

# SMART DIFFERENTIAL

## ELPRT-100S DP

### PRESSURE TRANSMITTER



**ELECTRONET**  
NETWORKING MEASUREMENT SOLUTIONS



# FEATURES

- Capacitance Sensor with Diaphragm
- Non-Intrusive Magnetic Controls
- Rigid Construction
- Two Wire System
- Range-ability 100:1
- LCD Display with Backlight
- Application flexibility with HART Communication
- Separate Electronics and Connection Components



**E**lectronet series ELPRT-100S DP micro-controller based design which has capacitive type pressure sensing element. ELPRT100S DP is suitable for Differential Pressure measurements. It is used for various industrial applications. It can be used for Liquid, Gas & Vapor pressure measurements. It is having wide ranges of pressure with high accuracy & linearity output in the form of electrical signal 4–20 mA DC with HART communication.

## Technical Specifications

### Output Signal

2-Wire-System	4–20mA with super imposed signal for HART protocol, digital communication
Supply Voltage	12.5 – 45 VDC
Signal Range	3.9mA – 20.8mA
Signal on Alarm	3.9mA / 20.8mA
Measuring Range	Refer Pressure Range Table

### Electrical Protection

Insulation Resistance	>100 MΩ at 100VDC
Wiring Protection	Protect against Over Voltage & Short Circuit
Reverse Polarity Protection	Yes
Safe Operating Voltage	50VDC

### Temperature Limits

Ambient	–40 to 80°C (without display), –20 to 70°C (with display)
Storage	–40 to 80°C
Ingress Protection	IP 67

### Performance

Accuracy	+/-0.075% of URL	
Static Pressure Effect	Zero Error: +/-0.25% of URL per 50 Bar	
	Span Error: +/-0.25% of SPAN per 50 Bar	
Power Supply Effect	< ±0.005% of calibrated SPAN per volt	
Vibration Effect	< 0.01% of URL/g @200Hz	
Installation Position Effect	Zero shifts up to +/- 25 mmH <sub>2</sub> O, which can be calibrated out. No SPAN effect	
Thermal Effect	Range code 4 to 8	Zero error = +/-0.3% URL per 28°C
		Total error = +/-0.3% URL +0.25% of calibrated span per 28°C
	Double the effect for Range code 3, 2	
Humidity	5–98%	
Static Pressure	30 Bar to 130 Bar, Higher On Request	
Stability	0.1% of URL per Year	

Turndown Ratio	100:1
Cycle Time / Update Time	0.25 Sec.
Turn On Time	Less than 5 Sec.
Response Time	200 ms (without considering electronic damping)
Damping	0.1 to 30.0 Sec.

### Physical Specifications

Electrical connections	M20 / ½" NPT / Other
Process connection	¼" NPT (F), ½" NPT (F), ¼" BSP (F), ½" BSP (F), Others on request
Diaphragm	SS316 / SS316L, Others on request
Flange	SS316, Others on request
Drain / Vent Valve	¼" NPT – SS316 / SS304
Media wetted O-ring	Viton, Others on request
Electronic housing	Die-cast aluminum / SS316
Flange	Carbon steel with zinc coating / SS316
Nuts, Bolts	M 10 X 96 mm – SS316 / SS304
Identification Plate	SS304 / Carbon steel with zinc coating
Mounting brackets (option)	Carbon steel with zinc coating or with painting
Sight glass	Laminated safety glass
Filling Fluid	Silicon Oil / Others on request
Electromagnetic Compatibility (EMC)	Compliance with IEC 61000-4-3 and IEC 61000-4-6 Radiated and Conducted Susceptibility

### Others

Display Type	Visible Range: 32.5 x 22.5mm
Main Display	5-Digit
Digit height	8 mm
Bar graph	51 Segments
Weight	Standard model approx. 3.4 Kg

