

# Smart Magnetostrictive Level Transmitter

## ALT 6500

- Highest Accuracy.
- Corrosion Resistance.
- Various Liquid Ability.



# Smart Magnetostrictive Level Transmitter

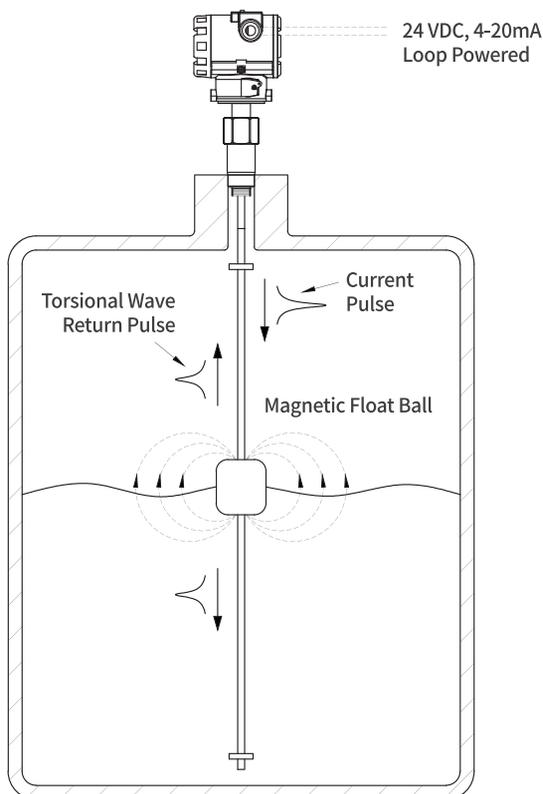
# ALT6500

## Overview

The brand **AUTROL**, and its model ALT6500 Magnetostrictive Level Transmitter is available based on a microprocessor, **DUON System Co., Ltd** provides an ideal solution for high precision measurement and high accuracy of clean fluids.

It operates on the **Time of Flight principle**. When the pulse generated by the electronic device moves along the stem pipe and reaches the floating float ball by buoyancy, a torsion is generated and mechanical waves are generated to again electronic device by this torsion. It measures the pulse generation time and the returned mechanical wave time to output a value of 4–20 mA proportional to the level of measured medium, and it features function that a control system such as DCS or PLC can be used.

## Basic Configuration



Standard Model



Chemical  
Special Model



## Features

- Continuous level measurement.
- 4-20mA current output and display through an indicator.
- As single equipment, easy for field calibration and convenient maintenance.
- Easily measures accurate level and interface. (\*Option)
- Continuous self-diagnosis function.
- Signal speed not affected by temperature and pressure.
- Hardly affected by bubbles, reflected waves, and beam radiation.
- Smoothly linked with Level Gauge. (Level Gauge Assembly Option)

## Applications

- Chemicals, Gasoline, Diesel, Liquefied gas
- Separators, Process Vessels
- Corrosive media (acidic, basic)-(PTFE)
- Interface measurement in water tanks and various liquid tanks-(\*Option)

## Specification

<b>Accuracy</b>	0.01% of full scale or $\pm 1\text{mm}$ , whichever is greater	
<b>Output</b>	Type	Analog 4 to 20mA, HART digital signal (2 Wire Standard Model)
	Diagnostic Alarm	Adjustable 3.78, 21.1mA (2 Wire Standard Model)
Only 3.78mA (3 Wire Chemical Special Model)		
<b>Power</b>	Standard Model	16.5~45VDC (with HART digital signal) 22~45V @ 250 $\Omega$
	Chemical Special Model	16.5~45VDC (UART Serial Communication)
<b>Operation temperature</b>	-40 to 80 °C (LCD temperature limits : -20 to 80 °C)	
<b>Process temperature</b>	2 Wire Standard Model	-20 to 100 °C
	3 Wire Chemical Special Model	-20 to 80 °C
<b>Process Pressure</b>	2 Wire Standard Model	0 to 20 bar
	3 Wire Chemical Special Model	0 to 1 bar
<b>Humidity Limits</b>	5%~100% RH	
<b>Response Time</b>	< 1second	
<b>Zero / Span</b>	Reed Switch (2 Wire Standard Model)	
	Serial Communication (3 Wire Chemical Special Model) : Non Reed Switch	
<b>Damping</b>	0 ~ 60 seconds	
<b>Dead Zone(Min.)</b>	Hi(L1) : 100 mm / Low(L2) : 100 mm	

