

# Thermo Scientific LevelPRO Series of Gauges

Non-contacting, small source, high precision continuous level gauges for process applications

The Thermo Scientific™ LevelPRO Series are non-contacting, easy to use continuous process level gauges, that offer accurate process material level measurements using a smaller source for a variety of challenging applications.

- Proven stability at the widest temperature range
- Small source size for increased safety and lower capital costs
- Designed to meet shock and vibration standards for all major industries
- Flexible configuration of integrated and remote transmitter options
- Leverages EX CAL II Software



The Thermo Scientific LevelPRO Series of non-contacting continuous level gauges offers flexibility, durability and precision in order to enhance the efficiency of industrial processes. The LevelPRO series is designed to offer the specific configuration while offering the widest stable operating temperature range.

## Industrial Design

The non-contacting LevelPRO gauges are mounted on to the outside of the vessel. Using the principal of gamma transmission, energy is emitted by one of two types of radioactive sources, Cesium 137 or Cobalt 60. These sources are contained in a lead filled, steel-encapsulated housing mounted. The housings use 30°, 45° and 60° beam angles that allow optimization of level coverage for any sized vessel. The scintillation detector is mounted on the opposite side of the vessel. Tested and certified to meet numerous specifications for humidity, extreme temperature ranges, shock and vibration the LevelPRO series is designed to withstand varying conditions.

## Operating Principles

The gamma energy emitted by the source is the transmitted through the vessel walls, process material and any insulation. The electronics

within the LevelPRO gauge converts the energy reading to a level measurement.

The combination of unique signal processing and the design of the detector mount afford the LevelPRO series the ability to use a smaller source size without impacting precision, responsiveness and signal stability. The smaller source emits up to 50% less radiation depending on application. The reduction in energy emissions increases worker safety, reduces capital costs, and complies with global ECO requirements.

## Flexible Configuration

The LevelPRO series can be function as an integrated detector or with a remote transmitter. Multiplex capable, the LevelPRO series also offers independent control of up to four gauges with one microprocessor which allows for reduction in the cost of ownership of multiple units. The user friendly software includes multiple self diagnostic capabilities and alarms.



LevelPRO Gauge and Integrated Transmitter

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System performance	± 0.0015 g/cc (99% confidence) typical conditions
Stability drift	less than ± 0.05% or radiation change over six months
Ambient temperature (field)	± 0.009% of radiation change per degree °C
Response time	2 seconds to 65,535 seconds
Source type	Cs-137 or Co-60, both stainless steel double encapsulated Size 1 to 10,000 mCi (37 MBq to 370 GBq) Cs-137 or 1,000 to 3,000 mCi (37 GBq to 111GBq) Co-60
Source housing	Carbon steel or stainless steel, lead filled, polyurethane painted. Two-position shutter, locks in OFF (closed) position, beam angle offerings of 30°, 45° and 60° are offered
System architecture	32-bit, 60 MHz micro computer unit; Real-time clock (RTC) Lithium backup battery; voltage monitor for the RTC and SRAM circuits allows for configuration retentions in the event of power failure Local I/O consisting of: four analog inputs; one 100-ohm Pt RTD input; two digital outputs (DO); two digital inputs (DI); one local serial communication port connection; one RS232/RS485 host serial communication port; connection for optional Intrinsically safety Input/output boards (ISIO); one +15 V power supply output; one Isolated 24 V output; one 10/100 Ethernet communication port with ESD protection; and one USB port.
Detection type	Poly Vinyl Toluene (PVT) scintillation in active lengths of one foot (30.48 cm) to 12 foot (365.76 cm) Detectors offer with wide dynamic range and resist shock and moisture damage Detectors can be cascaded to optimize large level spans. Independent multiplexing and vapor compensation is offered
Detector stabilization	Electronic control without heater stabilization for optimum performance over operating temperature range
Integrated/Remote detector enclosure	316 stainless steel or carbon steel polyurethane painted; optional water-cooled detector for higher temperature applications
Transmitter	Stainless steel; Nema 4X and IP65; 20 push button keypad; 8 line monochrome LCD Power
Power requirements	115/230 Vac, ± 10%, 50/60 Hz or 24 Vdc
Operating temperature	-40°C to +75°C (-40°F to +167°F) ambient
Inputs	Two 4 – 20 mA inputs, full scale ± 0.3% over operating temperature range; two 0 – 10 Vdc input, full scale ± 0.3% over operating temperature range; two Digital inputs (DI): provides contact input with internal +5 Vdc wetting voltage; temperature compensation circuitry with 100-ohm Platinum RTD, 3 or 4 wire; full scale ± 0.5°C over operating temperature range
Outputs	4 – 20 mA output; full scale ± 0.3% over operating temperature range; Optional Intrinsically Safe
Input/Output	4 – 20 mA output; full scale ± 0.3% over operating temperature range Isolated, loop-powered (default); Isolated, self-powered output; compliance with NAMUR standard
Series outputs	RS485 half duplex, RS232 full duplex, Profibus PA Protocol Pending, HART Certified, Protocol Certified, FFBus Pending
Contact closure (relay)	Outputs two relays, SPST-NO + SPST-NC Fully sealed 8A @ 250 Vac
Ratings and approvals	Vibration (sinusoidal): IEC 60068-2-6; Vibration (random): IEC 60068-2-64; Shock Resistance: IEC 60068-2-27; Composite temperature / humidity cyclic: IEC 60068-2-38

### Ordering Information

The Thermo Scientific LevelPRO series may require custom configuration based on your application. Please contact your local Thermo Fisher Scientific sales representative and we will work with you to accurately determine the best configuration for your process.

To maintain optimal product performance, you need immediate access to experts worldwide, as well as priority status when your equipment needs repair or replacement. We offer comprehensive, flexible support solutions for all phases of the product life cycle. Through predictable, fixed-cost pricing, our services help protect the return on investment and total cost of ownership of your Thermo Scientific products.

For more information, visit our website at [thermoscientific.com](http://thermoscientific.com)

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