

# ProCon® — C450 Series

## Conductivity Sensor Transmitter



**ICON**™ Corrosion-Free  
PROCESS CONTROLS Instrumentation Equipment



- ✓ Eliminate Costly Conductivity Module
- ✓ Direct 4-20mA & RS485 Outputs
- ✓ No Costly Conductivity Module Required
- ✓ High Accuracy  $\pm 0.5\%$
- ✓ Quick Response Time
- ✓  $3/4"$  NPT Connection
- ✓ Factory Calibrated
- ✓ 2-Electrodes
- ✓ Conductivity | TDS | Salinity | Resistivity
- ✓ Optional Local Display c/w High/Low Alarm Set-points

**This rugged titanium workhorse is available in 4 different cell classes for a truly versatile sensor**

The ProCon® line of analytical sensor transmitters are designed for difficult industrial applications and to outperform even in extreme conditions.

The sensor transmitters come pre-calibrated and can be configured with or without a junction box. The C450 also features the convenience and safety of the M12 quick connection with no additional conductivity module required.

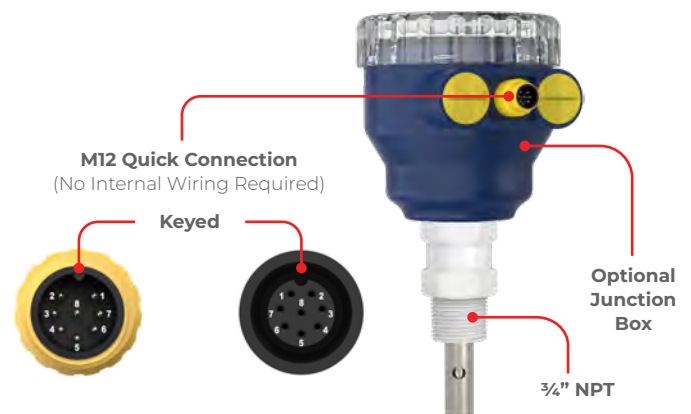
### Specifications

|                           |                                                                                 |
|---------------------------|---------------------------------------------------------------------------------|
| Power Supply              | 9 – 36VDC                                                                       |
| Sensor Electrode Material | Titanium Alloy                                                                  |
| Housing Material          | PP                                                                              |
| IP Rating                 | IP68                                                                            |
| Measurement Range         | 0 – 100 $\mu$ S   0 – 1,000 $\mu$ S<br>0 – 10,000 $\mu$ S   0 – 200,000 $\mu$ S |
| Accuracy                  | $\pm 0.5\%$ of Reading                                                          |
| Pressure Rating           | 150 Psi                                                                         |
| Temperature Compensation  | PT1000 (Std)                                                                    |
| Temperature Range         | 14 – 176°F   -10 – 80°C                                                         |
| Calibration               | Factory Calibrated                                                              |
| Connection Methods        | • 4-20mA 2 wire<br>• 4-Wire (direct to ProCon® controller)<br>• 4-20mA + RS485  |
| Cable Length (w/o J-Box)  | M12: 5m cable can be extended to 100m                                           |
| Installation Thread       | NPT $3/4"$                                                                      |

The ProCon® C450 series double electrode conductivity sensor transmitter has been proven to operate seamlessly in industrial applications up to 200,000 $\mu$ S/cm.

The 2-wire 4-20mA, 4-wire or 4-20mA + RS485 output options simplify calibration and communication with remote displays and controllers.

Always ask for **ProCon® C450** by name to be sure you are getting a genuine **Icon Process Controls** product.