# Smart Magnetostrictive Level Transmitter

# ALT6500

## Ordering Information

Model	Description		
ALT6500	Smart Magnetostrictive Level Transmitter & Indicator		
Code	Measurement		
-L	Level		
-D	Distance		
-I	Interface*		
-3	3 Wire (Chemical Special Order)*		
-X	Special (Manufacture Order)*		
Code	Stem (Probe) & Flange Material		
N	Non (Thread) / 304SS		
S	304 SST		
T	316 SST		
P	PTFE		
I	PVC		
Q	Special		
Code	Process Connection / Stem / Float Ball Size & Material		
A21	ANSI 2" #150	304SST/ 316SST PTFE	Stem : $\Phi 12.7$ (Max. 2M) Float Ball : $\Phi 49 \times 50L \times \Phi 15.3(I.D)$ Stem : $\Phi 15$ (Max. 2M) Float Ball : $\Phi 50 \times 55L \times \Phi 17.5(I.D)$
A31	ANSI 3" #150	304SST/ 316SST PTFE	Stem : $\Phi 21.7$ (Max. 3M) Float Ball : $\Phi 73 \times 105L \times \Phi 23.5(I.D)$ Stem : $\Phi 25$ (Max. 3M) Float Ball : $\Phi 80 \times 98L \times \Phi 32.5(I.D)$
A41	ANSI 4" #150	304SST/ 316SST PTFE	Stem : $\Phi 25.4$ (Max. 3M) Float Ball : $\Phi 95 \times 118L \times \Phi 29(I.D)$ Stem : $\Phi 28$ (Max. 3M) Float Ball : $\Phi 80 \times 98L \times \Phi 32.5(I.D)$
J51	JIS 50A, 10K	304SST/ 316SST PTFE	Stem : $\Phi 12.7$ (Max. 2M) Float Ball : $\Phi 49 \times 50L \times \Phi 15.3(I.D)$ Stem : $\Phi 15$ (Max. 2M) Float Ball : $\Phi 50 \times 55L \times \Phi 17.5(I.D)$
J81	JIS 80A, 10K	304SST/ 316SST PTFE	Stem : $\Phi 21.7$ (Max. 3M) Float Ball : $\Phi 73 \times 105L \times \Phi 23.5(I.D)$ Stem : $\Phi 25$ (Max. 3M) Float Ball : $\Phi 80 \times 98L \times \Phi 32.5(I.D)$
J10	JIS 100A, 10K	304SST/ 316SST PTFE	Stem : $\Phi 25.4$ (Max. 3M) Float Ball : $\Phi 95 \times 118L \times \Phi 29(I.D)$ Stem : $\Phi 28$ (Max. 3M) Float Ball : $\Phi 80 \times 98L \times \Phi 32.5(I.D)$
J86*	JIS 80A 6T FF	304SST/ 316SST	STEM : $\Phi 21.7$ (Max. 3M) Float Ball : $\Phi 73 \times 105L$

Flange

Special Flange

Code	Process Connection / Stem / Float Ball Size & Material			
J16*	JIS 100A 6T FF	304SST/ 316SST	STEM : $\Phi$ 25.4 (Max. 3M) Float Ball : $\Phi$ 96 X 118L	Special Flange
TN2	1" PT(PF)	304SST/ 316SST	Stem : $\Phi$ 8 (Max. 2M) Float Ball : $\Phi$ 28 X 28L X $\Phi$ 9.6(I.D)	Thread
TG2	G 1"	304SST/ 316SST	Stem : $\Phi$ 8 (Max. 2M) Float Ball : $\Phi$ 28 X 28L X $\Phi$ 9.6(I.D)	
S	Special 1" (NonScrew)	304SST/ 316SST	Magnetic Float Level Gauge Assembly Option Stem : $\Phi$ 21.7 (Max. 3M) Stem : $\Phi$ 12.7 (Max. 2M)	
Code	Process Temperature & Pressure			
S	Maker Standard (2 Wire : -20 to 100 °C & 0 to 20 bar, 3 Wire : -20 to 80 °C & 0 to 1 bar)			
HP*	High Temperature & High Pressure			
Code	Output Signal & Type			
A0	4-20mA, 2 Wire, HART		Standard Model	
A1	4-20mA, 3 Wire, UART Serial Communication		Chemical Special Model	
Code	Hazardous Location Certifications			
K0	Maker Standard (Waterproof : IP66)			
K1	KCs Flameproof Approval : Ex d IIC T4			
R1	TRCU(EAC) : Ex d IIC T4			
Code	Electrical Connection			
1	1/2-14NPT			
2	G1/2			
X	Special*			
Code	Option			
M1	LCD Indicator (5 digits)			
LPE	Lightening Protector (External)			
LPI	Lightening Protector (Internal)			
ST	Stainless Steel Housing			
A*	Magnetic Float Level Gauge Assembly (Only Liquid Option)			
Code	Stem Pipe Length (0~3,000mm)			
-□□□□(with unit)	Stem Pipe Length (meter/ ft/ mm/ inch...)			

