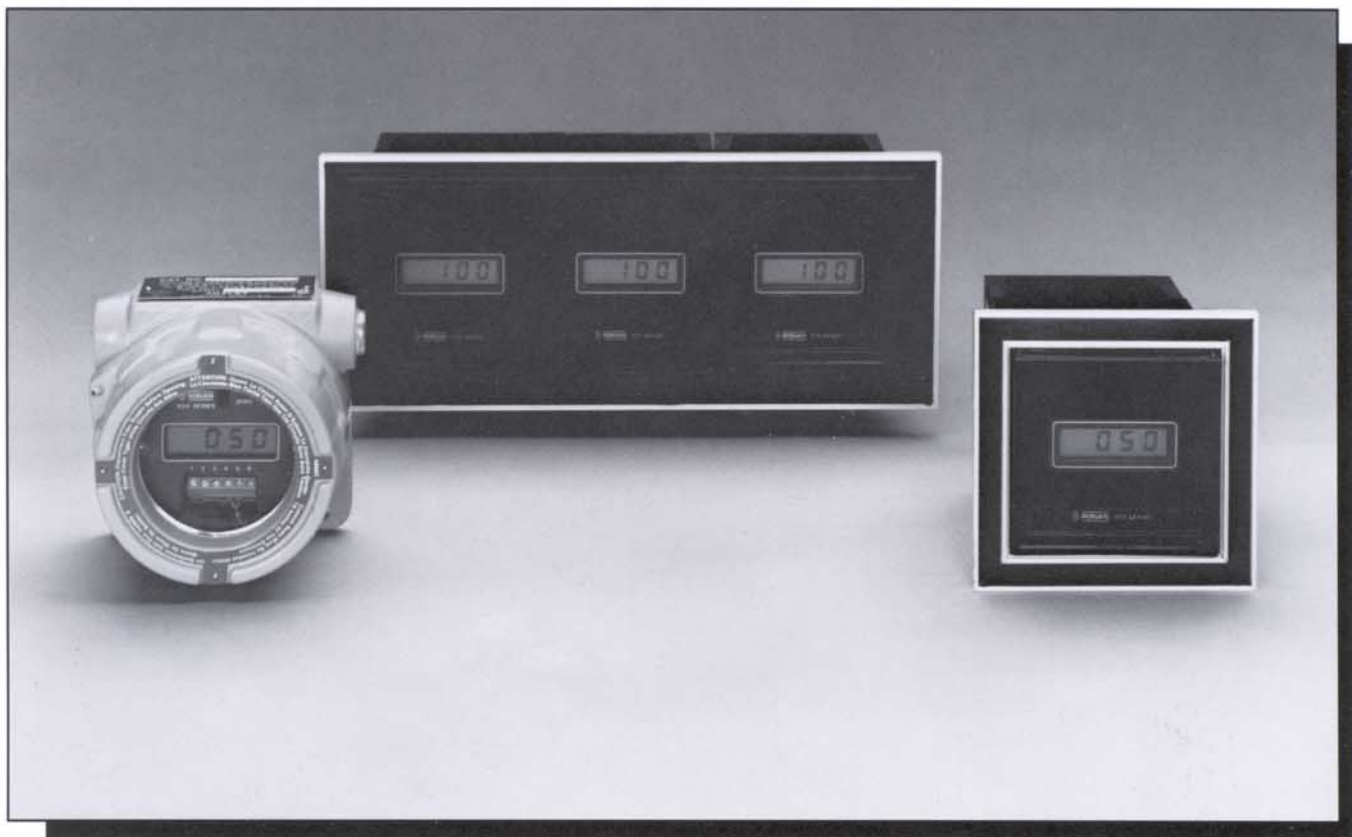


Loop-Powered Indicators



FEATURES

- *3-1/2 or 4-1/2 digits.*
- *Linear or square root extracting.*
- *General purpose, weatherproof, explosion-proof, or IS Rated.*
- *Rescalable in the field.*
- *4-20 mA or 10-50 mA loop compatibility.*
- *Low loop voltage drops.*
- *Multi-unit and hybrid configurations.*

Ronan's Series X54-200 is an industrial grade family of Loop-Powered Indicators. These units can be used for local indication in hazardous or harsh environments as well as in control room applications. Some common applications include:

1. Providing local indications for 4-20 mA based process signals from blind transmitters.
2. Linearizing and displaying flow rates for differential pressure flow meters or similar systems.
3. Continuously displaying any process variable at remote locations or in the control room.

