](#) 
- [MECHANICAL](#)
- [PRICE](#)

 REQUIRES ADOBE ACROBAT - [HELP](#)

STANDARD FEATURES

- ✓ FM Intrinsic Safety Certification
- ✓ Powered by 1-5, 4-20 or 10-50 mA Signal
- ✓ 2.5 V Max Voltage Drop
- ✓ 0.35 in (8.9 mm) Liquid Crystal Display
- ✓ 2,000-Count Zero Suppression or Elevation
- ✓ 100 to 2,000 Count Span Adjust
- ✓ Selectable Dummy Right-Hand Zero
- ✓ -40°C to +85°C Operation
- ✓ Compact, 2.9 in Diameter Die-Cast Housing
- ✓ Waterproof to 35 kPa (5 psi)
- ✓ Shock Resistant to 55 g



OPTIONS

- ✓ 1/2 EMT Conduit Fitting
- ✓ 1/2 NPT Pipe Fitting
- ✓ Relay-Track Mounting Adapters
- ✓ External Explosion-Proof Housing
- ✓ Companion Current Transmitters

DESCRIPTION

Model 508B is a two-wire current-loop indicator that is powered directly by a 1-5 mA, 4-20 mA or 10-50 mA process loop signal, with a maximum voltage drop of 2.5 V. No separate power supply connections are required. This reduces overall hardware and field wiring costs and provides immunity from most electrical noise encountered in process control environments. The electronics are isolated from the case.

READOUT OF PROCESS VARIABLES

The 508B provides extensive zero and span adjustment capability, so that it can read out directly in percent or in engineering units for process variables such as pressure, flow, temperature, or level. Its liquid crystal display provides 3 1/2 active digits, a selectable dummy right-hand zero, and four programmable decimal points. By changing two internal jumpers, the normal positive slope response of the 508B can be reversed, so that increasing the input decreases the reading.

EASY TO CONFIGURE AND CALIBRATE

Both span and zero are fine-tuned with precision multiturn potentiometers. These are accessible through holes in the die-cast cover, which are normally sealed with fluorosilicone plugs. Coarse zero and span steps are selected by

removing the cover with attached electronics and changing plug-in jumpers.

DESIGNED FOR HARSH ENVIRONMENTS

All versions of the 508B are rated for operation from -40 to $+85^{\circ}\text{C}$ (-40 to $+185^{\circ}\text{F}$) with specified accuracy. The case is made of die-cast metal and is waterproof to 35 kPa (5 psi). The electronics are firmly connected to the case top, so that the meter can withstand high vibration and shock. Mounting options include a male 1/2 EMT conduit fitting and a male 1/2 NPT pipe fitting in lieu of the normal rail or surface mount. These fittings eliminate the external screw terminals and provide a NEMA-4X rating.

INTRINSIC SAFETY CERTIFICATION

FM intrinsic safety certification is standard. Intrinsic safety certification allows the 508B to be used in worst-case hazardous environments with no need for an explosion-proof housing, provided that an intrinsic safety barrier is used to limit the voltage and current that may be introduced in the hazardous environment.

FM certification (USA) is for Class I, II, III, Division 1, Groups A, B, C, D, E, F, G. The FM certification number is **2P1A7.AX (3610:2010)**.

EXPLOSION-PROOF HOUSING OPTIONS

Two external NEMA-7 explosion-proof and NEMA-4 waterproof, sand-cast, copper-free aluminum enclosures with corrosion resistance "safety-blue" polyester powder-coating for use in hazardous locations.

FM, UL, cUL Certification: Class I, Groups B, C, D; Class II, Groups E, F, G; and Class III, Type 4X.

Demko/ATEX Certification: Ex II 2 G D EEx d IIC

Option EPW3-ATEX is a single-height enclosure for one 508B loop-powered indicator.

Option EPW2-ATEX is a double-height enclosure for a 508B loop-powered indicator on top and a 500 Series isolated two-wire 4-20 mA transmitter on the bottom for indicating transmitter applications. Available with two female 1/2 NPT pipe fittings, all required internal mounting hardware, and mounting flanges for a wall or bulkhead.

SPECIFICATIONS

INPUT

Signal: 1-5 mA, 4-20 mA or 10-50 mA (jumper-selectable)

Linear Range: 0.3 to 50 mA

Protection: Up to 200 mA forward, 1000 mA reverse

Forward voltage drop, max: 2.5 V up to 50 mA

Input Resistance: 50 ohm at 1-5 mA, 12.5 ohm at 4-20 mA, 5 ohm at 10-50 mA

Zero Adjust: $-2,000$ to $+2,000$ counts (4 jumper-selectable ranges plus fine adjustment)

Span Adjust: 0 to 2,000 counts with fine adjustment

NMR: 46 dB, 50/60 Hz

CMR: (meter to case) 120 dB, DC to 60 Hz

CMV: (meter to case) 700 Vp

RFI Susceptibility: Less than $\pm 0.5\%$ of span with conduit fitting or external explosion-proof housing in 10V/m field strength at 27 or 440 MHz

