



Environmental Level Probe

Model: LMP633-NSN-S · Monosilicon Piezoresistive · Submersible · Gauge Pressure

Submersible gauge-pressure level probe built on a monosilicon piezoresistive sensing element with SUS316L stainless steel diaphragm and silicon oil fill. Gauge pressure (GP) ranges span 40 kPa to 3 MPa ($\approx$ 4–204 m H₂O), with stainless steel welded sensor seal and 28 mm probe diameter. Available with 4–20 mA, 4–20 mA + HART, or 0.5–4.5 VDC (standard or ratiometric) outputs. Rated IP68 with intrinsic safety (IS) and CE certifications. Reference accuracy: $\pm$ 0.1 % URL (typical). Suited to environmental monitoring, municipal waterworks, irrigation, groundwater wells, and reservoirs.



GP RANGE

40 kPa – 3 MPa

EQUIV. DEPTH

4 – 204 m H₂O

ACCURACY

$\pm$ 0.1% URL (typ)

MEDIA TEMP

–10 to +70 °C

PROTECTION

IP68

CERTIFICATIONS

IS · CE · HART

SENSOR & CONSTRUCTION

PARAMETER	VALUE
Sensor type	Monosilicon piezoresistive (silicon oil fill, SUS316L diaphragm)
Pressure type	Gauge (GP)
Diaphragm material	SUS316L or Hastelloy C (specify at order)
Filling fluid	Silicon oil (–45 to +205 °C) or Fluorocarbon oil (–45 to +160 °C)
Sensor seal	Stainless steel welding
Probe diameter	28 mm (model code H28)

ENVIRONMENTAL

PARAMETER	VALUE
Media temperature	–10 to +70 °C
Working temperature	–10 to +70 °C
Storage temperature	–30 to +80 °C
Protection class	IP68
EMC standard	EN61326-1:2013
IS (4–20 mA output)	ExiallCT4 · NEPSI GYB16.1963X · ambient –40 to +60 °C; medium max +120 °C

MEASURING RANGES — SPECIFY AT ORDER (GAUGE PRESSURE, GP)

RANGE CODE	NOMINAL URL	WORKING RANGE	DEPTH EQUIVALENT	OVERLOAD LIMIT
S403G	40 kPa	0 – 40 kPa	≈ 0 – 4.1 m H ₂ O	1 MPa
S254G	250 kPa	0 – 250 kPa	≈ 0 – 25.5 m H ₂ O	4 MPa
S105G	1 MPa	0 – 1 MPa	≈ 0 – 102 m H ₂ O	6 MPa
S305G	3 MPa	0 – 2 MPa	≈ 0 – 204 m H ₂ O	15 MPa

1 MPa ≈ 102 m H₂O @ 4 °C. All ranges are gauge pressure (referenced to atmosphere). Minimum calibratable span: 40 kPa (S403G / S254G); 250 kPa (S105G / S305G). Note: S305G nominal URL is 3 MPa; working measurement range is 0–2 MPa.

OUTPUT SIGNALS & ELECTRICAL — SPECIFY AT ORDER

OUTPUT SIGNAL	WIRING	POWER SUPPLY	BLUCLLOUD COMPATIBLE INPUT	NOTES
4–20 mA	2-wire	10–30 VDC	BluCloud 4–20 mA analog input ✓	Standard current loop; IS-rated option available
4–20 mA + HART	2-wire	16.5–55 VDC	BluCloud 4–20 mA analog input ✓	Digital HART layer for configuration; requires HART communicator
0.5–4.5 VDC	3-wire	6–15 VDC	BluCloud 0–5 V analog input ✓	Direct connection — no signal conditioning required
0.5–4.5 VDC ratiometric	3-wire	5 VDC	BluCloud 0–5 V analog input ✓	Ratiometric output; supply must be stable regulated 5 V

PERFORMANCE

PARAMETER	VALUE
Reference accuracy (linear output)	±0.1% URL (typical) / ±0.5% URL (max)
Reference accuracy (HART output)	±0.1% URL
Long-term stability	±0.2% URL / year
Ambient temperature effect	±0.2% URL / 10 K (over -20 to +80 °C)
Vibration	20 g (5–2000 Hz, per IEC61298-3)
Pressure cycle durability	10 million cycles @ 25 °C
Damping (adjustable)	0–100 s

WIRE COLOUR CODING

	Red	Power + (supply positive)
	Black	Power – (supply negative / common)
	Blue	Signal + (3-wire outputs only)
	Yellow	Signal – (3-wire outputs only)

Verify wire colours against actual cable label before installation.

