



Product introduction

Description



Standard



Anti-corrosive

Submersible Level Transmitter

LMP633 Submersible level transmitter is designed for dealing with the most severe demanding level measurement conditions. The sensor adopts the most advanced micro-processor technology with comprehensive linear error compensation and temperature error compensation to assure the highest precision of measuring result. The probe adopts full potting condensation-preventing technology, safe and reliable dual-seal design and fully welding technology with solid stainless steel body to assure long term stability and permanent air tightness. Signal transmitting module adopts transient voltage resistance protective circuits to assure operation regularly even under the harsh surge voltage environment. The seal of the cable adopts intensive cone plug sealing design to assure the long working life even under large mechanical load conditions during the installation and long-term use. LMP633 Submersible level transmitter is the optimal choice to satisfy all of high demand level measuring applications.

Main parameters

Pressure types	Gauge pressure
Measuring range	5mH ₂ O-200mH ₂ O, please refer to the ordering information chapter
Output signal	4-20mA □ 4-20mA+HART, Modbus-RTU/RS485, customer
Reference accuracy	±0.5% URL

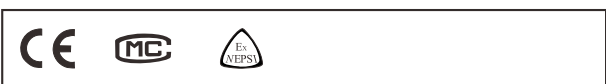
Measuring medium

Water, waste water, oil

Field of application

Pressure, level

Approvals



Technical Specifications

Measuring range and limit

Nominal value	Smallest calibratable span	Lower range limit (LRL)	Upper range limit (URL)	Overload limit
100kPa	50kPa	0kPa	100kPa	150kPa
200kPa	100kPa	0kPa	200kPa	300kPa
500kPa	200kPa	0kPa	500kPa	750kPa
1MPa	500kPa	0kPa	1MPa	1.5MPa
2MPa	1MPa	0kPa	2MPa	3MPa

The unit of the measuring range above can be converted into mH₂O@4°C, mmH₂O@4°C, inH₂O@4°C, m, mm and mHg@0°C. Please provide the density of measuring medium if the unit is m, mm. Other measuring range is available according to requirements. (1MPa=102mH₂O@4°C)

Standard specifications and reference conditions

Test standard: GB/T28474 / IEC60770, Zero based-calibration span.

Loading effects

Zero and span change should not be more than ± 0.05% URL/kΩ

Performance specifications

The overall performance including but not limited to [reference accuracy], [environment temperature effects] and other comprehensive error

Typical accuracy: ±0.5%URL

Stability: ±0.2% URL/ year

Vibration effects

According to IEC61298-3/GB/T 18271.3 testing 20g (5-2000HZ, Max imum vibration value < 3mm)

Output signal

Signal	Type	Output
4-20mA	Linearity	Two wire
4-20mA+HART	Linearity	Two wire
Modbus-RTU/RS485	Linearity	Four wire

Reference accuracy

Including linearity(BFSL), hysteresis and repeatability, calibration temperature: 20°C ± 5 °C

Linear output accuracy	Typical	±0.5% URL	Nominal value: 100kPa, 200kPa, 500kPa, 1MPa, 2MPa

Insulation resistance

≥20MΩ@, 100VDC

Ambient temperature effects(Typical)

Within the range -20-80□ total impact ±0.2% URL/10K

Power supply effects

Zero and span change should not be more than ± 0.005% URL/V

Technical Specifications

Damping time

Total damping time constant: equal to the sum of damping time of amplifier and sensor capsule
Damping time of amplifier : 0-100S adjustable
Startup after power off : ≤3S(HART output time≤6S)
Normal services after data recovery:≤ 4S(HART output time ≤31S)

Environment condition

Items	Operation condition
Working temperature	-10-70°C
Storage temperature	-30-80°C
Medium temperature	-10-70°C
Protection class	IP68
Dangerous condition	ExiaIICT4(GYB13.1139X)*
*Only for 4-20mA output	

