

# Two-Wire, Process-Loop Indicator in NEMA-4X Housing

MANUFACTURED BY  
**NEWPORT**  
As seen at [www.newportUS.com](http://www.newportUS.com)

TX83A

£**267**  
Basic Unit



**Factory Mutual System**  
Approved

**BASEEFA CENELEC**  
Ex 85B2167



- ✓ FM, CSA, BASEEFA Intrinsic Safety Certification
- ✓ Powered by 1 to 5, 4 to 20 or 10 to 50 mA Signal
- ✓ 2.5 V Max Voltage Drop
- ✓ 8.9 mm (0.35 in) LCD
- ✓ 2,000-Count Zero Suppression or Elevation
- ✓ 100 to 2,000 Count Span Adjust
- ✓ Selectable Dummy Right-Hand Zero
- ✓ -40 to 85°C Operation
- ✓ Compact, 74 mm (2.9") Diameter Die-Cast Housing
- ✓ Waterproof to 35 kPa (5 psi)
- ✓ Shock Resistant to 55 g
- Options**
- ✓ CENELEC Intrinsic Safety Certification, FM, CSA
- ✓ ½ EMT Conduit Fitting
- ✓ ½ NPT Pipe Fitting
- ✓ Relay-Track Mounting Adapters
- ✓ External Explosion-Proof Housing
- ✓ Companion Current Transmitters

Model TX83A 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 TX83A 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 3½ 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 TX83A 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 multi-turn 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 TX83A are rated for operation from -40 to 85°C (-40 to 185°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 ½ EMT conduit fitting and a male ½ NPT pipe fitting in lieu of the normal rail or surface mount. These fittings eliminate the external screw terminals and provide an IP65 rating.

#### Intrinsic Safety Certification

FM and CSA intrinsic safety certification is standard. Additional CENELEC intrinsic safety certification is optional. Intrinsic safety certification allows the TX83A 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).

CENELEC certification (Europe) is to level EEx ia IIC T4 in accordance with CENELEC standards EN 50 014 (1977) + A1 to 4 and EN 50 020 (1977) for use in Zone 0 (worst case) hazardous environments. The BASEEFA certification number is Ex 85B2167.



**Explosion-proof Housing Options**  
 Three external NEMA-7 explosion-proof and IP65 waterproof enclosures are available as options for use in hazardous locations in Class I, Groups B, C, D; and Class II, Groups E, F, G. All offer a glass viewing window, two female 1/2 NPT pipe fittings, all required internal mounting hardware, and mounting flanges for a wall or bulkhead. Option EPW3 is a single-height enclosure for one TX83A loop-powered indicator. FM and CENELEC EEx d II C certification is standard. Option EPW2 is a double-height enclosure for a TX83A loop-powered indicator on top and a TX1500 Series isolated two-wire 4-20 mA transmitter on the bottom for indicating transmitter applications. FM and CENELEC EEx d II C certification.

**Specifications**

**Input**

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

**Linear Range:** 0.3 to 50 mA

**Protection:** 200 mA forward, 1000 mA reverse

**Forward Voltage Drop, Max:** 2.5 V up to 50 mA

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

**Zero Adjust:** -2000 to 2000 counts (4 jumper-selectable ranges plus fine adjustment)

**Span Adjust:** 0 to 2000 counts (with fine adjustment)

**NMR:** 46 dB, 50/60 Hz

**CMR, Meter to Case:**

120 dB, DC to 60 Hz  
 700 Vp

**RFI Susceptibility:** Less than ±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/°C typical, ±0.2 count/°C max

**Span Tempco:** ±0.005% of span/°C

typical, ±0.015% of span/°C max

**Analogue-to-Digital Conversion**

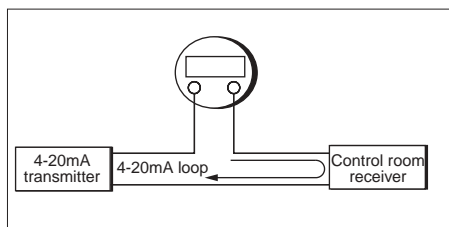
**Technique:** Dual-slope, average-value

**Polarity:** Automatic

**Integration Period:** 100 ms

**Read Rate:** 2.5/s

A Model TX83A process-loop indicator may be added to an existing 4 to 20 mA or 10 to 50 mA installation. No additional wiring is required, since the meter is powered directly by the current loop.