DESCRIPTION

Models X54-200/X54-202

The X54-200 and X54-202 Series utilize state of the art circuitry. Power consumption is less than 16 mW, with loop voltage drops of less than 4.5 Vdc for the X54-200 and 5.5 Vdc for the X54-202. These units are available with Linear or Square Root extracting display of the input current signal. The actual digital display range is factory set to the customer's required units of measurement. Range changes are accomplished in the field by ordering "RESCALING" kits from Ronan. Available housings include NEMA Type 7 and 4 rated, explosion-proof or general purpose panel mount units for control room applications. The panel mount version can also be combined with Ronan Annunciators, Lamp Cabinets and Process Monitors in hybrid configurations.

Model X54-201

The X54-201 utilizes low power circuitry, similar to the X54-200 and X54-202, but will drop less than 1 Vdc in the current loop. These units can be factory calibrated to the customer's specifications or **field scaled** by the customer. Linear or Square Root extracting displays, zero, full scale and decimal point location are all field set with internal jumpers, switches and potentiometers. Available housings include NEMA type 7 and 4 rated, explosion-proof or general purpose panel mount units for control room applications. The panel mount version can also be combined with Ronan Annunciators, Lamp Cabinets and Process Monitors in hybrid configurations.

SPECIFICATIONS

Models X54-200/X54-202

Inputs: 4-20 or 10-50 mA

Input Protection:

Reverse polarity diode and 50 mA fuse (4-20 mA input); 100 mA fuse (10-50 mA input)

Display:

X54-200: 3-1/2 digit LCD

X54-202: 4-1/2 digit LCD

Display Size: .35" liquid crystal

Zero Selection:

X54-200: -1999 to 1899 digits

X54-202: -19999 to 19899 digits

Span Selection:

X54-200: 100 to 3898 digits

X54-202: 100 to 39898 digits

Decimal Point:

X54-200: none to 00.00

X54-202: none to 0.0000

Accuracy:

Linear = $\pm 0.1\%$ of span ± 1 digit

Square Root = $\pm 0.3\%$ of span

Operating Temperature: -20 to 175°F (-29 to 79°C)

Storage Temperature: -67 to 175°F (-55 to 79°C)

Temperature Coefficient: (-10 to 60°C)

ZERO: $\pm 0.01\%$ of span/°C

$\pm 0.01\%$ of elevated zero value/°C

SPAN: $\pm 0.015\%$ of span/°C

Voltage Drop: X54-200: <4.5 V; X54-202: <5.5 V

Weight: <3 lbs. (-EXP); <1 lb. (-PM)

Approvals*:

Factory Mutual or CSA

Explosion-proof: Class I - II, Division 1, Groups B - G

Non-incendive: Class I - II, Division 2, Groups A - G

Intrinsic Safety: Class I - III, Division 1, Groups A - G

Model X54-201

Inputs: 4-20 mA

Input Protection: Reverse polarity diode

Display: 3-1/2 digit LCD

Display Size: .35" liquid crystal

Zero Selection: -360 to +1300 digits

Span Selection: 100 to 1999 digits

Decimal Point: None to 0.000

Accuracy:

Linear = $\pm 0.1\%$ of span ± 1 digit

Square Root = $\pm 0.3\%$ of span

Operating Temperature: -20 to +140°F
(-30 to +60°C)

Temperature Coefficient: (-10 to +60°C)