Technical Specifications

Signal output	4-20mA	4-20mA+HART*	RS485
Power supply voltage	12-30VDC	10.5/16.5-55VDC	5VDC/9-30VDC
Electric current	≤20.8mA		≤7mA
Load resistance(Ω)	<(U-12)/0.0208	<(U-10.5)/0.0208**	/
Transmission distance	<1000m		<1200m
Power consumption	≤500mW(20.8mA output @24VDC)		≤168mW(RS485 output @24VDC)

*For this output type, the communication load resistance value is 250Ω

**The load resistance value 0-2119Ω is in nominal working condition, 250-600Ω is HART communication

EMC environment (not RS485 signal output)

NO.	Test items	Basic standards	Test conditions	Performance level
1	Radiated interference	GB/T 9254/CISPR22	30MHz-1000MHz	OK
2	Conducted interference (DC power port)	GB/T 9254/CISPR22	0.15MHz-30MHz	OK
3	Electrostatic discharge immunity test (ESD)	GB/T 17626.2/IEC61000-4-2	4kV(Contact) ,8kV(Air)	B(Note2)
4	Immunity to radio frequency EM-fields	GB/T 17626.3/IEC61000-4-3	10V/m(80MHz-1GHz)	A(Note1)
5	Power frequency magnetic field Immunity test	GB/T 17626.8/IEC61000-4-8	30A/m	A(Note1)
6	Electrical fast transient / Burst Immunity test	GB/T 17626.4/IEC61000-4-4	2kV(5/50ns,100kHz)	B(Note2)
7	Surge immunity requirements	GB/T 17626.5/IEC61000-4-5	1kV(Line to line) 2kV(Line to ground) (1.2us/50us)	B(Note2)
8	Immunity to conducted disturbances induced by radio frequency fields	GB/T 17626.6/IEC61000-4-6	3V(150kHz-80MHz)	A(Note1)

(Note 1)Performance level A: The performance within the limits of normal technical specifications.

(Note 2)Performance level B: Temporary reduction or loss of functionality or performance, it can restore itself. The actual operating conditions, storage and data will not be changed.

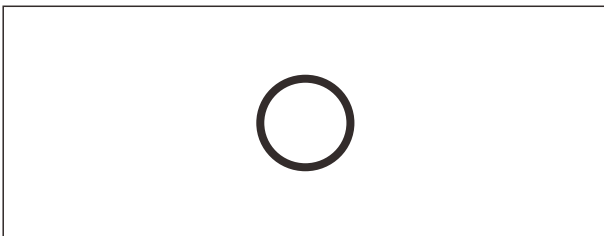
Product selection instruction

Sensor type

Code	Nominal value	Description
B104G	100kPa	Range 0kPa-100kPa, smallest calibratable span 50kPa
B204G	200kPa	Range 0kPa-200kPa, smallest calibratable span 100kPa
B504G	500kPa	Range 0kPa-500kPa, smallest calibratable span 200kPa
B105G	1MPa	Range 0kPa-1MPa, smallest calibratable span 500kPa
B205G	2MPa	Range 0kPa-2MPa, smallest calibratable span 1MPa

Code	Position	Instruction
C	Diaphragm material	Ceramic(96% AL2O3)
N	Filling fluid	None
S	Sensor seal	O-ring, FKM (temperature range: -20℃-200℃)

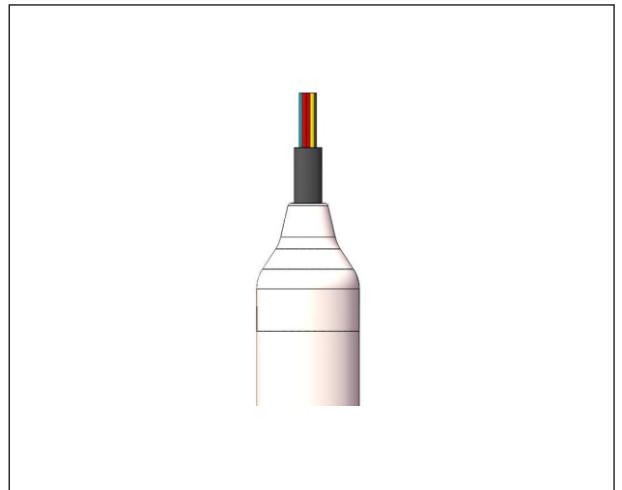
Seal(S)



