



Continuous Level Transducer

**Operating
Data
Installation
Maintenance
Instructions**

**For
Level Transducer**

CSR Series

Specifications are subject to change.

Operation Instructions Rev. 1 Jan 01
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Level Transducer

1. Note

*****Please read and take note of these operating instructions before unpacking and commissioning.

The instruments may only be used, maintained, and installed by qualified personal familiar with the operating instructions and the applicable health and safety requirements. *****

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3. Specific Applications

The Level Control Transducer has been designed for use in rugged level monitoring applications and pump control for liquids.

The probe part of the gauge can be manufactured from most non-magnetic materials including plastics. The floats can be either stainless, buna or engineered plastics.

The Level Transducer can be configured from the factory in many lengths and configurations.

4. Operating Principles

Hermitically sealed reed switches and a resistive chain are potted inside the transducer on an engineered printed circuit board. The float (stainless, Buna or plastic all contain either a rod or ring magnet potted or gripped inside. As fluid moves the float – it's magnetic lines of force change the resistance output of the transducer. Standard output is 3 wires for voltage use or for a fuel sender type using two wires from the resistance stack. – To work with specific fuel gauges – resistance should be indicted on ordering. A 4-20 option is available.

5. Instrument Instructions

The instruments are thoroughly inspected by the factory prior to shipment and sent in perfect working condition. Should any damage to the device be visible, we recommend a thorough inspection of the delivery packing. In case of damage please inform your parcel service/forwarding agent immediately, since they are responsible for damages incurred during transit.

Scope of delivery:

- Level Transducer per Purchase Order
- Operation Manual

Level Transducer

6. Mechanical Installation

Must be installed to local piping and plumbing codes. Use caution when handling the wires, as they can be easily crushed against the head or potting. Ensure that the bottom of the probe does not come in contact the tank bottom, as the probe will easily bend.

Use a wrench on the larger of the two fittings to install. Do not use any tool or clamp on the actual probe tube.

7. Technical Specifications

Preliminary Technical Data Sheet

Instrument Type	Continuous level Transducer
Model	Custom
Housing Size	Custom
Housing Material	Custom
Float	Custom
Flag Display	N/A
Temperature	-20 to 225 deg. F oil
Reed Only	Max 36 VAC/DC
Top Fitting	Custom
Bottom Flange	N/A
Reed position	Fixed
Ruler	N/A
Liquid Indication	Remote wires
No Liquid Indication	N/A

8. Electrical Connection

ATTENTION: Ensure that the voltage levels of your supply system agree with the voltage levels given on specification sheet.

Make sure that the electric supply lines are not active during connection to this device.

- Improper wiring can lead to damage of this device as well as injury to the user.
- Make sure that installation; wiring and circuit protection are in **accordance with all local electrical codes.**
- Make sure the supply circuit **provides adequate fuse or circuit breaker protection** that is in accordance with the circuits current rating.

Electrical connections to the relay module are made by - connecting the wires to and out of the NEMA box. Wiring is per attached drawings and specifications.

Level Transducer

Wiring Table

If voltage – Black is (-)
Red is (+)
White is (stack)

Fuel Sender Only – ohms must be specified at time of order.

If Resistive - 12 or 24 VDC fuel sender
Black is (-)
White (+)
Red – not used.

Adjustments

Continuous controls are not adjustable.

Operation

The resistance will change as the float moves on the transducer.

Wiring Diagram

Red = + (positive) top
Black = - (negative) bottom
White = stack (top)

9. Set Up

IMPORTANT INFORMATION

The unit is rugged - but the electrical controls are pilot duty devices good for millions of operations if installed correctly.

Level Transducer

10. Troubleshooting

The resistance does not change:

Not field fixable.

- Check the sensor black and white wire OHM meter scale to read from near 0 about 5000 ohms. Or:
- Check with voltage 1 to 10 VDC – Black is (-) Red is (+) white is (stack) slide the float - a mA scale should show float position.

11. Maintenance

The Level Transducer requires no special maintenance other than making sure sludge or debris to not enter the gauge. If the application is dirty – wipe the unit down on a regular schedule to prevent buildup on the probe interfering with float movement.

Sensors can be replaced as well as added to.

There are no user serviceable parts inside the Level Transducer. If repair is required, please contact your local distributor to return for repair.