ZERO: $\pm 0.01\%$ of span/°C

$\pm 0.01\%$ of elevated zero value/°C

SPAN: $\pm 0.015\%$ of span/°C

Voltage Drop: <1.0 V

Weight: <3 lbs. (-EXP2); <1 lb. (-PM2)

Approvals*:

Factory Mutual or CSA

Explosion-proof: Class I - III, Division 1, Groups B - G

Non-incendive: Class I - II, Division 2, Groups A - G

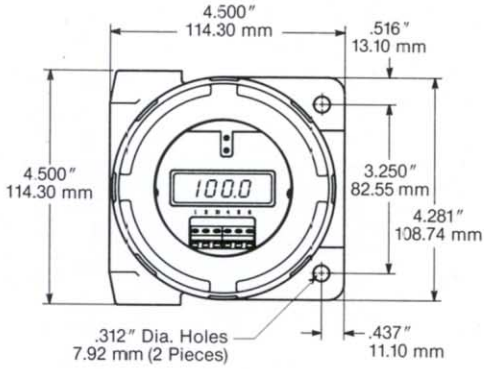
Intrinsic Safety: Class I - III, Division 1, Groups A - G

* Not all models are approved for all categories or by both agencies. Contact Ronan for specific approval requirements.

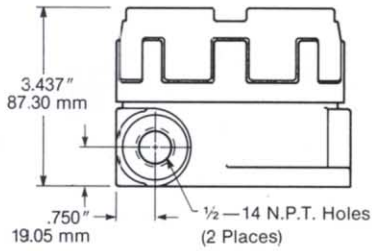
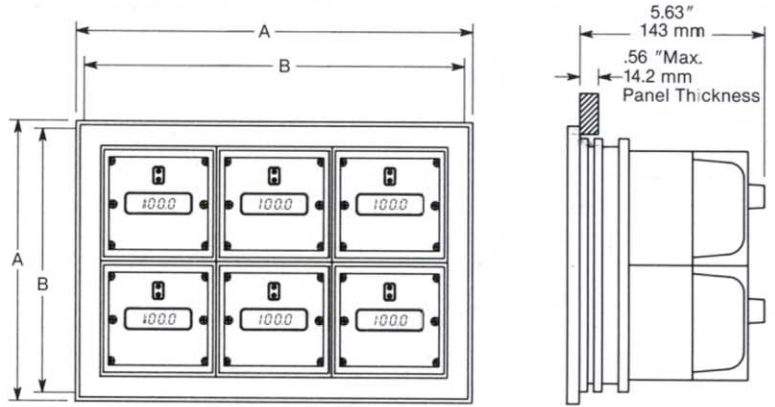
Specifications subject to change without notice.

MECHANICAL DRAWINGS

NEMA 7/4 Field Mount



General Purpose Panel Mount

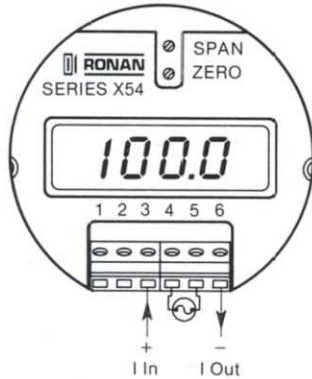


Number of Units*		A Overall*	B Overall
High	Wide	inches (millimeters)	inches (millimeters)
1	1	5.00 (127.00)	4.38 (111.25)
2	2	8.50 (215.90)	7.88 (200.15)
3	3	12.00 (304.80)	11.38 (289.05)
4	4	15.50 (393.70)	14.88 (377.95)
5	5	19.00 (482.60)	18.38 (466.85)
6	6	22.50 (571.50)	21.88 (555.75)
7	7	26.00 (660.40)	25.38 (644.65)
8	8	29.50 (749.30)	28.88 (733.55)
9	9	33.00 (838.20)	32.50 (825.50)
10	10	36.50 (927.10)	36.00 (914.40)

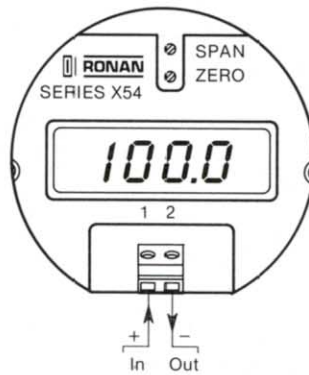
* Available any number high by any number wide. Consult factory for sizes larger than 10 units high or wide.