Electrical connection

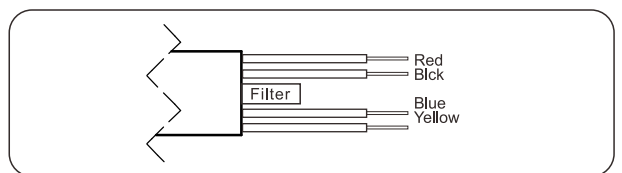
Code	Item	Description
N1	Electrical connection	Diameter of PUR cable: (7.5±0.2) mm
N2		Diameter of PTFE cable: (7.5±0.2)mm

Cable(N1/N2)



Electrical connection

Cable output



Label	Two wires	Three wires	Four wires	Modbus-RTU/RS485
Red	Power+	Power+	Power+	Power+
Black	Power-	Power-	Power-	Power-
Blue		Signal+	Signal+	A+
Yellow			Signal-	B-

⚠ The reference pressure of the gauge pressure transmitter is current atmospheric pressure.
Please operate with care, prevent the filter dropping off and keep it dry

Product selection instruction

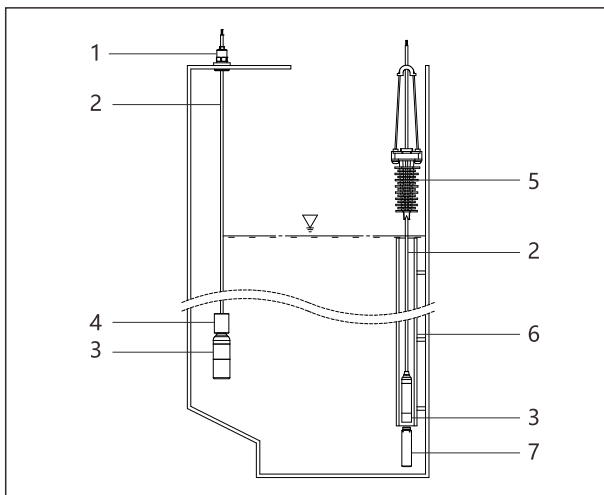
Transmission module

Code	Description
F	4-20mA two wire, power supply: 12-30VDC
H	4-20mA+HART two wire, power supply: 16.5-55VDC
R	Modbus-RTU/RS485 four wire, power supply: 5VDC/9-30VDC

Fixed mounting accessory select instruction

Code	Items	Description
P1/P5	Fixed mounting accessory	Counter weight (To fix products in some areas of fast flow rate or medium with large density)
P2		Cable clamp (To fix and support the product)
P3		Threaded connection (To fix the top and support the product)
P4		Threaded connection (To fix the bottom and support the product)

Counter weight(P1, P5), Cable clamp(P2), thread mounting accessory(P3)



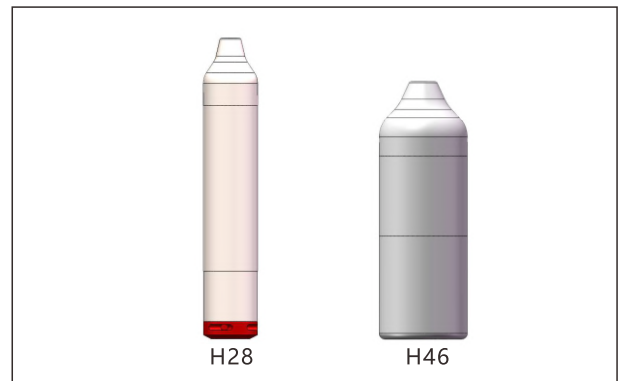
- 1.Thread connection(P3)
- 2.Cable
- 3.Pressure transmitter
- 4.Counter weight(P5)*
- 5.Cable clamp(P2)
- 6.Protection tube
- 7.Counter weight(P1)*

*The measurement results should consider the height error of counter weight and sensing diaphragm to the bottom of measured medium

