Magnetostrictive Transmitters

For use with Magnetic Level Indicators

Jupiter®

DESCRIPTION

The Jupiter Magnetostrictive level transmitter provides a 4-20 mA output, proportional to the level being measured. A Jupiter with HART® communications is also available.

The Jupiter is designed to attach quickly and easily, via standard clamps, to Orion's Atlas® and Gemini® magnetic level indicators.

Packaged in an ergonomic dual compartment enclosure, the unit offers many features not found in typical magnetostrictive units today. The dual compartment design allows for separation of wiring and electronics and helps facilitate simple, easy installation and set-up for both top and bottom mount versions.

FEATURES

- Precision level measurement ±0.015" (.254 mm)
- 4-20 mA output (HART Optional)
- LCD with pushbutton operation
- LCD local indication is standard
- High repeatability ±0.005" (0.127 mm)
- Simple set-up and configuration thru Fast-Cal™
- Easy attachment to MLI, top or bottom mounting
- Ergonomic, functional, dual compartment enclosure
- -40° to +160° F (-40° to +70° C) ambient operation
- Lengths to 35 feet (10.7 meters)
- Process temperatures to +248° F (+120° C) at waveguide

APPLICATIONS

- Separators
- Surge Tanks
- Gas Chillers
- Alkylation Units
- Propane Vessels
- Process Vessels
- Storage Vessels
- Vacuum Tower Bottoms

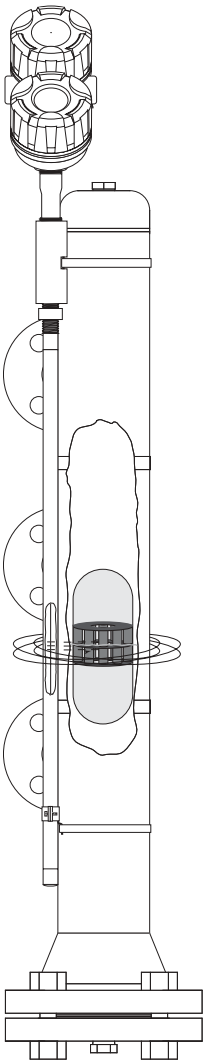
APPLICATIONS

The Jupiter transmitter is designed for mounting directly to the Orion Atlas or Gemini magnetic level indicators. Where ever the MLI is applied, the Jupiter transmitter can provide a 4-20 mA signal to a remote display, local indicator and/or analog input channel, and HART communication. The analog input channel may be a PLC, DCS or A/I card for a PC. Consequently, from a remote area, typically a safe area such as a blend center or area control room, an operator can view the actual liquid level value, percentage of level, or a 4-20 mA value safely and conveniently.

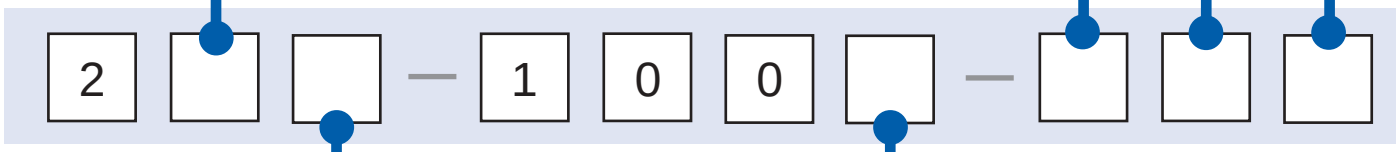
TECHNOLOGY

The Jupiter transmitter utilizes the engineering principle of magnetostriction and the effect of a magnetic field on the magnetostrictive wire as the basis for operation of the instrument. The primary components are the waveguide assembly, containing the wire, and the electronics "head" assembly.

A low energy pulse which is generated by the electronics travels the length of the magnetostrictive wire. A return signal is generated from the precise location where the magnetic field of the MLI float intersects the wire. A timer precisely measures the elapsed time between the generation of the pulse, and the return of the mechanical, or acoustic signal. This is detected by the acoustic sensor located within the machined stainless steel housing. The software is set up to interpret the data and to display and transmit the process variable data resulting from the measurement.