TERMINAL ARRANGEMENTS

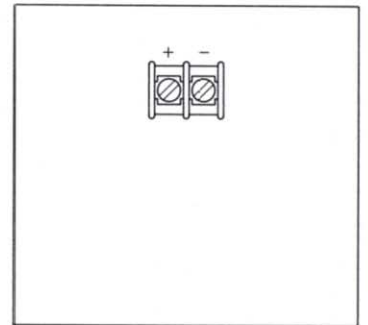
X54-200/202



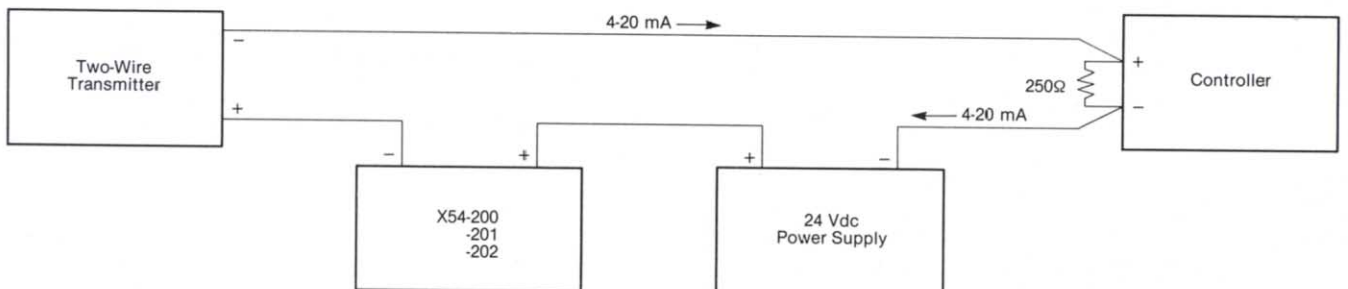
X54-201



X54-200/201/202



TYPICAL WIRING



ORDERING INFORMATION

MODEL		DISPLAY DESCRIPTION
X54-200L	- 2 - 3 - 4 - 5	Linear (3-1/2 Digit)
X54-200SR	- 2 - 3 - 4 - 5	Square Root (3-1/2 Digit)
X54-201L/SR	1 - 2 - 3 - B - 5	Selectable L/SR Display & Scaling
X54-202L	- 2 - 3 - 4 - 5	Linear (4-1/2 Digit)
X54-202SR	- 2 - 3 - 4 - 5	Square Root (4-1/2 Digit)

NOTES:

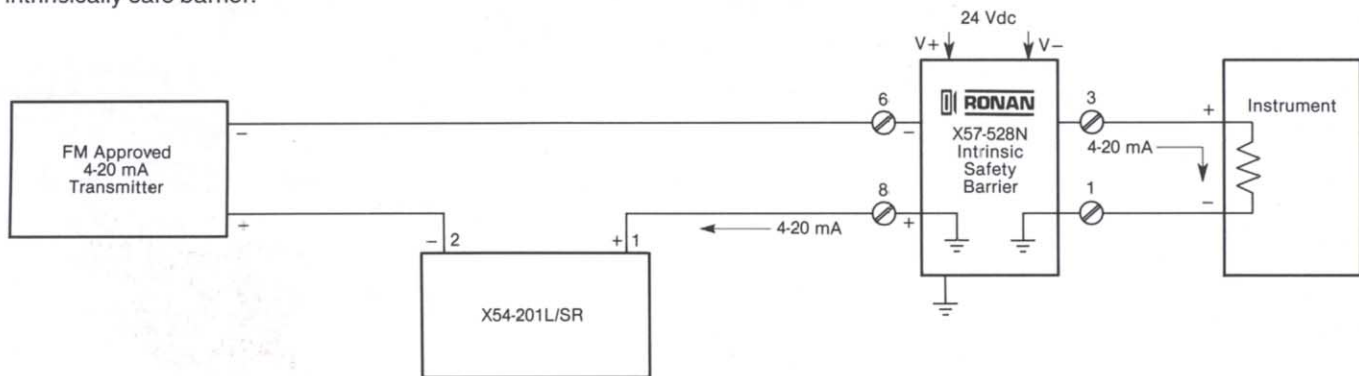
1. Indicate decimal point location and units of measure when writing the Display Range (2).
2. On X54-201, items 1 and 2 are field configurable.