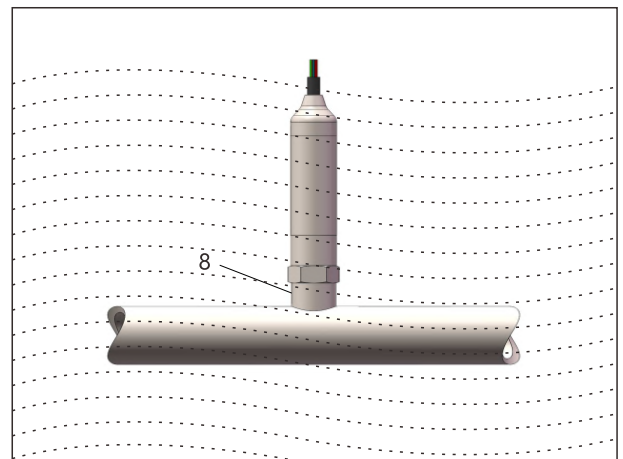
Probe select instruction

Code	Items	Description
2	Material	PP(maximum measuring range 2MPa)
4		SUS304(maximum measuring range 2MPa)
5		PVDF(maximum measuring range 2MPa)
6		SUS316(maximum measuring range 2MPa)
H28	Specification	Diameter of submersible probe: 28mm (only suitable for S304, SUS316)
H46		Diameter of submersible probe: 46mm(only suitable for PP, PVDF)

Probe diagram(H28, H46)



Threaded connection(P4)

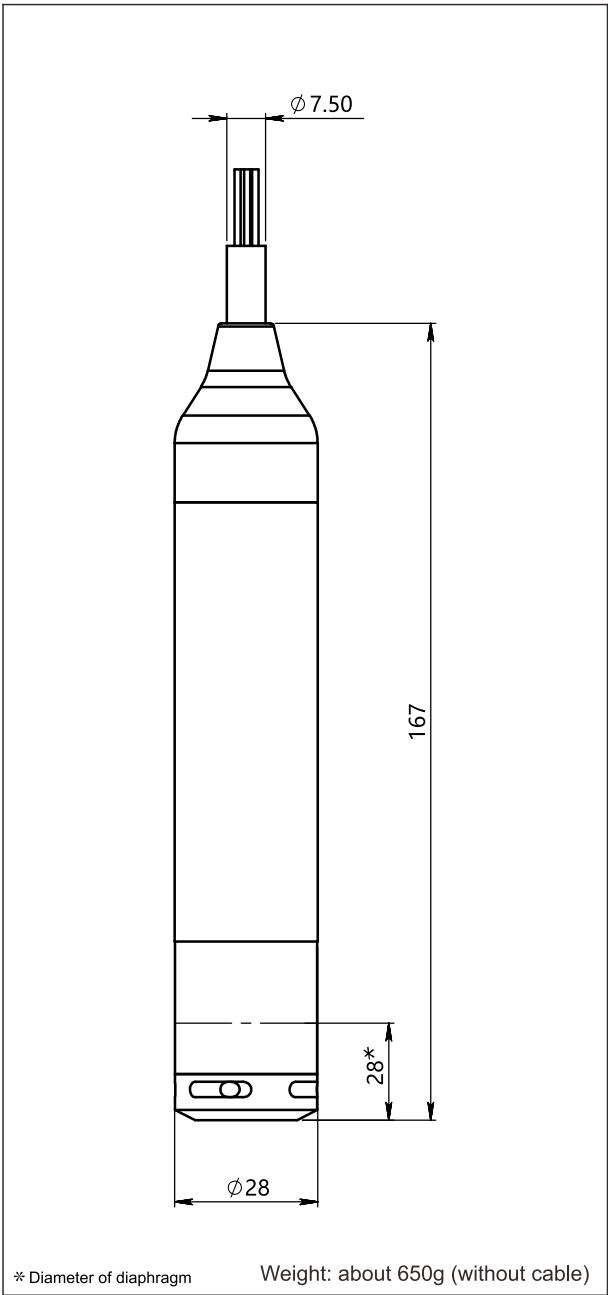


- 7.Counter weight(P1)*
- 8.Thread connection(P4)