### Measuring Range

Range Code	Lower Range Limit (LRL)	Upper Range Limit (URL)	Minimum SPAN
2	-0.1885psi [-0.013 Bar]	0.1885psi [0.013 Bar]	0.00188psi [0.00013 Bar]
3	-1.160psi [-0.080 Bar]	1.160psi [0.080 Bar]	0.0116psi [0.0008 Bar]
4	-5.801psi [-0.400 Bar]	5.801psi [0.400 Bar]	0.0580psi [0.0040 Bar]
5	-29.007psi [-2.0 Bar]	29.007psi [2.0 Bar]	0.290psi [0.0200 Bar]
6	-100psi [-6.895 Bar]	100psi [6.895 Bar]	1psi [0.0689 Bar]
7	-300psi [-20.684 Bar]	300psi [20.684 Bar]	3psi [0.2068 Bar]
8	-1000psi [-68.948 Bar]	1000psi [68.948 Bar]	10psi [0.6894 Bar]

### EMI/EMC Tests

No.	Tests	Basic Standards	Test Conditions	Performance Level
1	Conducted Emission (Mains)	CISPR11	150KHz-30MHz	A
2	Radiated Emission (in GTEM)	IEC61000-4-20	30MHz-1000MHz	A
3	Conducted Radio Frequency Immunity (Mains)	IEC61000-4-6	150KHz-80MHz	A
4	Electrical Fast Transient/Burst (EFT/B) Immunity (on Mains)	IEC61000-4-4	1KV(5/50nSec,5KHz)	A
5	Combination wave surge Immunity (on Mains)	IEC61000-4-5	1KV(Line to Line) ( 1.2/50us)	B
6	Immunity to Radiated Electromagnetic Fields (Amplitude Modulated)	IEC61000-4-3	80MHz – 1000MHz (10V/M)	A
7	Damped Oscillatory surge Immunity (on Mains)	IEC61000-4-18	1KV(Line to Ground) 0.5KV(Line to Line)	B
8	Electrostatic Discharge (ESD) Immunity	IEC61000-4-2	6KV(Contact) 8KV(Air)	A

Menu Function

Transmission Module Type

Output Signal	Local Control	Remote Control
4-20mA + HART	LCD/2 Buttons on Body	HART
4-20mA	LCD/2 Buttons on Body	-

Alarm signal

Parameters	Alarm Signal
Alarm H	20.0mA
Alarm L	4.0mA

Measuring Menu

Mark	State
URL	Upper Range Limit
LRL	Lower Range Limit

LCD Display Unit

Display mode	Details
PV	Process value shown on main screen
mA	Current shown on main screen
%	Percentage shown on main screen
Progress Bar	Progress bar shown on main screen top side

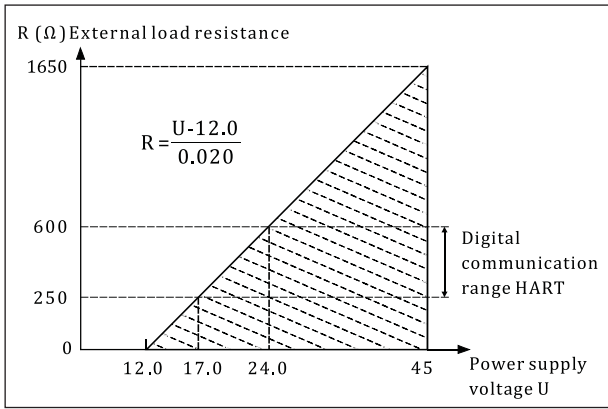
Analog Output Type

Parameters	Output Type
mA LINER	Linearity
mA√	Square Root

Units

Unit	Defination
BAR	Bar
mBAR	Millibar
mmH2O	Millimeter of water @ 4°C
Kg/cm2	Kilogram per square centimeter
Kpa	Kilopascal
mmHg	Millimeter of mercury @ 0°C
PSI	Pounds per square inch