**Display**

**Type:** 7-segment LCD

**Height:** 8.9 mm (0.35")

**Symbols:** -1.8.8.8.0 (3½ active digits plus jumper-selectable dummy right-hand zero)

**Decimal Points:** Four positions, jumper-selectable

**Overrange:** Three least-significant active digits blank

**Environmental**

**Operating Temperature:**

-40 to 85°C (-40 to 185°F)

**Vibration:** 1.52 mm (0.06")

double-amplitude cycled at 10-80 Hz

**Shock:** 55 g half-sine, 9-13 ms duration

**Waterproof Pressure:**

35 kPa max (5 psi)

**Mechanical**

**Weight:** 400 g (14 oz)

**Diameter:** 74 mm (2.9")

**Height, Including Barrier:** 48 mm (1.9")

**Electrical Connections:**

TX84: 3-terminal barrier strip with #6 screws

TX84-2: ½" EMT male conduit fitting with two 0.3 meter #18 stranded wires  
 TX83A: ½" NPT male pipe fitting with two 0.3 meter #18 stranded wires

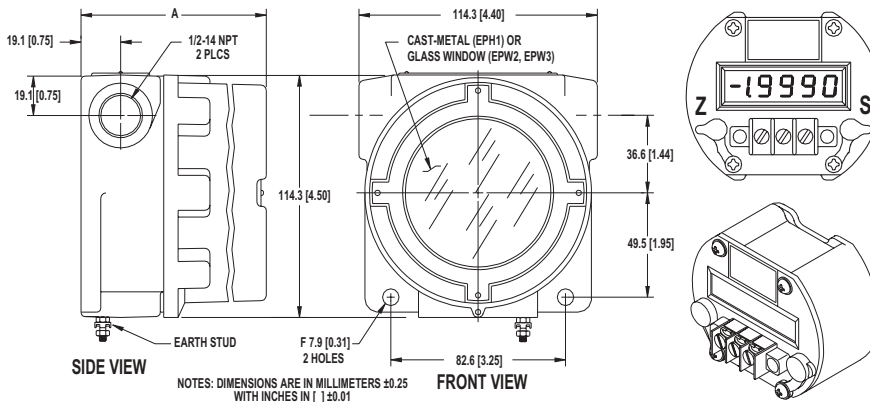
**Mounting Methods**

**TX83A:** • Surface mount with four #6 rear-entry screws from backside of bulkhead.

- Snap mount into 63.5 mm (2.50") relay track.
- Surface mount with two #8 front-entry screws. Requires MAT1 adapter plate.
- Snap mount into 69.9 mm (2.75") or 76.2 mm (3.00") relay track. Requires MAT1 adapter plate.
- Snap mount into DIN relay track per CENELEC standard EN 50 022. Requires MDT1 rail clamp.
- Push mount into explosion proof housing EPW3.

**TX84-2** • ½" EMT male conduit fitting

**TX84** • ½" NPT male pipe fitting



**To Order (Specify Model No.)**

Model No.	Price	Configuration
TX83A	£267	Flat surface or relay track mounting
TX84-2	283	EMT conduit mounting
TX84	283	NPT pipe mounting

**Mounting Options (TX83A only)**

Order Suffix	Add'l. Price	Description
-MAT1	£8.20	Adaptor plate for surface mount or 69.9 mm relay track
-MDT1	8.20	Rail clamp for DIN relay track

**Options**

Order Suffix	Add'l. Price	Description
-FS	£20.50	Custom configuration and calibration
-IS1	24.50	CENELEC EEx ia certification label

**Accessories**

Model No.	Price	Description
MXS1	£9.80	Spring retainers for TX83A in explosion proof housing EPW3
MXS2	9.80	Spring retainers for TX83A in explosion proof housing EPW2
EPW3	94.00	IP65 and NEMA 7 rated environmental enclosure with window, single height; includes MXS1 hardware
EPW2	111.00	IP65 and NEMA 7 rated environmental enclosure with window, double height for TX83A and TX500 series transmitter; includes MXS1 and MXS2 hardware

Comes with complete operator's manual.

**Ordering Examples:** TX83A current loop indicator with flat surface or relay track mounting, £267. TX84 current loop indicator with NPT pipe mounting, £283.