\* : ask before order

A Code	Magnetic Float Level Gauge Assembly Option (* Process Connection Select Code: S)
C to C(L) (Measuring Range)	Min : 500 mm (19.68 Inch) Max : 2,700~2,800 mm (106.2~110.2 Inch)
Dead Zone	Hi Port : 150 mm / Low Port : 250 mm
Process Temp. & Pressure	-20 to 120 °C / Max 30 bar
Material	Chamber : 304 SST or 316 SST Flange : 304 SST or 316 SST Float : Titanium Tight : 304 SST or 316 SST Tight Type : SUS Tight or SUS Clip
Process Connection (Chamber)	Welding Socket Type Flange Type

## Smart Magnetostrictive Level Transmitter

# ALT6500

### Example

#### 1 Standard Model

**ALT6500 - L S A21 S A0 K0 1 - M1 - 1.0 M**

Stem & Flange Material : 304 SST

Process Connection : ANSI 2" #150

Process Temp. & Pressure : Maker Standard (-20 to 100 °C / 20 bar)

Output Signal : 4-20mA, HART (Standard Select Code A0)

Hazardous Location Certifications : Maker Standard (Waterproof : IP66)

Electrical Connection : 1/2-14NPT (Epoxy-Polyester Painted Aluminum)

Option : LCD indicator(5 digits)