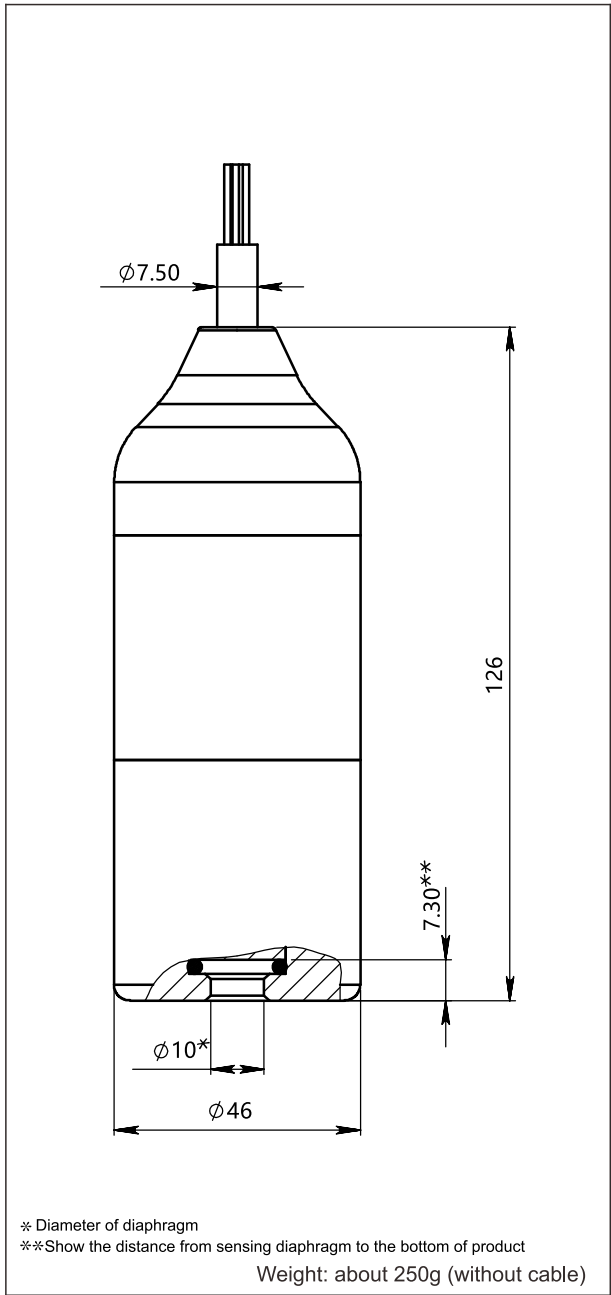
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Product drawing and dimension

Standard product drawing and dimension(unit: mm)



Anti-corrosive product drawing and dimension(unit: mm)