- 1 = **Type:** L = Linear, SR = Square Root
- 2 = **Display Range:** (e.g. 00.0/100.0 = 0.0 to 100.0) (indicate decimal point)
- 3 = **Units of Measure:** (e.g. %, GPM, etc.)
- 4 = **Loop Current:** B = 4-20 mA, C = 10-50 mA
- 5 = **Mounting:**
 - PM = Panel Mount for X54-200 and X54-202
 - EXP = Explosion Proof and NEMA 4 for X54-200 and X54-202
 - PM2 = Panel Mount for X54-201
 - EXP2 = Explosion Proof and NEMA4 for X54-201

TYPICAL INTRINSICALLY SAFE INSTALLATION

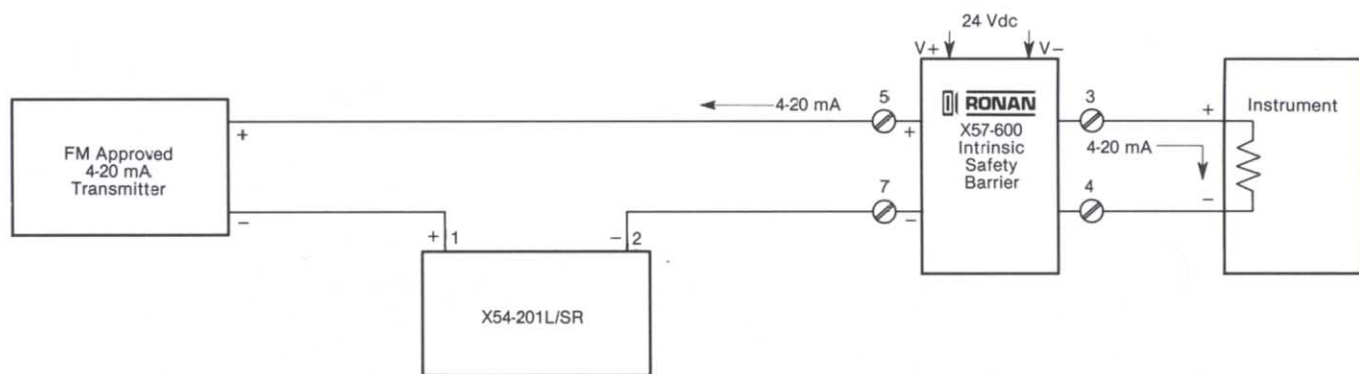
The X54-201L/SR is Factory Mutual approved intrinsically safe for use in Class I, II, III; Division 1; Groups A-G hazardous locations, when connected through the appropriate intrinsically safe barrier.

The X54-201L/SR entity parameters are as follows:
 $V_{max} = 35 \text{ Vdc}$, $I_{max} = 125 \text{ mA}$, $C_i = 0\mu\text{F}$, $L_i = 0\text{mH}$.



X57-528N Powered Zener Barrier Wiring Diagram

- 0-600Ω load in Safe Area.
- At 24 Vdc power; 15.5 V available to transmitter with 250 Load; 13.5 V available to transmitter with 600Ω load.



X57-600 Transformer Isolated Active Barrier Wiring Diagram

- 0-900Ω load in Safe Area.
- 15.5 V available to transmitter.

Additional barrier options also available. Contact factory for applications.



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