Stem Pipe Length : 1.0M

#### 2 Chemical Special Model

**ALT6500 - 3 P S A1 X - 0.575 M**

Stem Material : 316SS+PTFE

Float Ball & Stopper Material : PTFE

Process Connection : Special : PTFE Union Type

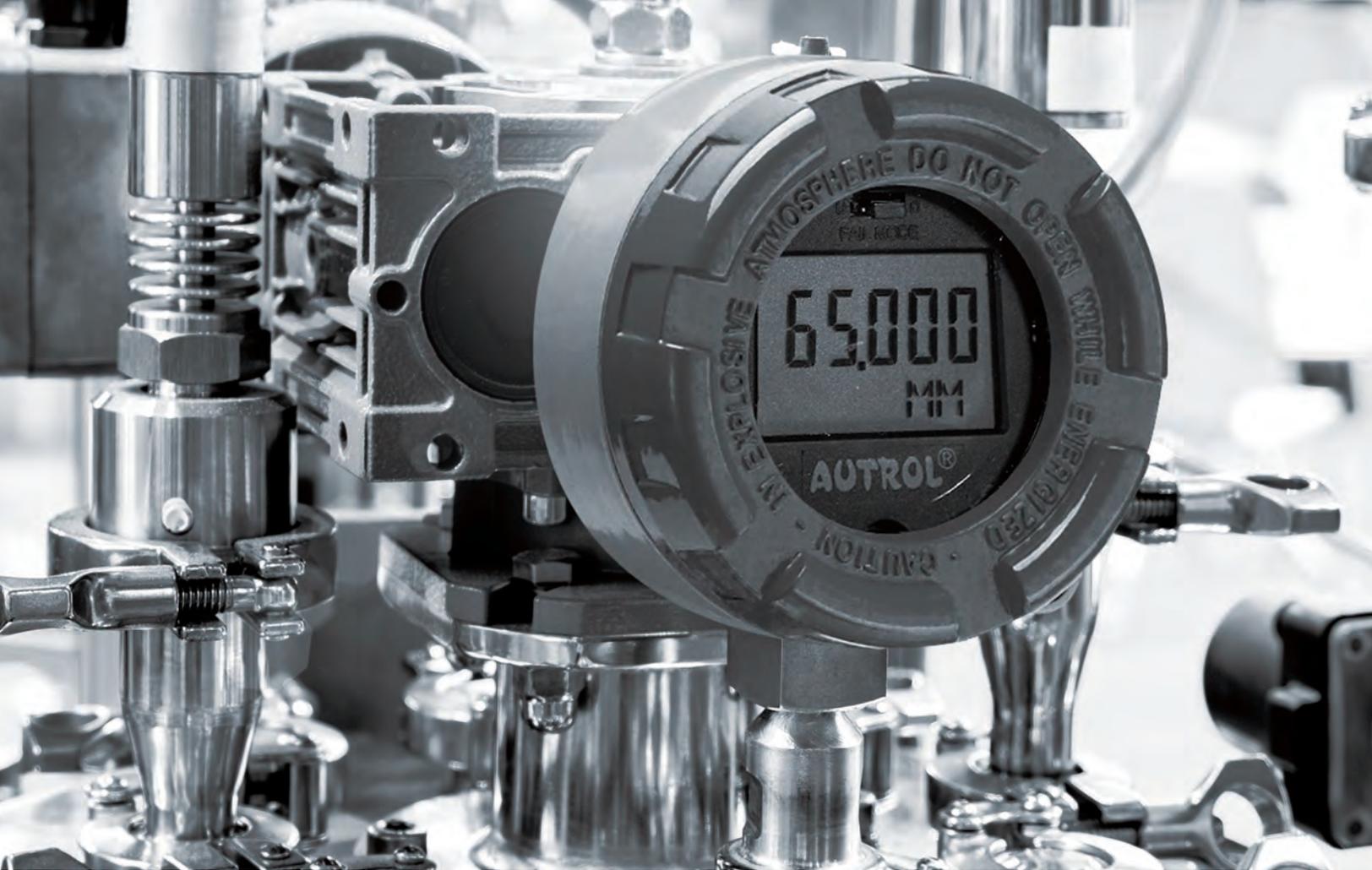
Stem : Φ10 (Max. 0.7M)

Process Temp. & Pressure : -20 to 80 °C & 0 to 1 bar

Output Signal : 4-20mA, UART Serial Communication (Select Code A1)

Electrical Connection : Special : PG11

Stem Pipe Length : 0.575M



### 3 Magnetic Float Level Gauge Assembly Model

**ALT6500 - L N S S A0 K0 1 - M1 A - 2.0 M**

Stem & Flange Material : 304 SST

Process Connection : Special : Magnetic Float Level Gauge Assembly Option

1" (Non Screw) Stem :  $\Phi 12.7$  (Max. 2M)

Process Temp. & Pressure : Maker Standard (-20 to 100 °C / 20 bar)

Output Signal : 4-20mA, HART (Standard Select Code A0)

Hazardous Location Certifications : Maker Standard (Waterproof : IP66)

Electrical Connection : 1/2-14NPT (Epoxy-Polyester Painted Aluminum)

Option : LCD indicator(5 digits)

Magnetic Float Level Gauge Assembly Option

C to C : 1,700 mm

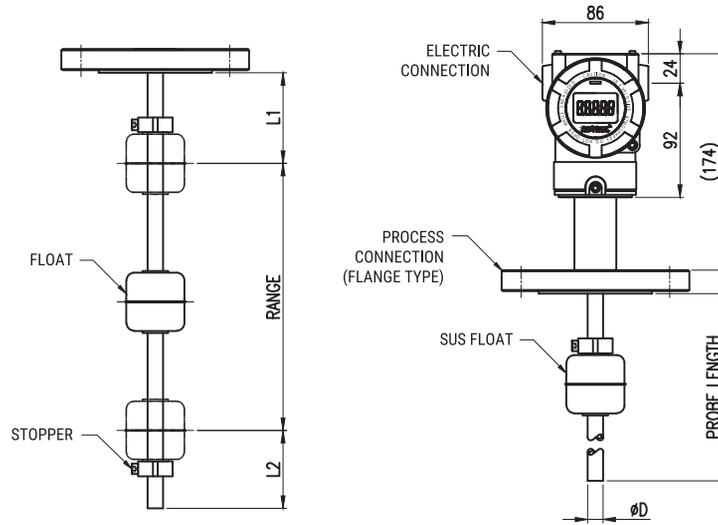
Material : Chamber/Flange : 316 SST, Float : Titanium, Tight : 316 SST

