Technology Solutions

*T*EK-*L*CD 7802B

Explosion-Proof Loop-Powered Flow Rate/Totalizer Indicator
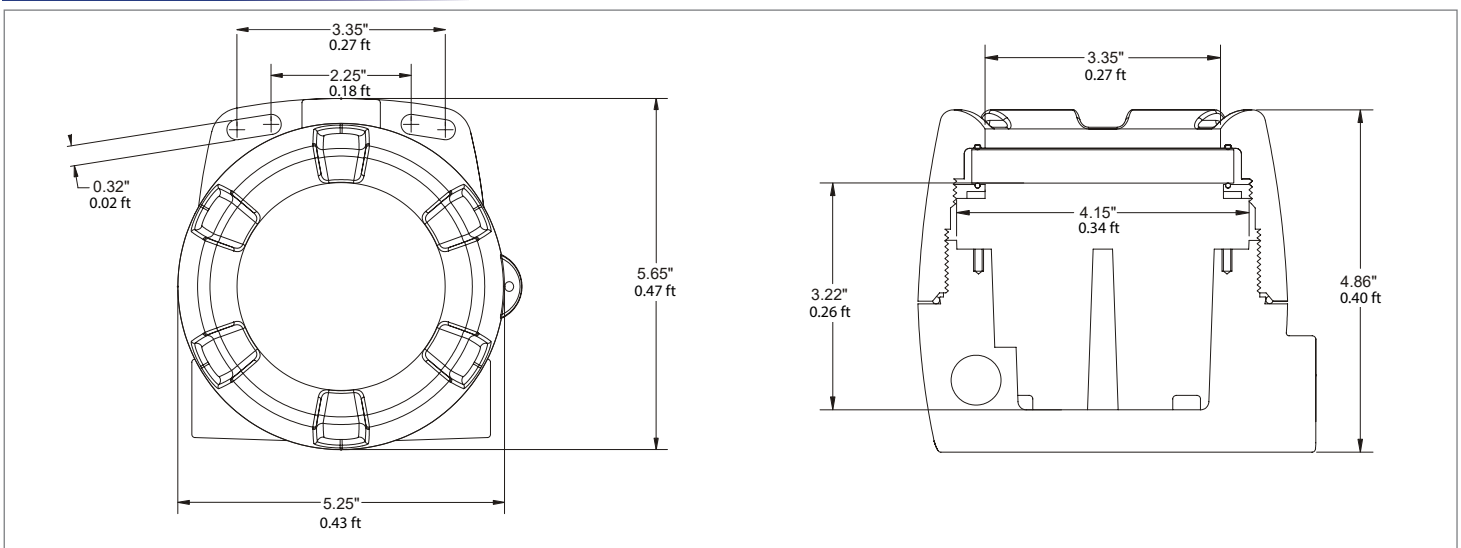
ACCESSORIES

Introduction

The Tek-LCD 7802B Explosion-Proof Loop-Powered Flow Rate/Totalizer Indicator

The Tek-LCD 7802B is an explosion-proof, loop-powered flow rate/totalizer that can display flow rate and total from an analog output (4-20 mA) flowmeter. The fact that this meter is loop-powered means that there is no need to run additional, costly power lines into a hazardous area. The display has a five digit upper display for rate, a seven alpha-numeric character lower display for total, and comes standard with a backlight. The Tek-LCD 7802B explosion-proof flow rate/totalizer carries FM, CSA, ATEX, and IECEx approvals for use in hazardous areas. Two features that really make this flow rate/totalizer stand out are a wide viewing angle display and SafeTouch® through-glass buttons. These buttons allow the Tek-LCD 7802B to be programmed and operated through the glass, thus eliminating the need to remove the cover in a hazardous area.

Features

- 4-20 mA Input Loop-Powered
- 5-Digit, 0.7" (0.05 ft) Upper Display
- 7 Alphanumeric Character, 0.4" (0.03 ft) Lower Display
- Loop or External DC-Powered Backlight Standard
- Password Protection
- SafeTouch® Through-Glass Button Programming
- 3.0 V Drop without Backlight
- Flanges for Wall or Pipe Mounting
- Explosion-Proof, IP68, NEMA 4X Enclosure
- Linear, Square Root, or Programmable Exponent
- Rate in Second, Minute, Hour, or Day
- Open Collector Pulse or Alarm Output
- Operates from -40°F to 158°F (-40°C to 75°C)