PHYSICAL & CABLE

PARAMETER	VALUE
Probe diameter	28 mm (model code H28)
Total body length	114.5 mm
Distance: top to sensing diaphragm	105 mm
Body weight (without cable)	340 g
Cable length	Custom — specify at order (L5 = 5 m ... L200 = 200 m)

BLUCLLOUD COMPATIBILITY

✓ DIRECT BLUCLLOUD INTEGRATION

0.5–4.5 VDC output (3-wire) connects directly to the BluCloud Unit's 0–5 V analog input — no signal conditioning required.

4–20 mA output (2-wire) is compatible with the BluCloud Unit's 4–20 mA analog input channel.

4–20 mA + HART output carries the same current-loop signal as the standard 4–20 mA output. The HART digital layer is available for advanced sensor configuration via a HART communicator and does not affect BluCloud data acquisition.

LMP633-NSN VS LMP633-NLN — VARIANT SELECTION GUIDE

The **LMP633-NSN-S** and **LMP633-NLN** share the same piezoresistive silicon sensor platform, IP68 rating, IS certification option, and PUR/PTFE cable. The NSN-S features a **monosilicon sensing element with stainless steel welded seal** and delivers **better accuracy** (±0.1 % URL typical vs ±0.2 % for NLN):

FEATURE	LMP633-NSN-S (THIS DOCUMENT)	LMP633-NLN (BCL-EXT-SS-001)
Pressure type	Gauge (GP) only	Gauge (GP) only
GP measuring range	40 kPa – 3 MPa (≈ 4–204 m H ₂ O)	2 – 357 m H ₂ O (20 kPa – 3.5 MPa)
Reference accuracy	±0.1% URL (typ) — better than NLN	±0.2% URL (typ)
Diaphragm	SUS316L or Hastelloy C (welded seal)	SUS316 (O-ring or welded)
Best-fit application	Environmental monitoring, wells & tanks (≤4.1–204 m)	Deep wells, high-pressure industrial (>100 m)
Common platform	Silicon piezoresistive · IP68 · IS / CE · PUR or PTFE cable · 4–20 mA / HART / 0.5–4.5 VDC outputs	

For environmental protection, municipal water, irrigation, and groundwater monitoring applications, the NSN-S is the recommended selection where its superior accuracy and welded sensor seal are valued. Use the NLN for applications requiring ranges below 40 kPa or beyond 204 m H₂O working depth.

CERTIFICATIONS & STANDARDS

CE

IS

ISO 9001

HART

CERTIFICATION	DETAILS
Intrinsic Safety (IS)	ExialICT4 · NEPSI Reg. GYB16.1963X · Ambient –40 to +60 °C; medium max +120 °C
CE	ISET · Reg. IT021353LG161207 · EN61326-1:2013
Quality management	ISO 9001:2008 · Intertek · Reg. 110804039
HART compatible	4–20 mA + HART output variant (output code H)

TYPICAL APPLICATIONS

Environmental Monitoring

Municipal Waterworks

Irrigation Systems

Groundwater Wells

Reservoirs & Tanks

River & Lake Level

- Environmental protection and compliance water level monitoring
- Municipal water supply and distribution infrastructure
- Irrigation canal, pump station, and field water level sensing
- Groundwater well monitoring and drawdown measurement
- Storage tank and reservoir inventory management
- Open-channel river and lake level telemetry



ORDERING — MODEL CODE STRUCTURE

LMP633	NSN-S	S403G ... S305G	Diaphragm / Fill / Seal	N1 / N2	F / H / 5 / 6	4 / 6	H28	L5 ... L200
SERIES	VARIANT	RANGE CODE	SENSOR OPTIONS	CABLE TYPE	OUTPUT CODE	MATERIAL	PROBE DIA.	CABLE LENGTH

Range codes: S403G (40 kPa) · S254G (250 kPa) · S105G (1 MPa) · S305G (3 MPa). **Output codes (BluCloud-compatible):** F = 4–20 mA (2-wire) · H = 4–20 mA + HART (2-wire) · 5 = 0.5–4.5 VDC (3-wire) · 6 = 0.5–4.5 VDC ratiometric (3-wire). *Modbus output not stocked for BluCloud configurations.*
Cable: N1 = PUR · N2 = PTFE. **Material:** 4 = SUS304 · 6 = SUS316. **Cable length:** L5 = 5 m ... L200 = 200 m (specify at order). Accessories and approval codes appended at end of model string.