

SHICO. MODEL : SEZ Series ELECTRONIC DISPLACEMENT LEVEL TRANSMITTER

■ INTRODUCTION

SEZ Series instruments bring state-of-the Art performance to liquid level transmitting applications.

These advanced two wire instruments utilize SHICO's buoyancy principle to detect and convert liquid level changes into a stable 4-20 milliampere output signal.

The bond between the level sensing element and output electronics greatly simplifies mechanical design and construction. The vertical configuration of the transmitter reduces instrument weight and simplifies installation, and the electronics enclosure may be easily positioned to face in any direction.

SEZ Series instruments exhibit superior stability performance on agitated or turbulent liquid level application, and the transmitter's in-line vertical design reduces the effects of process vibration on electronic circuitry components.

■ CONSTRUCTION FEATURES

SHICO SEZ Series transmitters are available for Top-of Vessel mounting applications utilizing a 3 inch pipe flange. Other flange size are also offered. A complete range of external cage models is available with a choice of 150 Lb, 300 Lb, and 600Lb.

Construction in carbon steel or complete stainless steel.

RANGE SPRINGS. All spring are precision wound with extra care taken in manufacture to insure low stress values. After manufacture they are specially heat treated to exhibit less than a 2% permanent set at 700°F.

Standard spring material is inconel. Generous clearances between coils (and housing) are maintained each head is equipped with built-in limit stops which prevent over stroking of the spring-even under servers level surge conditions or blow-down.

DISPLACERS. Standard displacers for all level ranges are of type 316. stainless steel. For transmitters rated to 600 Lb. ANSI., displacers are designed for pressures up to 2400 psi.

TRIM PARTS. All parts in contact with the process liquid or its vapors are of 300 series stainless steel.



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■ ENGINEERING FEATURES-BENEFITS

① All Cast Iron Enclosure

Ideal for corrosive environments and offshore applications.

No aluminum exposed to atmosphere.

Designed to meet Class I Groups B, C, & D, Class II Groups E, F, G, of the National Electrical Code.

② High Temperature Capability

Standard models designed for continuous liquid temperatures to 232°C, higher temperatures on application.

③ Easy Field Wiring

All transmitters are equipped with integral junction fitting.

No need to open electronics enclosure to make terminal connections.

④ Available Indicating Meter

All transmitters are available with choice of analog or digital indicating meter.

⑤ Easy Installation

Electronics enclosure rotates to face in desired direction. No right or left hand specifications required.

⑥ Non-Interacting Zero And Span

Adjustments External adjustments are environmentally sealed.

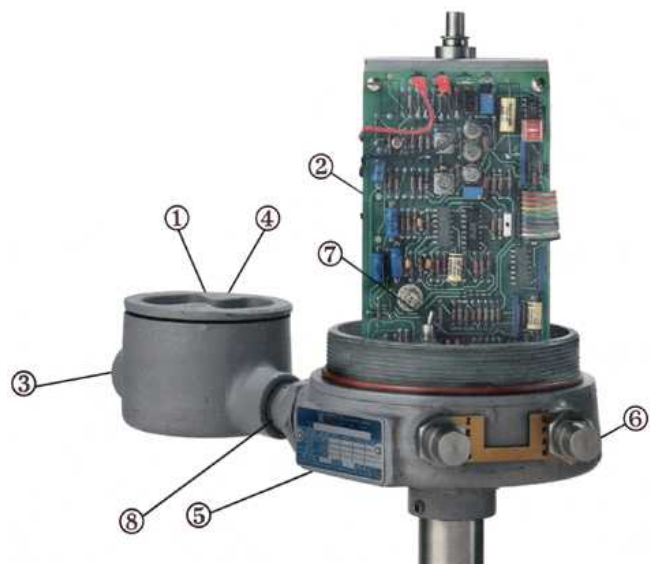
⑦ Direct Or Revers Acting-Field

Selectable

Operating mode is field selectable. Standard factory setting is direct acting.

⑧ Special Conduit Seal

Moisture and condensation cannot seep into electronics enclosure.



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ELECTRONIC DISPLACEMENT LEVEL TRANSMITTER

■ SELECTING TRANSMITTER ELECTRONICS

Two basic types of SEZ Series transmitters are available; blind transmitters and models with an indicating meter

■ BLIND TRANSMITTER

These models are available for 24VDC, 115VAC or 220VAC supply voltage, and are furnished with a gasket, cast iron junction fitting are explosion proof and designed to meet the National Electrical Code Classes I & II, Groups B, C, D, E, F & G.



BLIND TRANSMITTER WITH WIRING JUNCTION FITTING

■ TRANSMITTER WITH INDICATING METER

These models are furnished with either an analog or digital meter to display liquid level as a percentage of displacer sensor length.