Power Supply & Load Requirements



Product Drawing & Dimensions

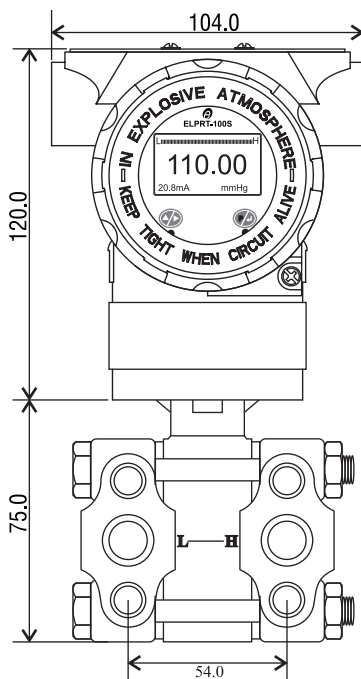


Fig.1 Front View

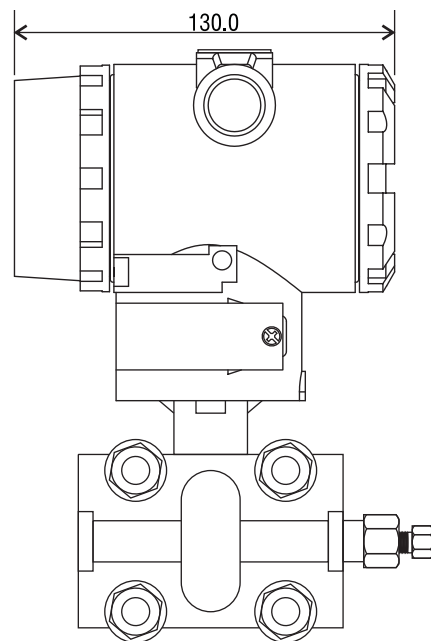
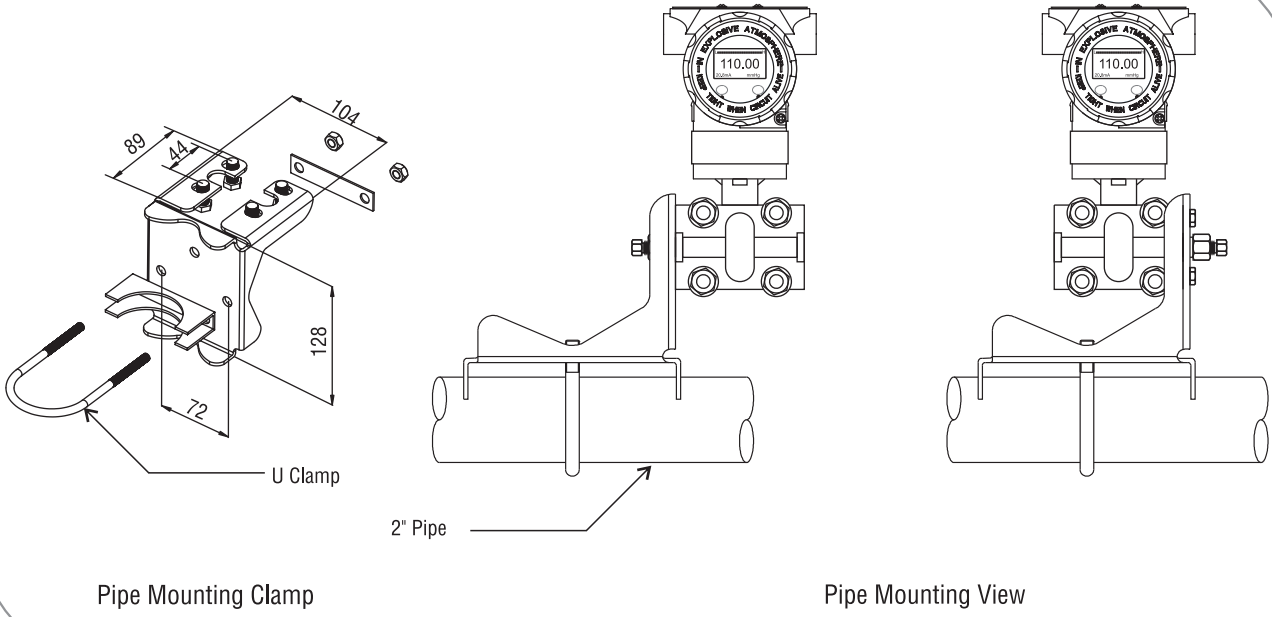