ACCURACY AT 25°C

Maximum Error: 0.1% of span ± 1 count 00 Zero tempco ± 0.1 count/ $^{\circ}\text{C}$ typical, ± 0.2 count/ $^{\circ}\text{C}$ max

Span Tempco: $\pm 0.005\%$ of span/ $^{\circ}\text{C}$ typical, $\pm 0.015\%$ of span/ $^{\circ}\text{C}$ max

ANALOG-TO-DIGITAL CONVERSION

Technique: Dual-slope, average-value

Polarity: Automatic

Integration Period: 100 msec

Read Rate: 2.5/sec

DISPLAY

Type: 7-segment, LED

Height: 0.35" (8.9 mm)

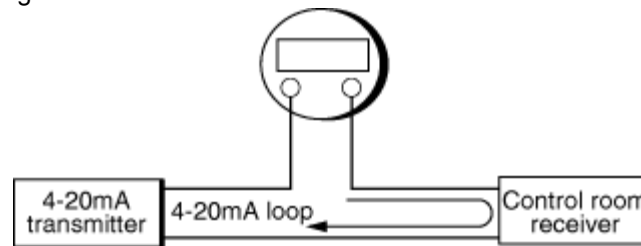
Symbols: $-1.8.8.8.0$ (3 1/2 active digits plus one jumper-selectable dummy right-hand zero)

Decimal Points: Four positions, jumper-selectable

Overrange Indication: Three least-significant active digits blank

ENVIRONMENTAL**Operating Temperature:** -40 to +85°C (-40 to +185°F)**Vibration:** 0.06" (1.52 mm) double-amplitude cycled at 10-80 Hz**Shock:** 55 g half-sine, 9-13 ms duration**Waterproof Pressure:** 35 kPa max (5 psi)**MECHANICAL****Diameter:** 2.9" (74 mm)**Height, Including Barrier:** 1.9" (48 mm)**Weight:** 14oz (400 g)**ELECTRICAL CONNECTIONS****508B-1:** 3-terminal barrier strip with #6 screws**508B-2:** 1/2" EMT male conduit fitting with two 0.3 meter #18 stranded wires**508B-3:** 1/2" NPT male pipe fitting with two 0.3 meter #18 stranded wires**MOUNTING METHODS****508B-1:**

- Surface mount with four #6 rear-entry screws from backside of bulkhead.
- Snap mount into 2.50" (63.5 mm) relay track.
- Surface mount with two #8 front-entry screws. Requires MAT1 adapter plate.
- Snap mount into 2.75" (69.9 mm) or 3.00 in (76.2 mm) relay track. Requires MAT1 adapter plate.
- Snap mount into DIN relay track. Requires MDT1 rail clamp.
- Push mount into explosion proof-housing EPW3-ATEX.

508B-2: 1/2" EMT male conduit fitting**508B-3:** 1/2" NPT male pipe fitting

A Model **508B** process-loop indicator may be added to an existing 4-20 mA or 10-50 mA installation. No additional wiring is required, since the meter is powered directly by the current loop.

Product Selection (Specify Model Number)		
Part Number	Description	Qty.
508B-1	Two-wire current-loop indicator for mounting to flat surface or relay track. Connection via screw-terminal barrier strip (TB)	
508B-2	Two-wire current-loop indicator for mounting to EMT conduit. Connection via two 0.3 meter long #18 wires; 1/2-inch EMT male pipe fitting	
508B-3	Two-wire current-loop indicator for for mounting to NPT pipe. Connection via two 0.3 meter long #18 wires; 1/2-inch NPT male pipe fitting Connection via two 0.3 meter long #18 wires; 1/2-inch EMT male pipe fitting	

Same as above except computes square root of the input and displays the process variable in either percent or in engineering units

509-1	Two-wire current-loop indicator for mounting to flat surface or relay track. Connection via screw-terminal barrier strip (TB) with square root computation and display of process variable in engineering units.
509-2	Two-wire current-loop indicator for mounting to EMT conduit. Connection via two 0.3 meter long #18 wires; 1/2-inch EMT male pipe fitting with square root computation and display of process variable in engineering units.
509-3	Two-wire current-loop indicator for mounting to NPT pipe. Connection via two 0.3 meter long #18 wires; 1/2-inch NPT male pipe fitting Connection via two 0.3 meter long #18 wires; 1/2-inch EMT male pipe fitting with square root computation and display of process variable in engineering units.

Accessories

LB1	Loop break connector adapter provides continuity when device is removed from loop (508B-1 only)
MXS1	Spring retainers for 508B-1 or 509-1 in explosion-proof housing EPW1 and EPW1-ATEX or EPW3 and EPW3-ATEX.
MXS2	Spring retainers for 508B-1 or 509-1 in explosion-proof housing EPW2 and EPW2-ATEX.
EPW2-ATEX	NEMA-7 and NEMA-4 rated double-height environmental enclosure, with window for 500 Series transmitter on bottom and one 508BA loop-powered indicator on top. Includes MXS1 and MXS2 spring retainers (supplied with Demko/ATEX certificate).
EPW3-ATEX	NEMA-7 and NEMA-4 rated single-height environmental enclosure, with window for 508BA loop-powered indicator. Includes MXS1 spring retainers (supplied with Demko/ATEX certificate).