MODEL NUMBER



2	4-20 mA with LCD indication
4	4-20 mA with LCD indication and HART protocol

Transmitter Output and Indicator

Specify measuring range in:
Inches when third digit is numeric
Lengths from 6 to 410 inches

Inch Code
Example: 24 inches = Code 024

Specify measuring range in:
Centimeters when third digit is alpha
Lengths from 15 to 999 cm

Centimeter Code
Example: 60 cm = Code 060

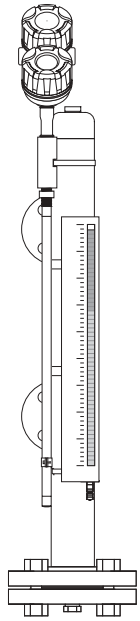
Probe Length

	Configuration / Units Of Measure
1	Top mount, length in inches
2	Top mount offset, length in inches*
3	Bottom mount offset, length in inches
A	Top mount, length in centimeters
B	Top mount offset, length in centimeters*
C	Bottom mount offset, length in centimeters

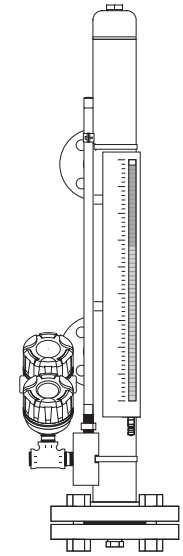
*Must be used for temperatures above +250° F or if the top of the MLI is flanged.

	Housing Matl / Mounting / Conduit Entry
1	Cast aluminum with ¾" NPT conduit entry, FM/CSA, EP, NI
2	Cast aluminum with M20 conduit entry, FM/CSA, EP, NI
3	316 SS with ¾" NPT conduit entry, FM/CSA, EP, NI
4	316 SS with M20 conduit entry, FM/CSA, EP, NI

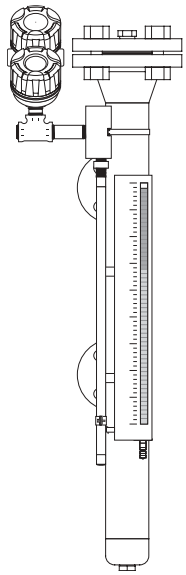
SPECIFICATIONS



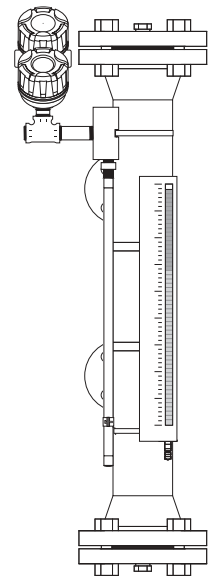
Top Mount Jupiter Magnetostrictive Mounted to Atlas MLI



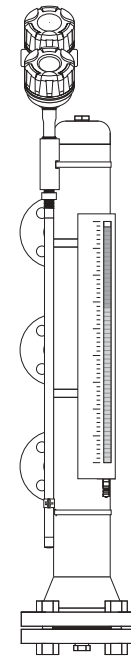
Bottom Mount Jupiter Magnetostrictive Mounted to Atlas MLI



Top Mount Jupiter Offset Magnetostrictive Mounted to Atlas Flanged Top MLI



Top Mount Jupiter Offset Magnetostrictive Mounted to Atlas Flanged Top/Bottom MLI



Top Mount Jupiter Magnetostrictive Mounted to Atlas Interface MLI

SPECIFICATIONS

PERFORMANCE

Measured variables	Continuous liquid level or interface level
Measuring range	6 inches to 35 feet (.152 to 10.66 meters)
Accuracy	±0.015" (digital reading)
Level repeatability	0.005% of full span or 0.005" (0.127 mm)
Non-linearity	0.020% of full span or 0.031" (0.794 mm)
Maximum rate of change	6 inches per second
Update rate	10 times per second
Upper dead zone	None
Bottom dead zone	2" estimated based on float design
Damping	0 to 45 second
Warm-up	<5 second

FUNCTIONAL

Power input	24 VDC nominal (12.0 VDC min. at transmitter terminals)
Input range	12-28 VDC
Power consumption	0.7 watt maximum
Signal output	One 4-20 mA output with HART (optional)
Useable current	3.8 to 20.5 mA
Field selectable signal error	3.6 or 22 mA
NAMUR	NE 43 compliant
Digital output	HART 5.0 (optional), generic mode
Ambient temperature	-40° to +160° F (-40° to +70° C)
Process temperature	+248° F (+120° C) at waveguide
	+800° F (+426° C) process with insulation
Configuration	Via local display or Model 275 communicator
Units displayed	Inches or cm, % level, and loop current (4-20 mA value)

AGENCY APPROVALS

AGENCY	MODEL	PROTECTION METHOD	AREA CLASSIFICATION
FM & CSA	2XX-100X-XXX	Explosion Proof	Class I, Div. 1 Groups B, C, & D Class II, Div. 1 Groups E, F, & G Class III, IP66 Type 4X
	2XX-100X-XXX	Non-incendive	Class I, Div. 2 Groups A, B, C, & D Class II, Div. 2 Groups E, F, & G ① Class III, IP66 Type 4X

Note: Agency files open and approvals pending.

① FM approval Class II, Div. 2 Groups F & G only.

ORION

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