Dimensional Drawings

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Specifications

General

Display	Upper: Five digits (-9,999 to 99,999) 0.70" (0.05 ft) high, 7-segment, automatic lead zero blanking. Lower: Seven characters 0.4" (0.03 ft) high, 14 segment alphanumeric. Symbols: for high and low alarm, password lock. Backlight: white
Display Orientation	Display may be mounted at 90° increments up to 270° from default orientation.
Display Update Rate	Ambient > 77°F: 2 Updates/Second Ambient < 77°F: 1 Update/5 Seconds
Over Range	Display flashes 99,999
Under Range	Display flashes -9,999
Programming Method	Four SafeTouch® through-glass buttons when cover is installed. Four internal pushbuttons when cover is removed.
Noise Filter	Programmable low (LO), medium (MED), high (HI), or off (OFF)
Recalibration	Recalibration is recommended at least every 12 months.
Max/Min Display	Max/Min readings reached by the process are stored until reset by the user or until power to the meter is turned off.
Advanced Functions	Live input calibration, linearization, square root, or programmable exponent.
Password	Programmable password restricts modification of settings.
Non-Volatile Memory	All programmed settings are stored in non-volatile memory for a minimum of ten years if power is lost.
Normal Mode Rejection	64 dB at 50/60 Hz
Operating Temperature Range	-40°F to 158°F (-40 °C to 75 °C)
Storage Temperature Range	-40°F to 158°F (-40 °C to 75 °C)
Relative Humidity	0 to 90% non-condensing
Connections	Screw terminals accept 12 to 22 AWG wire
Enclosure	Explosion-proof die-cast aluminum with glass window, corrosion resistant epoxy coating, color: blue. NEMA 4X IP68. Copper-free (0.3%). Two ¾" NPT threaded conduit openings. One ¾" NPT metal conduit plug with 0.03 ft hex key fitting installed.
Mounting	May be mounted directly to conduit. Two slotted flanges for wall mounting or NPS 1½" to 2½" or DN 0.13 to 0.21 ft pipe mounting.
Overall Dimensions	5.65" x 5.25" x 4.86" (W x H x D) (0.47 ft x 0.43 ft x 0.40 ft)
Weight	5.00 lbs (80 oz, 2.27 kg)

Input

Input Range	4 to 20 mA
Accuracy	±0.03% of calibrated span ±1 count, square root & programmable exponent accuracy range: 10-100% of calibrated span.
Temperature Drift	252 PPM/°F
Decimal Point	User selectable decimal point
Calibration Range	An error message will appear if input 1 and input 2 signals are too close together. Input Range: 4-20 mA. Minimum Span Input 1 and Input 2: 0.10 mA
Maximum Voltage Drop	3.0 VDC @ 20 mA without loop-powered backlight. 6.0 VDC @ 20 mA with loop-powered backlight
Equivalent Resistance	150 Ω @ 20 mA without loop-powered backlight. 300 Ω @ 20 mA with loop-powered backlight
Input Overload	Over current protection to 2 A max.
HART Transparency	Analog input will not interfere with existing HART communications on the wired 4-20 mA signal

Open Collector Output

Rating	Isolated open collector, 30 VDC @ 150 mA max.
Alarm Output	Assign as rate alarm or total alarm trip point
Deadband	0-100% FS, user selectable
Acknowledge	Front panel ACK button resets output and screen indication.
Pulse Output K-Factor	K-factor programmable from 0.0001 to 99999.
Pulse Output Frequency	2, 4, 8, 16, 32, 64, 128 Hz. Minimum pulse width: 3.9 ms @ 128 Hz. Maximum pulse width: 250 ms @ 2 Hz. Factory default pulse width: 31 ms @ 16 Hz

Rate/Totalizer

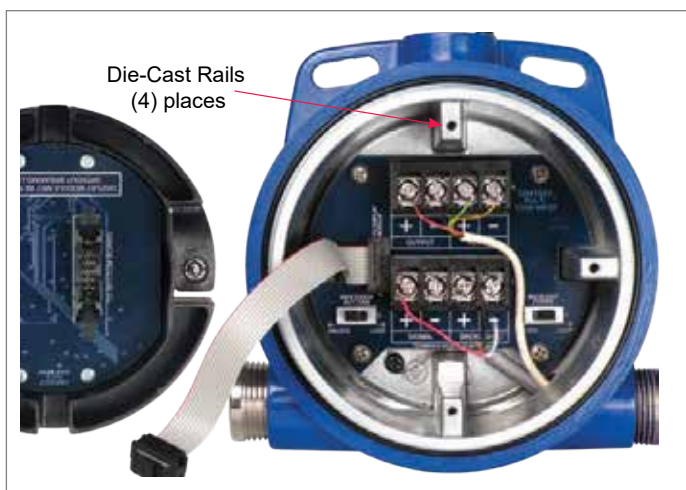| Rate Display	0 to 99,999 leading zero blanking
Total Display	0 to 9,999,999 leading zero blanking
Total Decimal Point	Up to six decimal places or none: d.dddddd, d.ddddd, d.dddd d.ddd, d.dd, d.d, or ddddddd
Lower Display Configuration	Can be programmed to display total, tag name/engineering units, or to alternate between them.
Totalizer	Calculates total based on rate, time base of second, minute, hour, or day, and field programmable multiplier; stored in non-volatile memory upon power loss.
Totalizer Reset	Via front panel SafeTouch® button, time delay, external contact closure, or protected
Total Conversion Factor	0.000001 to 9,999,999
Totalizer Rollover	Display rolls over when display exceeds 9,999,999. Relay status reflects the displayed value.
Total Reset Delay	Programmable from 0 to 99,999 seconds