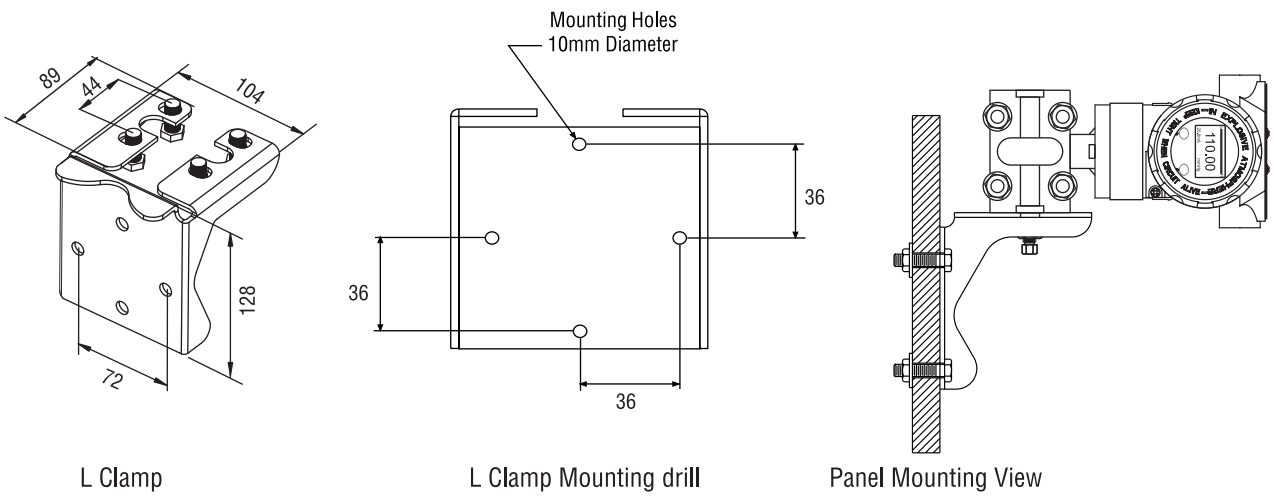
Fig.2 Side View

### Installation Drawing & Dimensions

#### Pipe Mounting



#### Wall Mounting



#### Measuring Medium

Liquid, Gas or Steam

#### Field of Application

Pressure, Level,  
Differential Pressure & Flow

#### Approvals



## Ordering Information

05	07	21	22	49	65	66	67	77	78	91
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Parameter	Code	Value	Parameter	Code	Value				
05	Pressure Range	05A	0.1885 psi	66	Process Connection	66G	¼" NPT (M)		
		05B	1.16 psi			66H	½" NPT (M)		
		05C	5.801 psi			66I	¼" BSP (M)		
		05D	29.007 psi			66J	½" BSP (M)		
		05E	100 psi			66L	2 Meters Capillary		
		05F	300 psi			66R	¼" NPT (F)		
		05G	1000 psi			66S	½" NPT (F)		
07	Area Classification	07A	Weather Proof			67	MOC Flange	67C	SS316
		07B	Flame Proof					67X	Other
21	Electrical Connection	21A	M20 X 1.5 (F)			77	Sensor Type	77A	Piezo Resistive
		21B	½" NPT (F)	77B	Capacitive				
		21X	Other	78	Fill Fluid	78A	Silicon Oil		
22	MOC Electronics Enclosure	22A	Die Cast Aluminium			78X	Other		
		22B	SS316	91	Mounting Bracket	91A	CS		
49	Output	49A	4 to 20mA			91B	SS		
		49B	4 to 20mA with HART	65	Wetted Parts Material	65A	SS316		
65X	Other								

Note : • Due to our continuous product revisions, design specification and model numbers are subject to change without notice.  
 • Accuracy defined at Lab Conditions.  
 • For other requirement please consult factory.

## Applications

Food Industry	Chemical Industry	Atomic Energy	Manufacturing Industry
Automation Industry	Thermal Power Energy	Process Industry	Water Treatment Industry

## Authorised Dealer



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