Stem Pipe Length : 2.0M

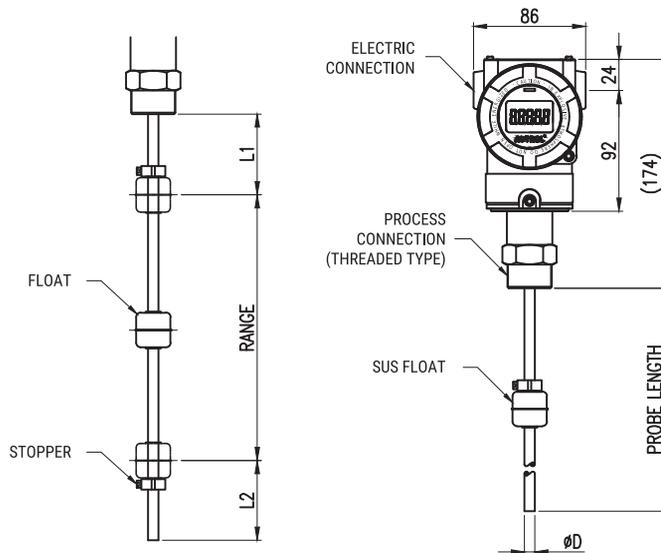
\* Consult Manufacturer to Select model code & length of level device

# Dimension

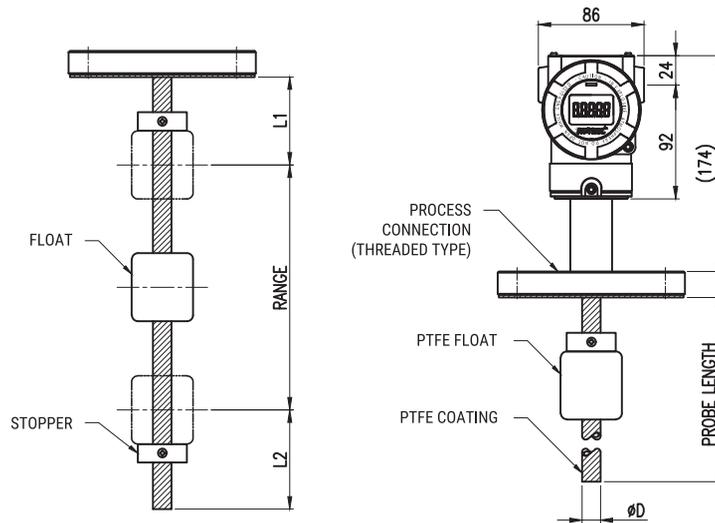
## 1 Standard Model



Process Connection	Guide Pipe Out Diameter (D)	Float Size	Material
ANSI 2" #150 RF (JIS 50A 10K RF)	$\Phi$ 12.7	$\Phi$ 49X50LX $\Phi$ 15.3(I.D.)	304SST 316SST
ANSI 3" #150 RF (JIS 80A 10K RF)	$\Phi$ 21.7	$\Phi$ 73X105LX $\Phi$ 23.5(I.D.)	
ANSI 4" #150 RF (JIS 100A 10K RF)	$\Phi$ 25.4	$\Phi$ 95X118LX $\Phi$ 29(I.D.)	
SPECIAL			
304/316 Model			