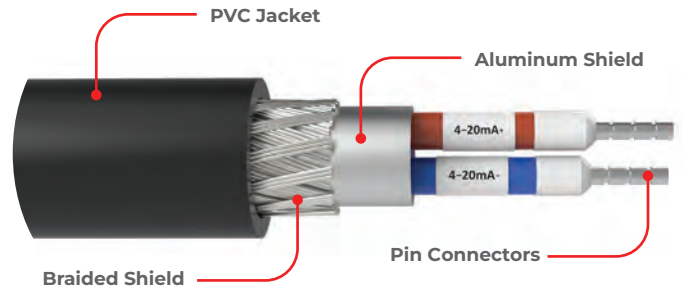
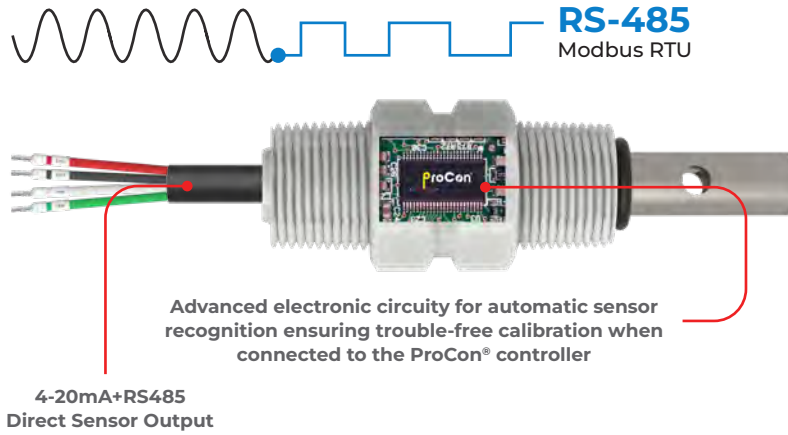


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## Wiring



## Double Shielded Cable

IO-Link **OUT** to PLC

4-20mA **IN** from Sensor



## IO-Link (No Internal Wiring Required)

## Cable Options

The ProCon® series offer complete flexibility of cabling options throughout the range. All cables are shielded against spurious EMI and are potted inside the sensor ensuring environmental protection.

The standard cable length for most sensors is 5m (15 ft). However, cables can be supplied as any continuous size up to 100m.