Continuous Transducer

	<p>Probe Material: – 316 Stainless Steel</p> <p>Float Stops: 316 SS located at top and bottom.</p> <p>Output: 4-20mA CSA approved signal generator</p> <p>Wire Exit: Lead wires are epoxy sealed exiting the probe.</p> <p>Connection Head: NEMA 4X, IP68</p>	
<p>Available Fittings</p> <p>The smallest NPT size would be 1 1/4" NPT.</p> <p>Any available size NPT can be used above that size.</p> <p>Flange any size above 1 1/2" NPT can be used.</p> <p>Custom process connections can also be adjustable or 90-degree bends.</p>	<p style="text-align: center;">OPTIONS</p> <p>RTD</p> <p>Thermocouple</p> <p>Extended span below box</p> <p>4-20mA output</p> <p>Explosion Proof junction box</p>	<p style="text-align: center;">OPERATION</p> <p>A printed circuit board runs the length of the probe inside. On the board is a continuous chain of individually encapsulated reed switches. Opposite the reeds is a series of pre-calculated resistors.</p> <p>As the float passes over the reeds, the reed switch closed, thus allowing the signal to pass thru the resistors matching the float location.</p> <p>They work in sets of 3 – 2 -3 etc.</p>

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Operating Data Instructions For XR500 4-20(optional)

RESISTANCE TO CURRENT TRANSMITTER

PRE- CALIBRATED

The XR500 4-20 conditioner module is mounted onto a level transducer such as the CSR series, which have a reed chain resistive output.

The conditioner accepts the 3 – wire (potentiometer type) signal and converts the raw resistance signal from the measuring transducer into an industry standard 4-20mA current signal.

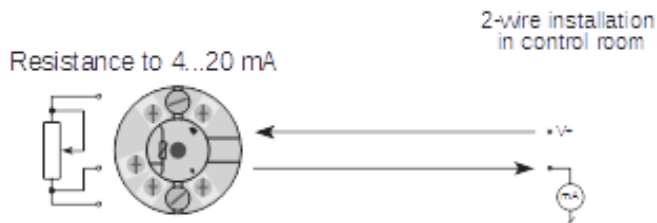
The XR500 4-20 is a loop powered in a two – wire configuration on the 4-20 Current Output.

The XR500 4-20 is available installed in an aluminum enclosure.

NEMA 4 enclosure

Temperature range ■ -40 to 85 deg. C

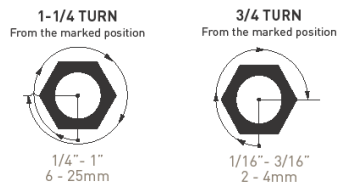
Supply voltage ■ 8.0...30 VDC



OPTIONAL

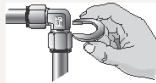
A-LOK® ASSEMBLY & REMAKE INSTRUCTIONS

- 1 Insert the tube into the fitting until it is fully bottomed.
- 2 Rotate the nut until it is finger tight.
- 3 Mark the nut in the 6 o'clock position.
- 4 Tighten the nut with a suitable wrench an additional 1-1/4 turns to the 9 o'clock position.
For sizes below 6mm/1/4" - 3/4 turn only.



GAUGEABILITY

Use Parker Inspection Gauge to ensure that correct turns of the nut are made.



Place the gauge between the nut and the body hex. If gauge does not fit between them, you have correctly tightened the nut. If you can slip the gauge into the space, the fitting is not properly made up, and you must repeat the assembly procedure.

NOTE: Parker Inspection Gauge should only be used on original make up.

RETIGHTENING AND DISASSEMBLY

Parker tube fittings can be disassembled and re-tightened many times and the same reliable, safe, leak-proof connection obtained.

- 1 Re-insert the tube back into the fitting body. Ensure it is fully seated. The mark on the nut will return to approximately the 7 o'clock position.
- 2 Turn the nut back with a wrench to the original 9 o'clock position or nearly 1/4 of a turn. A noticeable increase in mechanical resistance will be felt indicating the ferrule is being resprung into sealing position.



Parker Double Ferrule Compression Tube Fitting A-LOK®

The fitting is remade.

For sizes above 16 (1"), the Parker IPD Hydraulic Presetting Tool or Rotary Wrench Tool should be used.

SPECIAL ASSEMBLY

Plugs and Port Connectors only

For plugs and this end of port connectors, only 1/4 turn from finger tight is necessary.



PLUG

Tighten this end of port connector 1-1/4 turns from finger tight.

NOTE: Lubrication of the nut is REQUIRED for proper assembly on all LARGER size fittings in both inch and metric sizes. This requirement applies to:

- inch sizes of 20 and higher
- metric sizes of 25 and higher

CAUTION: Do not make up Parker fittings or any instrumentation tube fitting by torque or 'feel' since variables in all fitting connections such as tubing and fitting tolerances, wall thickness of the tubing and lubricity of nut lubricants can result in improperly assembled tubing connections.



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Watch How to Assemble A-LOK Fittings on YouTube
[youtube.com/ParkerHannifinCorp](https://www.youtube.com/ParkerHannifinCorp)

www.parker.com/ipd

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