

MODEL ILT-6000 (PATENTED) MAGNETOSTRICTIVE LEVEL TRANSMITTER Direct Insertion for Tanks and Vessels



Description

Jogler's ILT-6000 series level transmitter is the latest in magnetostrictive level sensing technology designed for direct tank insertion. The ILT-6000 contains a low profile waveguide that is inserted into an isolation well and float assembly. The waveguide sleeve isolates the internal waveguide from the process environment and protects it from excessive process conditions. This provides an additional safety barrier for the operator. The major benefit is the transmitter and waveguide can be removed for field checking without interruption or exposure to the process environment. The isolation well and float are available in a variety of materials including 316 SS, CPVC, Alloy 20, Titanium, Hastelloy, PP or PVDF.

Technology

The ILT-6000 operates based on the magnetostrictive principle. The transmitter sends fixed interval current pulses (start pulse) down the length of the sensing wire, creating an electromagnetic field. When this electromagnetic field is interrupted by the magnetic field of the float, magnetostriction occurs. A constant-velocity torsional stress wave propagates along the length of the sensing wire from the position of the magnetic float. The piezoceramic sensing element converts the torsional stress to an electrical pulse (end pulse). The transmitter electronics measures the time interval between start and end pulses and uses time of flight technology sensing element to calculate the float position.

Standard Features

- 24 VDC nominal, two wire, loop powered
- LCD display in 4-20 mA, in, cm, and/or percent
- HART protocol field communication
- Local programmability allows for easy parameter changes
- Quick-Cal function for simple recalibration to any span
- Non wetted 316 SS waveguide & sensor
- All welded isolation well and float assembly, material variable
- Accuracy of 0.01% of total span from enhanced sensitivity
- State of the art sensor and transmitter electronics
- Maximum transmitter length of 35 feet
- Full vacuum to 3000 psig / 800 F
- FM Approval (US & Canada)
- Field removable transmitter waveguide without isolating the process for ease of maintenance



SPECIFICATIONS


Performance

Accuracy	+/- 0.015 inches (+/- 0.01%)
Repeatability	0.001% of full span
Linearity	0.020% of full span
Refresh Rate	10x per second
Initiation	0.00 seconds
Minimum Density	0.37 gm/cm ³
Damping	0.00 to 1.00 @ 0.01 seconds 1.00 to 25.0 @ 1.00 seconds
Min. Upper Unmeasurable Length:	3.00 inch
Min. Lower Unmeasurable Length:	3.00 inch

Electrical

Input	14-30 VDC (24 VDC nominal)
Output	4-20 mA, percent, and/or height
Resistance	600 Ohms (max) @ 24 VDC
Power	0.66 watts (30 VDC x 0.022 amps)
Error signal	3.60 mA (low) or 22.0 mA (high)
Interface	3 button keypad
Software	HART
Display	2 line, 8 character LCD
Connection	0.75 inch FNPT (Conduit)

Ratings

MAWP / MAWT	3000 psig / 800°F
Ambient Temp.	-40° to +158°F (-40° to +70° C)
Process Temp.	-40° to +230°F (-40° to +110° C); (Standard) Options to 800°F
Approval	<p>FM Factory Mutual Research Corporation XP / I / 1 / ABCD / T6 Ta = -40°C to +70°C; Type 4X DIP / II / III / EFG / T6 Ta = -40°C to +70°C; Type 4X IS / I / II / III / 1 / ABCDEFG / T4 Ta = -40°C to +70°C NI / I / 2 / ABCD / T4 Ta = -40°C to +70°C; Type 4X S / II / III / 2 / EFG / T4 Ta = -40°C to +70°C; Type 4X</p> 
Enclosure	NEMA Type 4X

ORDERING INFORMATION

Model Number: ILT-6000/a/b/c/d/e/f/g Magnetostrictive Level Transmitter

/A Enclosure Type

S	Single compartment powder coated aluminum
D	Dual compartment powder coated aluminum (Pending)
SD	Dual compartment 316 stainless steel (Pending)

/B Transmitter to Probe Mounting Position

S	Standard local transmitter
LT	Transmitter housing offset from probe with vapor seal for cryogenic service

/C Probe Type

S	Standard 3/8 x .065 316 SS
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/D Temperature Options

S	170 °F max. Top of transmitter is ~8" above process connection
T1	250 °F max. Top of transmitter is ~8" higher than S.
T2	400 °F max. Top of transmitter is ~26" higher than S.
T3	800 °F max. Top of transmitter is ~26" higher than S and a high temp sensor is used.