## Junction Box

No tools  
required

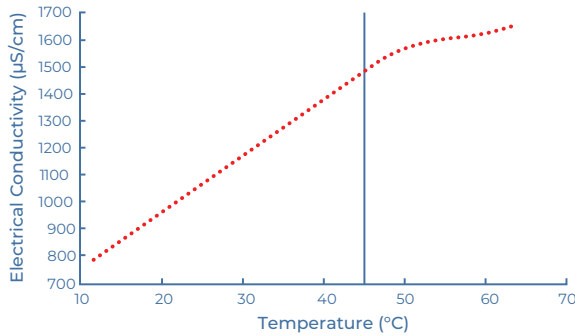


# ProCon® — C450 Series

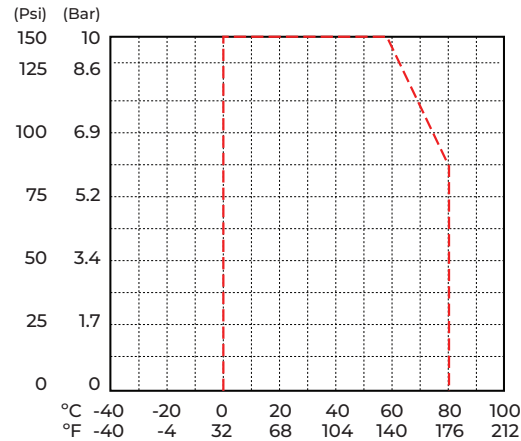
## Conductivity Sensor Transmitter



### Temperature Effects

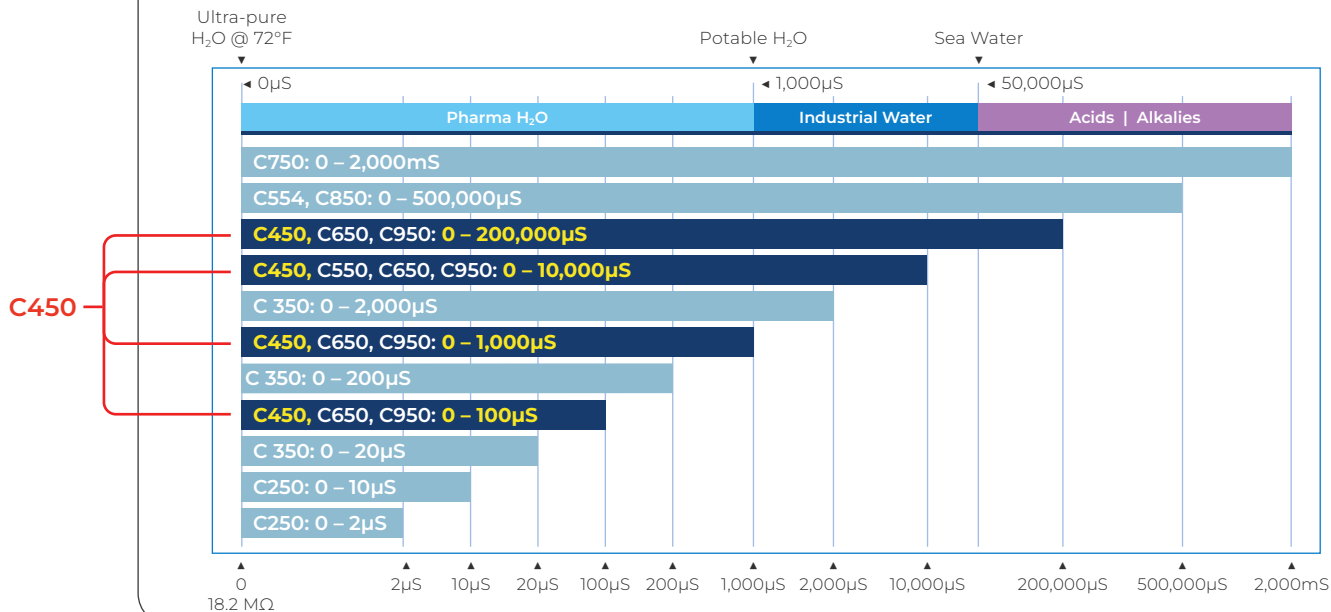


### Temperature vs. Pressure



### Factory Calibrated

ProCon® conductivity sensors come with a factory default that covers the range of the sensor



### Sensor Type

| Cell             | Models                        | Range                |
|------------------|-------------------------------|----------------------|
| Cell 0.01        | C250                          | 0 – 2µS              |
| Cell 0.01        | C250                          | 0 – 10µS             |
| Cell 0.1         | C350                          | 0 – 20µS             |
| <b>Cell 0.01</b> | <b>C450, C650, C950</b>       | <b>0 – 100µS</b>     |
| Cell 0.1         | C350                          | 0 – 200µS            |
| <b>Cell 0.1</b>  | <b>C450, C650, C950</b>       | <b>0 – 1,000µS</b>   |
| Cell 0.1         | C350                          | 0 – 2,000µS          |
| <b>Cell 1.0</b>  | <b>C450, C550, C650, C950</b> | <b>0 – 10,000µS</b>  |
| <b>Cell 10</b>   | <b>C450, C650, C950</b>       | <b>0 – 200,000µS</b> |
| Cell 0.4         | C554, C850                    | 0 – 500,000µS        |
| Toroidal         | C750                          | 0 – 2,000mS          |

### Typical Applications

- ✓ High Purity Water
- ✓ Water Treatment
- ✓ Pharmaceutical
- ✓ Food and Beverage
- ✓ Interface Detection
- ✓ Desalination
- ✓ Chemical Plants
- ✓ Aquariums
- ✓ Agricultural Industries

