

Potentiometric Level Transmitter - LN Series

Introduction

The LN Potentiometric Level Transmitter provides accurate reliable measurement in difficult environments utilizing potentiometric technology. While Anderson-Negele's dual diaphragm hydrostatic level technology provides proven accuracy and reliability in atmospheric inventory tanks, applications such as filler bowls and other shallow vessels, pressurized tanks and environments with wide temperature swings can prove challenging for pressure based level systems. Utilizing potentiometric technology, the LN excels in these traditionally difficult applications. Fast reacting, the LN samples interior level at ten times per second allowing accurate readings while filling or dispensing product.

The stainless steel enclosure is also built to withstand the rigors of harsh environments. Resistance to vibration and moisture from wash downs is handled with typical Anderson-Negele rugged construction. The water tight and reliable quick disconnects round out this dependable design. As with all Anderson-Negele level transmitters, the LN meets FDA materials, and 3-A "third party verification" standards and is backed by a one-year warranty.

Complete specifications and ordering information are available on the reverse. For more information please visit our Web Site at www.andinst.com, or contact your local Authorized Anderson-Negele Distributor.



Features

- Exceptional long term stability
- Unaffected by temperature changes
- No moving parts for high reliability and cleaning in place
- Rugged construction with potted electronics
- Stainless steel housing rated at NEMA 4X and IP-67 for exceptional washdown protection
- 3-A compliant; Third party verified
- Standard lengths from 8" to 80", suitable for both metallic and nonmetallic vessels

Applications

- Accommodates lower conductivity fluids such as liquid sugars
- Exceptional for viscous products such as pastes
- Pressurized filler bowls
- Small pressurized tanks found in breweries
- Shallow vessels

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"LN" Potentiometric Level

The "LN" Level Transmitter utilizes potentiometric technology. Potentiometric level measurement consists of applying voltage to a metallic conductive probe (potentiometer track). The medium in the tank acts as a potentiometer slider and receives partial voltage from the probe that is measured on the wall of the tank for single probe models, or measured from reference probe on dual probe models. The measured partial voltage is proportional to the voltage on the probe and produces the value for the relative level. This measurement is generally independent of the conductivity of the medium. Only a conductivity of at least $1\mu\text{S}/\text{cm}$ must be present homogeneously throughout the medium for an accurate reading.

Significant advantage is realized over more conventional capacitance technology as varying media dielectric constants and low conductivity will not affect the measurement produced. Various products will be measured accurately without the need to recalibrate the sensor or to adjust between product batches with fixed constants to the monitor or PLC. Additionally only true media level is measured – Coatings from viscous materials are disregarded making this technology ideal for yogurt, heavy syrups and pastes.

Specifications**Performance:**

| | |
|------------------------|--|
| URL: | Full length of sensor |
| Maximum Span: | Full length of sensor less Teflon® coating |
| Minimum Span: | 5.6 inches (70% of probe length) |
| Accuracy: | $\pm 1.0\%$ of URL |
| Linearity: | $\pm 1.0\%$ of URL |
| Repeatability: | $\pm 0.2\%$ of URL |
| Resolution/Deadband: | 12 bit – 1/4096 of sensor length |
| Scan Rate: | 10 readings/sec |
| Temperature Stability: | Unaffected within Process temp range |

Material / Construction

| | |
|----------------------|--|
| Housing: | 304 Stainless Steel |
| Wetted Parts: | 316L Stainless Steel – 25 microinch R_a max, PEEK dielectric isolator, Teflon® PFA probe coating |
| Process Connections: | 1-1/2" – 4" Tri-clamp typical. Others available upon request |
| Enclosure Ratings: | NEMA 4X, IP-67 |
| Approvals/Standard: | 3-A compliant; Third party verified, CE Compliant |

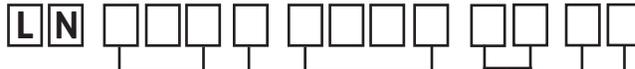
Operating / Environmental:

| | |
|-----------------------|--|
| Range | |
| (with 4 – 20 output): | 0 to probe length |
| Max Turndown | |
| (at 20mA): | 30% of probe length from top |
| Process Temp Limits: | 14° to 212° F continuous (-10° to 100°C) |
| Min. Media | |
| Conductivity: | ≥ 1 Microsiemen |
| SIP Temp Limits: | 302° F (150° C) for 60 minutes |
| Ambient Temp Limits: | 32° to 120° F (0° – 50° C) |
| Process Pressure | |
| Rating: | 150 psig (10Bar) max |

Power / Signal / Electrical

| | |
|------------------------|---|
| Signal Output: | 4 – 20 mA, Resistance 500 ohms max |
| Empty Signal Output: | 2.4 mA |
| Loop Voltage Required: | 18 – 36 Vdc |
| Power Required: | 5.3 Watts max, e.g. 220 mA @ 24Vdc |
| Cable: | 4 conductor, stranded, 18 – 24 AWG, 0.16 – 0.31 sheath OD for use with field wireable connector |
| Receptacle: | M12 5pin single key |

Order Information



BODY (FITTING) STYLE

- 004 1-1/2" Tri-Clamp
- 005 2" Tri-Clamp
- 006 2-1/2" Tri-Clamp
- 007 3" Tri-Clamp
- 008 4" Tri-Clamp
- 160 G1" CLEAN Adapt ¹

OF PROBES

- 1 One (1) Probe (Metallic and linear tank)
- 2 Two (2) Probes (Nonmetallic and/or non-linear tank)

PROBE LENGTH

| Single Probe | | Dual Probe | | Single Probe | |
|--------------|---------|------------|---------|--------------|---------|
| Code | Lengths | Code | Lengths | Code | Lengths |
| 0800 | 8" | 6000 | 60" | | |
| 1200 | 12" | 6400 | 64" | | |
| 1600 | 16" | 6800 | 68" | | |
| 2000 | 20" | 7200 | 72" | | |
| 2400 | 24" | 7600 | 76" | | |
| 2800 | 28" | 8000 | 80" | | |
| 3200 | 32" | | | | |
| 3600 | 36" | | | | |
| 4000 | 40" | | | | |
| 4400 | 44" | | | | |
| 4800 | 48" | | | | |
| 5200 | 52" | | | | |
| 5600 | 56" | | | | |

POSITIONING

- 1 Top with isolation
- 2 Top with out isolation
- 3 Bottom with out isolation

MOUNTING

- 1 Direct
- 2 Remote

SENSOR WIRING

- 01 QDR w/ FWC & no Cable(std.)
- 00 QDR w/ No FWC & no Cable
- 05 QDR w/ 25' Molded Cordset
- 10 QDR w/ 50' Molded Cordset
- 20 QDR w/ 100' Molded Cordset
- 24 QDR w/ 200' Cable

¹ Not 3-A compliant

NOTE: Additional sizes available to nearest 1/4"

Example:

- 24-1/4" = code 2425
- 24-1/2" = code 2450
- 24-3/4" = code 2475

Single Probe

Dual Probe