/E Options

D	Dual level transmitter. (Total level signal: 4-20mA; Interface level signal: HART)
X	No options

/F Approvals

FM	Standard FM Approval (US & Canada)
ATEX	ATEX Approval (pending)

/G Insertion Length

	Insertion length in inches or mm
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ISW ISOLATION WELL FOR ILT-6000

MAGNETOSTRICTIVE LEVEL TRANSMITTER

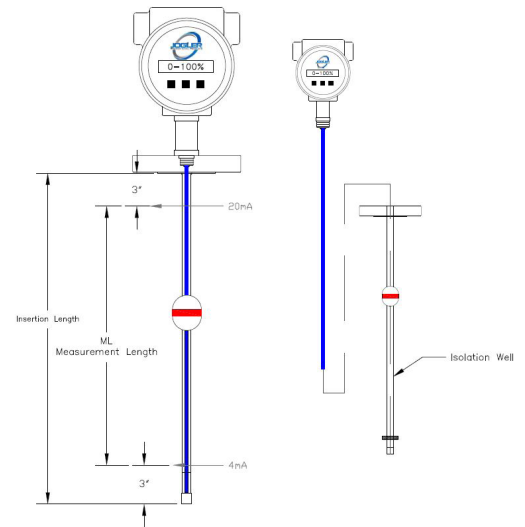
Configuration Guide

Features, Benefits, Options:

- Isolates the process and creates non-wetted zone for the transmitter
- No fluid in contact with transmitter waveguide or sensor
- Field replaceable sensor design without process shutdown
- Wide range of materials
- Pressures from FV to 3000 psig
- Temperatures from -40 to 800 F
- Wide selection of floats to meet SG as low as 0.33
- Interface Δ SG as low as .035 SG differential
- Length to 35 feet
- Designed to ASME B31.3 or B31.1
- Code welding in house

How to Order

For an ISW Isolation Well quote, fill out the appropriate spec sheet below and email it to inquiries@jogler.com or to your local Jogler representative. Jogler will configure the model number and provide pricing. You can also build the model number using the Model Number Guide and email it along with the "Service Conditions" information required on the appropriate spec sheet.



ORDERING INFORMATION

Model Number: ISW/a/b/c/d/e/f/g Magnetostriuctive Level Transmitter

/A Material of Construction

6S	316/316L SS material for tubing and all connections
6C	316/316L SS material tubing and Carbon steel flange top connection
HC	Hastelloy C-276 material for tubing and all connections
HCC	Hastelloy C-276 material for tubing and Carbon steel flange top connection
6T	316/316L SS tubing with FEP jacket for corrosion/stick resistance up to 50 PSIG and Maximum temperature of 350 F
CP	CPVC
KY	Kynar (PVDF)
XX	Custom material, consult factory

/B Isolation Well Tubing/Pipe Selection

LP	316 SS 5/8" X 0.065 wall tubing up to 1800 PSIG C-276 5/8" X 0.049 wall tubing up to 1800 PSIG FEP jacketed unit has a maximum pressure of 50 PSIG and max temperature of 350 F
HP	316 SS 5/8" X 0.120 wall tubing up to 3000 PSIG
XX	Custom tubing / pipe sizes

/C Top Connection Style

TF	Blind Flange with FNPT to connect transmitter
TP	Hex head plug with FNPT to connect transmitter
CF	Compression fitting
XX	Custom connection, consult factory

/D Top Connection Description

Connection size code:	
7	3/4"
1	1"
15	1-1/2"
2	2"
25	2-1/2"
3	3"
4	4"
6	6"
XX	Consult Factory

Connection rating / schedule code:

Flange rating:	
1	150#
3	300#
6	600#
9	900#
15	1500#
25	2500#

Hex Plug & Compression Fitting:	
30	3000#
60	6000#

Flange face:	
R	Raised face
T	RTJ
C	Other specify

/E Float selection

Blank	No float for ISW Isolation Well
FS71	316 SS float with 2.1 inch max OD, SG min 0.71 clean fluid, 350 PSIG max
FS52	316 SS float with 2.6 inch max OD, SG min 0.52 clean fluid, 330 PSIG max
FH88	C-276 float with 1.9 inch max OD, SG min 0.88 clean fluid, 425 PSIG max
FT58	Titanium float with 1.875 inch max OD, SG min 0.58 clean fluid, 250 PSIG max at 100 F and higher temperatures will lower the max pressure, consult factory
FT75	Titanium float with 2.6 inch max OD, SG min 0.75 clean fluid, 2400 PSIG max at 100 F and higher temperatures will lower the max pressure, consult factory
FP70	CPVC float with 2.85 inch max OD, SG min 0.70 clean fluid, 50 PSIG at 140 F
FK67	PVDF float with 2.375 inch max OD, SG min 0.67 clean fluid, 50 PSIG
XX	Consult factory

/F Options

M20	Metric adaptor to convert FNPT to 20 mm female metric thread on transmitter housing electrical connection
CDn	Centering disk to position in the external or bypass chamber, "n" stands for disk diameter in inches
XX	Consult factory

/G Isolation well length

Length is derived from ILT-6000 probe length for standard construction units
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