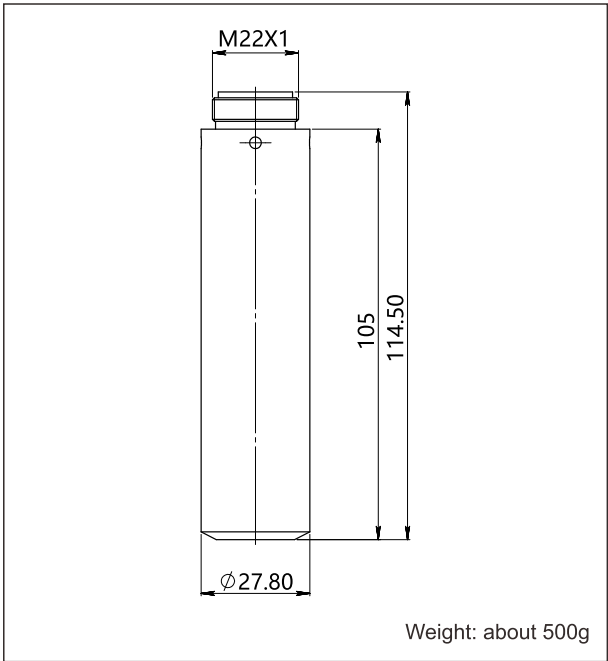


Cable weight table

Cable material	weight/5m(kg)
PUR	0.32
PTFE	0.41

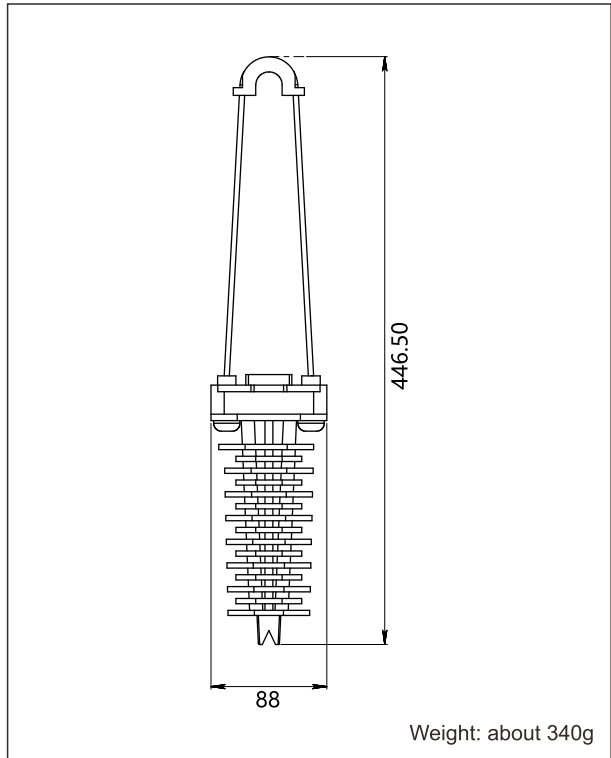
Product drawing and dimension

Counter weight (P1) dimension (unit: mm)