Analog meters may be integrally mounted on the transmitter as shown below, or specified for remote mounting. Digital meters must be mounted from the transmitter



TRANSMITTER WITH ANALOG INDICATING METER INSTALLED IN WIRING JUNCTION FITTING

MODE OF OPERATION. All transmitters are factory set to operate in the Direct Acting Mode (a rising liquid level increases output signal). Reverse acting mode is field selectable by positioning a toggle switch on the printed circuit board located in the electronics enclosure.



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■ SPECIFICATIONS AND PERFORMANCE CHARACTERISTICS

POWER SUPPLY AND LOAD ... 12 to 36 VDC.
With 24VDC supply; max. output load is 600 ohms.
115VAC 50/60 Hz supply or 230VAC optional.

OUTPUT SIGNAL ... Two wire 4 to 20 mA
Direct or revers action, field selectable.

AMBIENT TEMPERATURE LIMITS (Electronics)

-40°F to +160°F
-40°C to +70°C

LINEARITY ... $\pm 0.25\%$ of full span.

RELIABILITY ... $\pm 0.2\%$ of full span.

Maximum zero shift is 0.015% per °F from 0°F to
+ 160°F

PROCESS TEMPERATURE

-20°F TO +450°F
-29°C TO +232°C

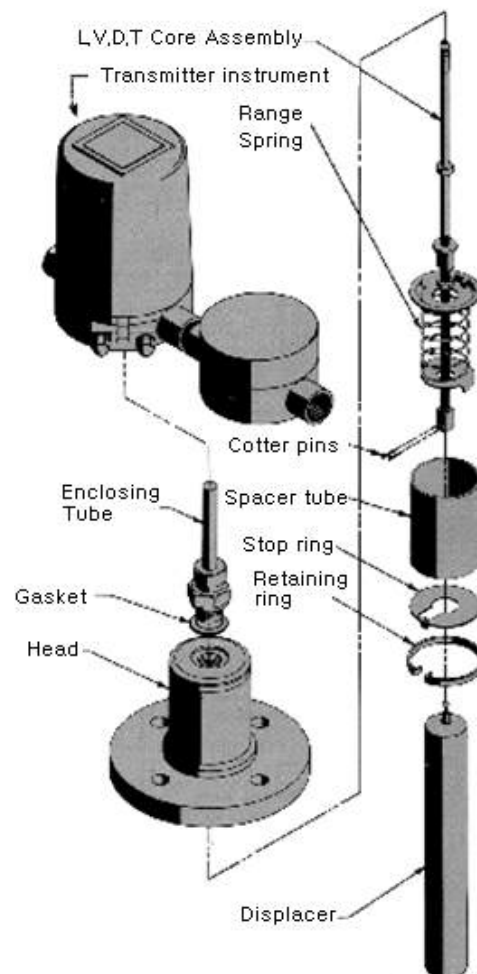
Minimum temperatures given are for carbon steel construction materials. Complete stainless steel construction is recommended for lower process temperatures. Maximum temperatures given are for ambient temperatures up to 120°F (49°C). Higher ambient temperatures require reduced process temperatures.

Transmitters are designed and tested to comply with the requirements of Maker Standard.

■ RUGGED, RELIABLE SENSING ELEMENTS

The displacement type sensing elements used with SEZ Series transmitters are the field proven units introduced with Magnetical pneumatic SHICO controllers. Their rugged simple design, backed by 20 years of field performance, assures dependable operation ... and they offer the user ease of maintenance.

The vertical in-line design of SEZ Series instruments minimizes the effects of process vibration on transmitter electronics.