Product Ratings and Approvals

FM	Explosion-proof for use in Class I, Division 1, Groups B, C, D. Class II, Division 1, Groups E, F, G. Class III, Division 1; T6. Class I, Zone 1, AEx d IIC T6 Gb. Zone 21, AEx tb IIIC T185°F. Ta = -40°F to 158°F (-40 °C to 75 °C) . Enclosure: Type 4X & IP66. Certificate number: 3040391
ATEX	II 2 G D. Ex d IIC T6 Gb. Ex tb IIIC T185°F Db IP68. Ta = -40°F to 158°F (-40 °C to 75 °C). Certificate number: Sira 10ATEX1116X
CSA	Class I, Division 1, Groups B, C, D. Class II, Division 1, Groups E, F, G. Class III, Division 1; T6. Class I, Zone 1, Ex d IIC T6. Ta = -40°F to 158°F (-40 °C to 75 °C). Enclosure: Type 4X & IP66. Certificate number: 11 2325749
IECEx	Ex d IIC T6 Gb. Ex tb IIIC T185°F Db IP68. Ta = -40°F to 158°F (-40 °C to 75 °C) Certificate number: IECEx SIR 10.0056X.

Installation
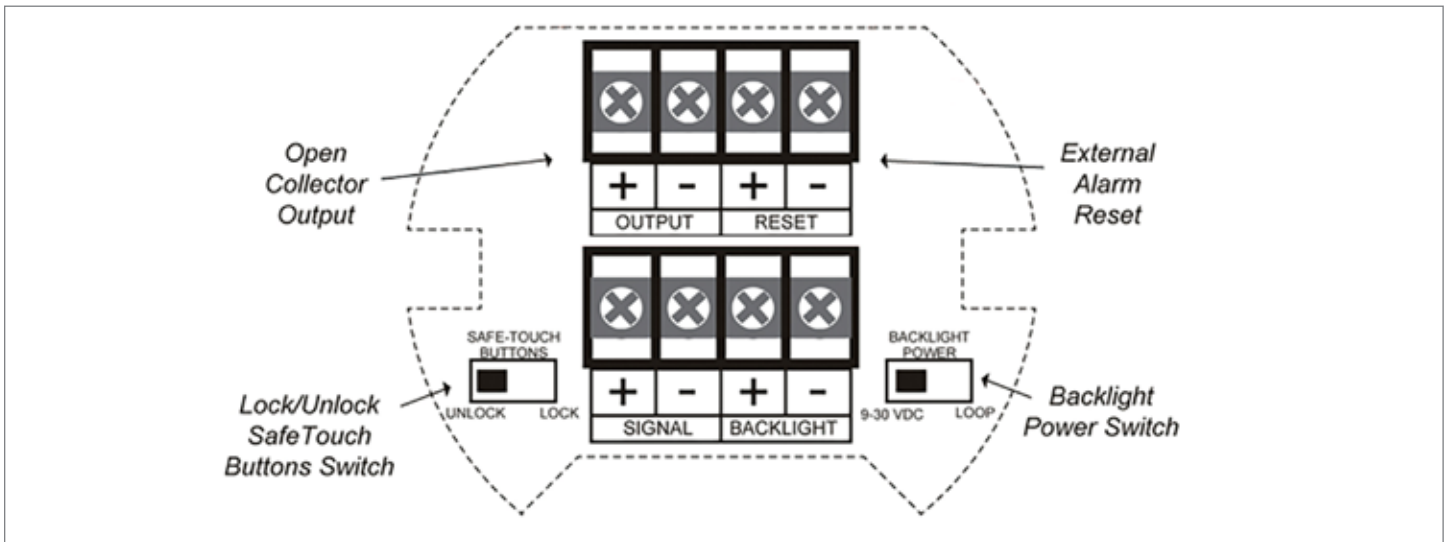
Installation Flexibility

- The Tek-Lcd 7802B rotatable display/meter module along with two available conduit connections provide for numerous installation options. The display can be rotated in 90° increments. Rotate it 90° for horizontal mounting. Wiring can then be routed to either the top conduit connection, or from below to the opposite conduit connection (metal conduit plug supplied). Use both conduit connections for through-wiring in any plane.

Die-Cast Rails (4) places

Easy Wiring and Service

- Unscrew the two captured thumb screws and unplug a connecting cable and the display/meter module is simply and completely removed. A heavy duty terminal block is then easily accessed and wired. It is clearly marked to prevent wiring errors. The display/meter module can be removed without breaking the loop. As such, it can be serviced without the need to uninstall the entire product.

Connections

Popular Models

Model Number	Description
7802B-0K1	Explosion-Proof Loop-Powered Flow Rate/Totalizer

Accessories

Model Number	Description
7800A-6846	Steel Pipe Mounting Kit
7800A-6846SS	Stainless Steel Pipe Mounting Kit
7800B-002	¾" M-NPT to ½" F-NPT Approved Reducer

Customer Service and Support

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