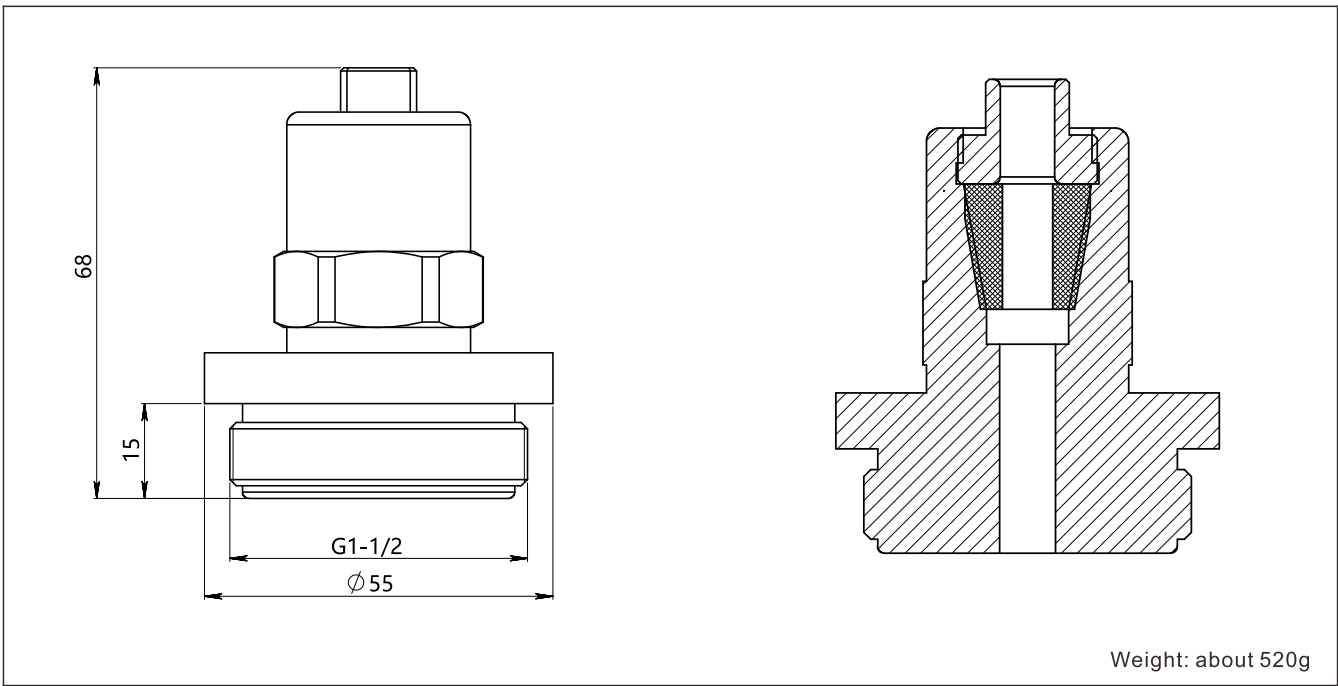


In order to prevent measurement errors caused by sideways movement of product and ensure accuracy ,you can add additional counter weights by screwing together and then connecting directly to the product.Each product you can connect up to three weight.

Cable clamp (P2) dimension(unit: mm)



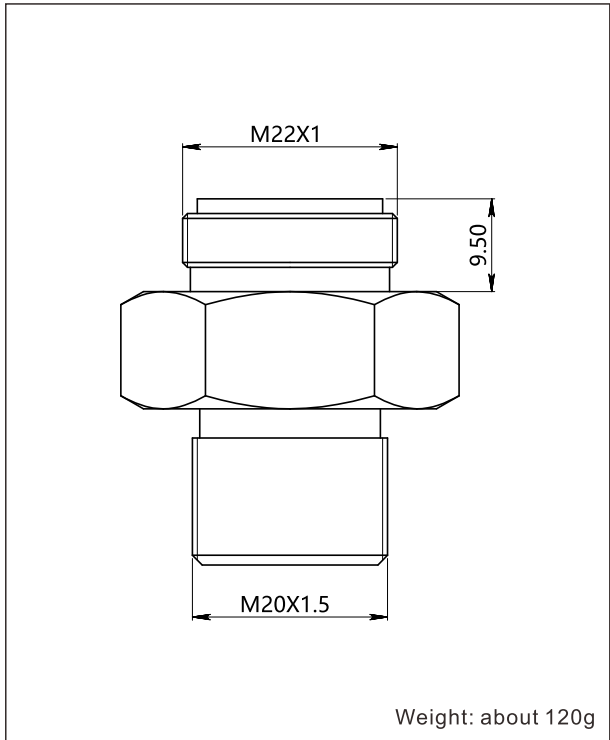
Thread connection (P3) dimension (unit: mm)



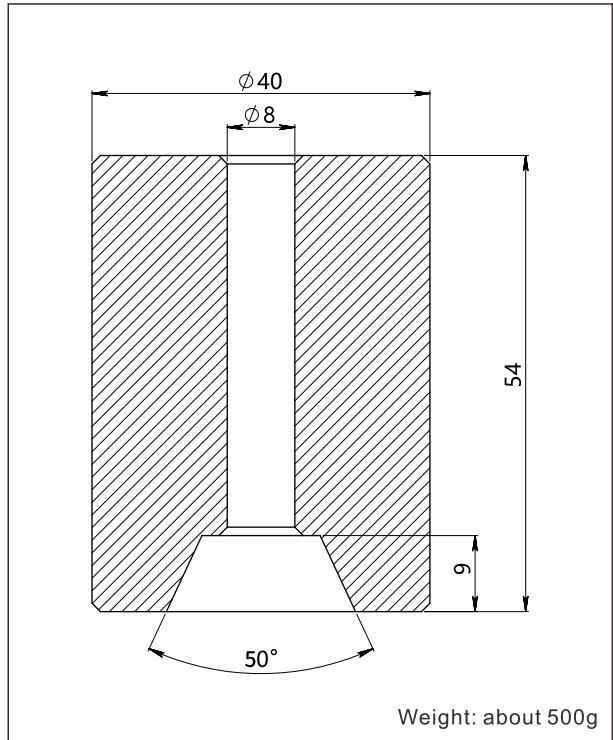
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Product drawing and dimension

Thread connection (P4) dimension(unit:mm)



重锤 (P5) 尺寸图 (单位: mm)



In order to prevent measurement errors caused by sideways movement of product and ensure accuracy, you can add additional counter weights by screwing together and then connecting directly to the product. Each product you can connect up to three weight.