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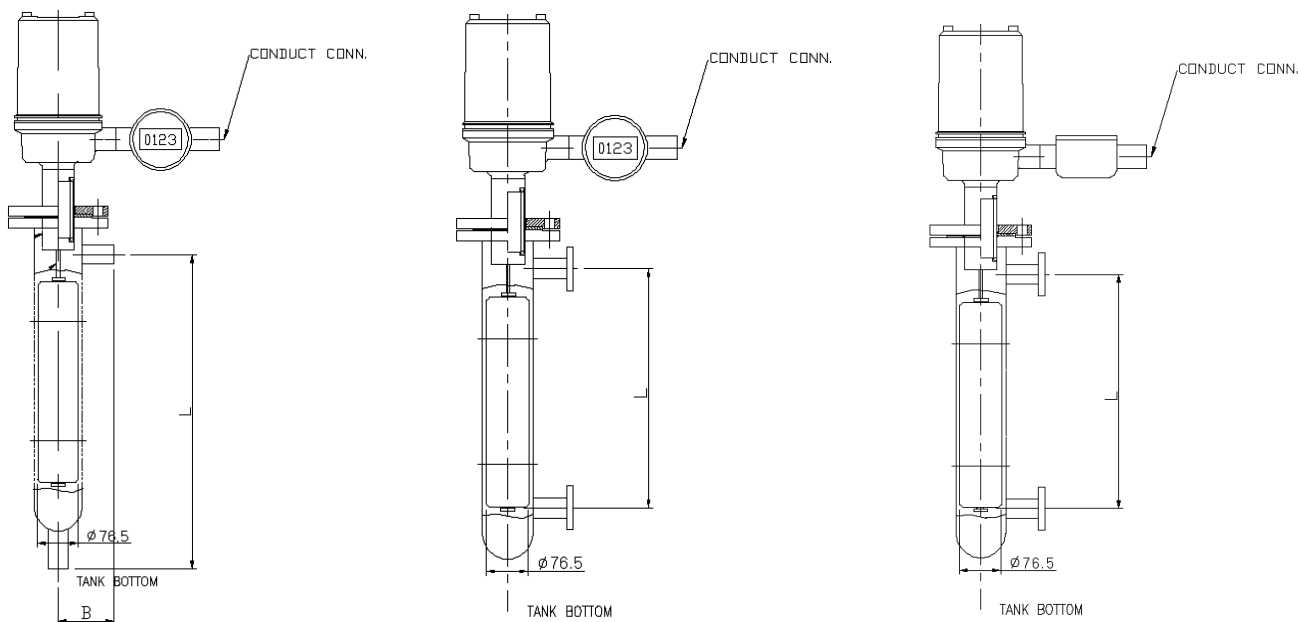
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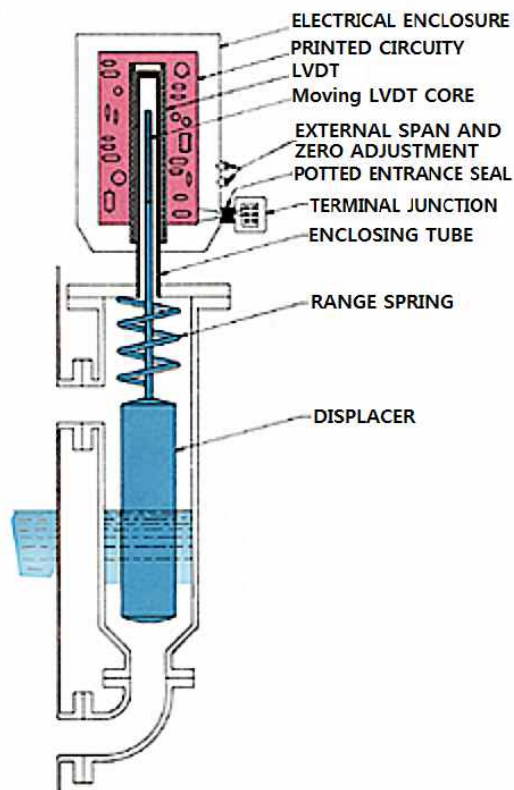
■ TYPICAL DIMENSION



■ OPERATING PRINCIPLE

Liquid level change acts upon the spring supported displacer causing vertical motion of a core within a linear variable differential transformer(LVDT).

The enclosing tube acts as a static isolation barrier between the LVDT and the process media. As core position changes with liquid level, voltages are induced in the secondary windings of the LVDT. These signals are processed in the electronic circuitry and used to control the current in the 4-200mA output current loop.



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ELECTRONIC DISPLACEMENT LEVEL TRANSMITTER

ORDERING INFORMATION

SEZ Series transmitters are identified by a ten digit alphanumeric parts number system. The number configuration materials of construction level ranges and other options vital to the performance and function of the instrument

CODE	Mounting Type
TM	Top mounting
SB	Side-Bottom mounting
SS	Side-Side mounting
CODE	Material
1	Fabricated Steel, flange and head assembly. Type 316SS displacer and internal trim
2	Fabricated Type 316SS. All metal parts in contact with process media of type 316SS
CODE	Liquid Specific Gravity Range
1	0.11 to 0.54
2	0.55 to 1.09
3	1.10 to 2.20
CODE	Service Max. Temp.
1	300°F * Material Code no 2 is only choice '1'
2	450°F
3	Above 450°F
CODE	Transmitter
A	Blind transmitter (4~20mA output signal)
B	Transmitter with analog indicator (4~20mA output signal)
C	Transmitter with digital indicator (4~20mA output signal)
CODE	Tank connection
1	3" Pipe for top mounting type
2	4" Pipe for top mounting type
3	6" Pipe for top mounting type
4	NPT 1 1/2" for side-side / side-bottom type
5	NPT 2" for side-side / side-bottom type
6	1 1/2" Welding Socket for side-side / side-bottom type
7	2" Welding Socket for side-side / side-bottom type
8	1 1/2" Flange for side-side / side-bottom type
9	2" Flange for side-side / side-bottom type
CODE	Flange Rating and Charge Rating
1	150Lb
2	300Lb
3	600Lb
CODE	Power Supply
1	24V DC Power Supply
2	120V AC Power Supply
3	240V AC Power Supply

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