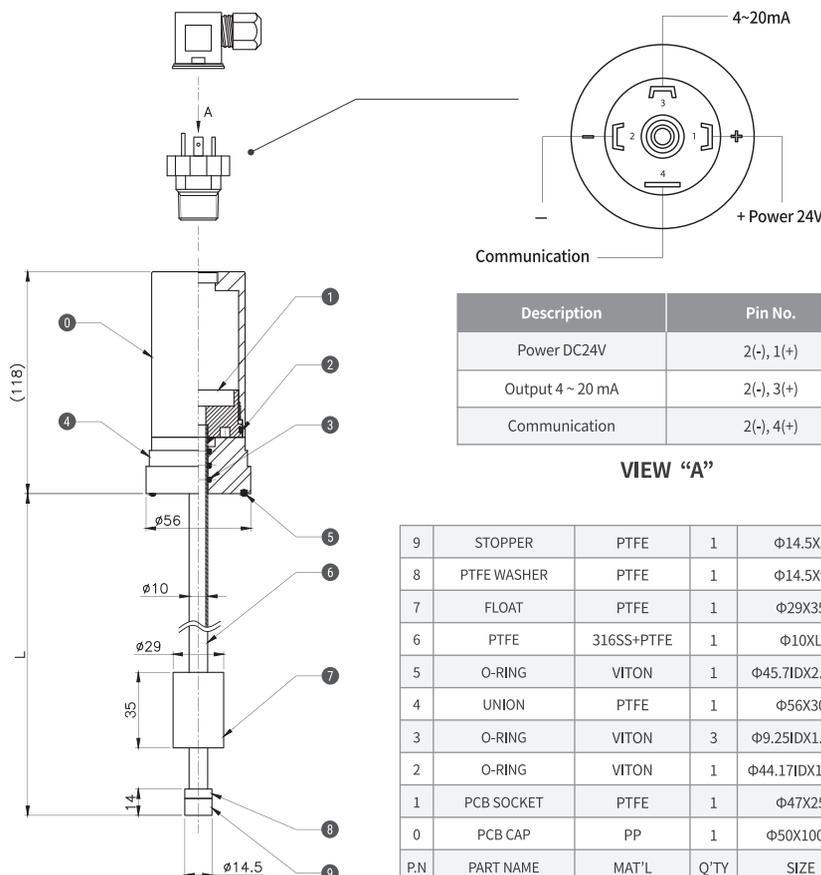


Process Connection	Guide Pipe Out Diameter (D)	Float Size	Material
PT 1" (PF 1")	$\Phi$ 8	$\Phi$ 28X28LX $\Phi$ 9.6(I.D.)	304SST
SPECIAL			316SST
Thread Model			



Process Connection	Guide Pipe Out Diameter (D)	Float Size	Material
ANSI 2" #150 RF (JIS 50A 10K RF)	Φ 15	Φ50X55LXΦ17.5(I.D.)	304SST +PTFE COATING
ANSI 3" #150 RF (JIS 80A 10K RF)	Φ 25	Φ80X98LXΦ32.5(I.D.)	
ANSI 4" #150 RF (JIS 100A 10K RF)	Φ 28	Φ80X98LXΦ32.5(I.D.)	316SST +PTFE COATING
SPECIAL			
PTFE Model			