Ordering information chapter

Item	Parameters	Code	Instruction	(*)fast delivery available
	Model	LMP633-NBN	Piezoresistive ceramic submersible level transmitter	
Sensor	Separator	-	Detailed specifications as following	
	Pressure sensor code	B104G	Nominal value(URL): 100kPa	
		B204G	Nominal value(URL): 200kPa	
		B504G	Nominal value(URL): 500kPa	*
		B105G	Nominal value(URL): 1MPa	*
		B205G	Nominal value(URL): 2MPa	*
	Diaphragm	C	Ceramic(96% AL2O3)	*
	Filling fluid	N	None	
	Sensor seal	S	O-ring, FKM (temperature range: -20□-200□)	*
Electrical connection	Separator	-	Detailed specifications as following	
	Electrical connection	N1	PUR cable, outer diameter: (7.5±0.2)mm	*
		N2	PTFE cable, outer diameter: (7.5±0.2)mm	*
	Cable entry protector	R0	None	
Output	Separator	-	Detailed specifications as following	
	Output signal	F	4-20mA two wire, power supply: 12-30VDC	*
		H	4-20mA+HART two wire, power supply: 16.5-55VDC	*
		R	Modbus-RTU/RS485 four wire, power supply: 5VDC/9-30VDC	*
		G	Modbus-RTU/RS485 four wire (with pressure and temperature signal), power supply: 5VDC/9-30VDC	
Probe	Separator	-	Detailed specifications as following	
	Material	2	PP(maximum measuring range 2MPa)	*
		4	SUS304(maximum measuring range 2MPa)	
		5	PVDF(maximum measuring range 2MPa)	*
		6	SUS316(maximum measuring range 2MPa)	*
	Specification	H46	Diameter of submersible probe: 46mm(only suitable for PP, PVDF)	*
		H28	Diameter of submersible probe: 28mm (only suitable for SUS304, SUS316)	*
Cable	Separator	-	Detailed specifications as following	
	Cable length	Ln	0 ≥ n ≤ 200, Eg.4.5 m=L4.5, 10m = L10,100m=L100, allowed error range: 0-0.2m.	*
Additional options	Separator	-	Detailed specifications as following	
	Fixed mounting accessory	/P1	Counter weight (To fix products in some areas of fast flow rate or medium with large density)	*
		/P2	Cable clamp(To fix and support the product)	*
		/P3	Threaded connection (To fix the top and support the product)	

Ordering information chapter

		/P4	Threaded connection (To fix the bottom and support the product)	
		/P5	Counter weight (To fix products in some areas of fast flow rate or medium with large density, applied to standard type)	
Calibration report		/Q1	Calibration report provided by our company	*
Approvals (multiple)		/I1	Intrinsic safety certificate, ExiaIICT4, NEPSI	
		/F3	CE certificate	*
Wetted parts treatment		/G1	Ungrease treatment	
		/G2	Electropolishing treatment	

Approvals
Factory certificate

Certificate organization	Intertek
Quality management system	ISO9001-2015
Scope of certification	Design and production of pressure transmitter

CE

Certificate organization	PRESSURE TRANSMITTER
License scope	LMP633 series pressure transmitter
Mark	CE
EMC instruction	2014/30/EU
Standard	EN61326-1: 2013
Registration number	IT021353LG161207

Intrinsic safety certificate

Certification organization name	NEPSI
Licenses range	LMP series pressure transmitter
Explosion-proof mark	ExiaIICT4
Ambient temperature	-40-+60°C
Medium maximum temperature	+120°C
Registration number	GYB16.1963X
Intrinsically safe parameter description	Maximum input voltage:28VDC
	Maximum input current:100mA
	Maximum input power:0.7w
	Maximum internal equivalent parametersCi(nF):0.04
	Maximum internal equivalent parametersLi(mH):1.8



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