## 2 Chemical Special Model

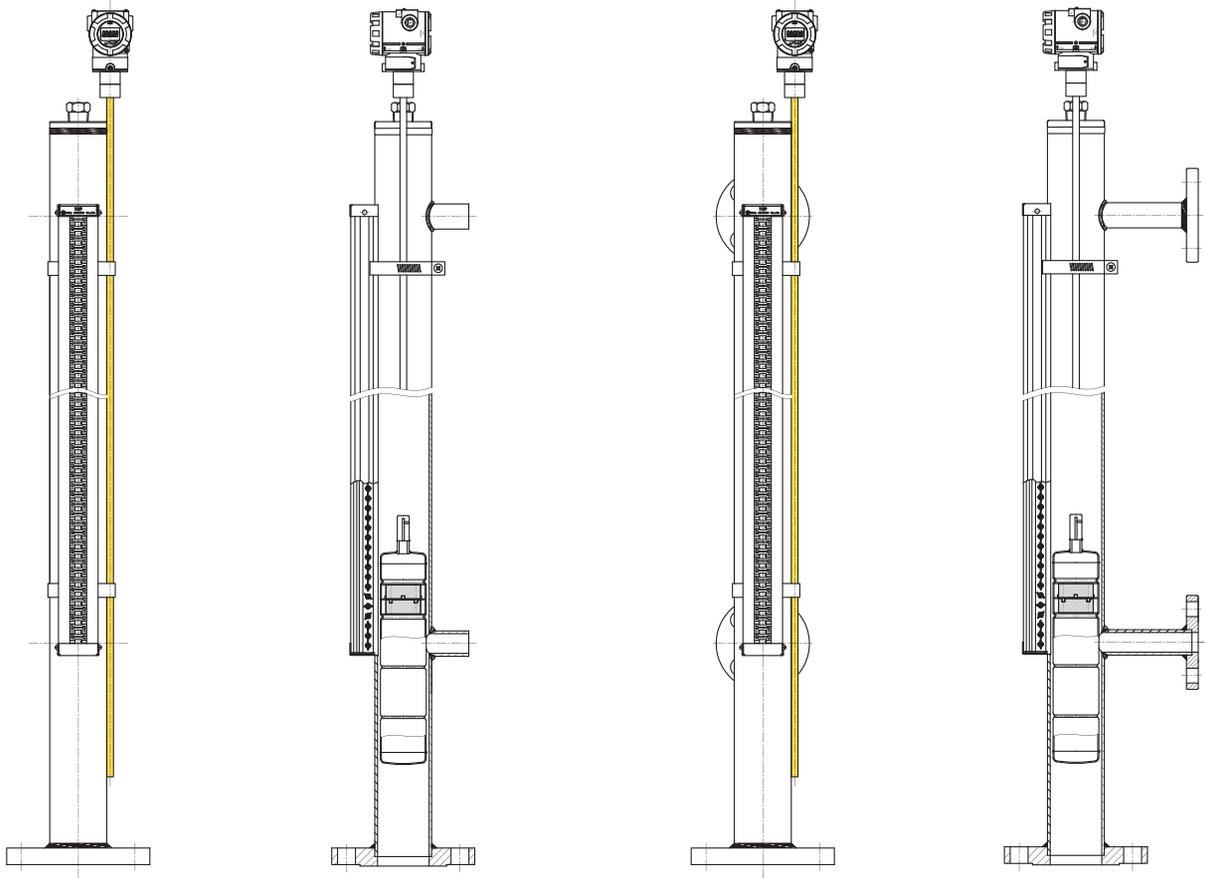


### Key Points

- 3 wire type
- Products used in corrosion-resistant environments
- Chemical Dosing System (For cleaning solar panels)
- Special design by client request

## Dimension

### 3 Magnetic Float Level Gauge Assembly Model



Welding Socket Type

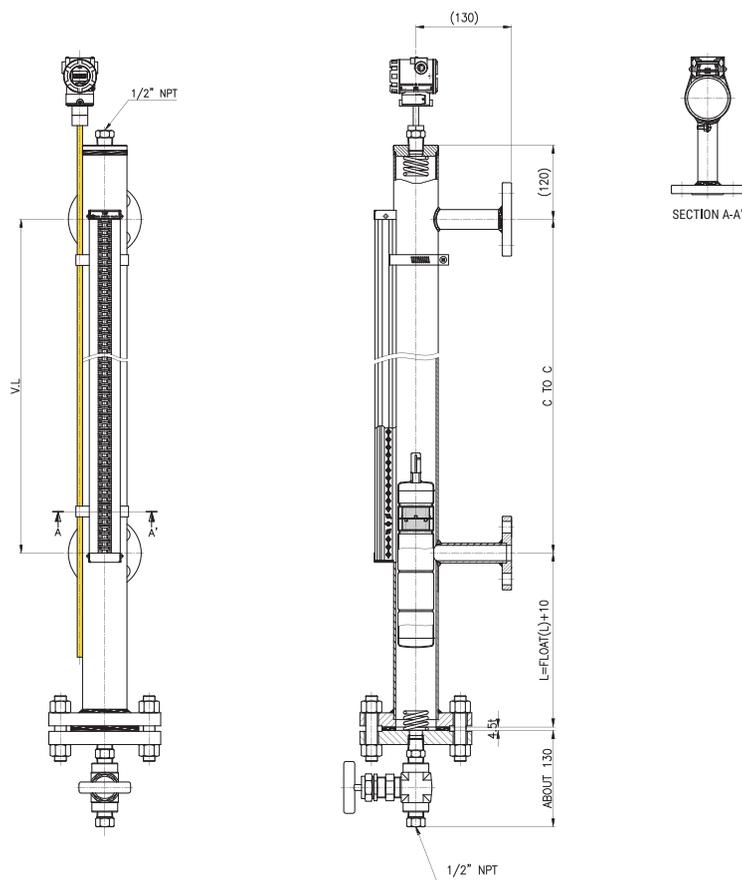
Flange Type

### Key Points

- Special type available.
- Continuous monitoring for output signal(4 to 20mA) is available by simple install on existing Analogue Level Gauge
- Time and Cost effective of Maintenance

# Application Example

## Hydrazine, Ammonia, Phosphatate Tank Level (Power Plant)



\* Contact Manufacturer for more Detail Application

**AUTROL®**

# Smart Magnetostrictive Level Transmitter

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Please consults the manufacturer before order.