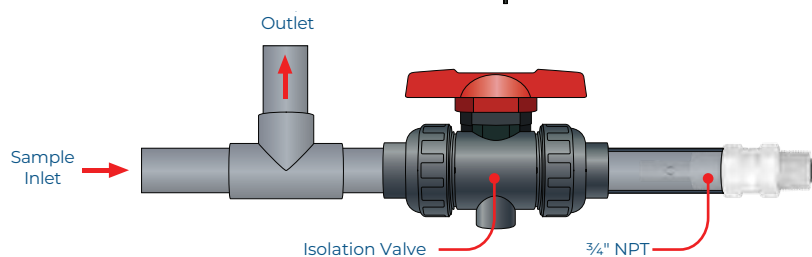
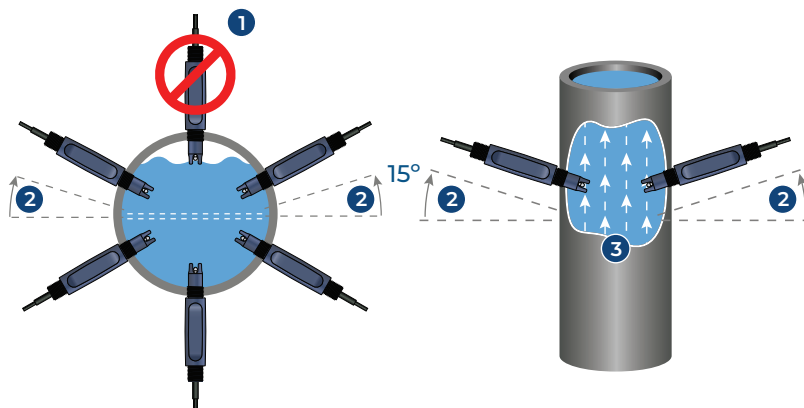
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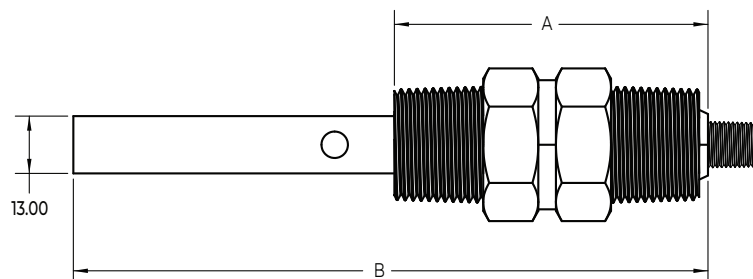
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## In-line Mounting

1. If air is present, avoid vertical installation (ensure full pipe).
2. Optimum installation 15° above horizontal.
3. Process liquid should flow upward. (for downward flow ensure backpressure is present in order to avoid air within pipe)



## Dimensions



| Cell Class | M12   |        | Flying Lead |        |
|------------|-------|--------|-------------|--------|
|            | A(mm) | B (mm) | A(mm)       | B (mm) |
| Cell 0.01  | 78    | 151    | 67.8        | 140.8  |
| Cell 0.1   | 78    | 113    | 67.8        | 102.8  |
| Cell 1.0   | 78    | 119    | 67.8        | 108.8  |
| Cell 10    | 78    | 119    | 67.8        | 108.8  |

## Model Selection

C450 — Complex Conductivity Sensor

| Part Number  | Material       | Output                       | Cell Constant | Range       | Connection |
|--------------|----------------|------------------------------|---------------|-------------|------------|
| C450-G-D-1-M | Titanium Alloy | 4-wire (for ProCon® Display) | 0.01          | 0-100µS     | M12        |
| C450-J-D-1-M | Titanium Alloy | 4-wire (for ProCon® Display) | 0.1           | 0-1,000µS   | M12        |
| C450-M-D-1-M | Titanium Alloy | 4-wire (for ProCon® Display) | 1             | 0-10,000µS  | M12        |
| C450-P-D-1-M | Titanium Alloy | 4-wire (for ProCon® Display) | 10            | 0-200,000µS | M12        |
| C450-G-M-1-M | Titanium Alloy | 4-20mA (2-wire, std)         | 0.01          | 0-100µS     | M12        |
| C450-J-M-1-M | Titanium Alloy | 4-20mA (2-wire, std)         | 0.1           | 0-1,000µS   | M12        |
| C450-M-M-1-M | Titanium Alloy | 4-20mA (2-wire, std)         | 1             | 0-10,000µS  | M12        |
| C450-P-M-1-M | Titanium Alloy | 4-20mA (2-wire, std)         | 10            | 0-200,000µS | M12        |
| C450-G-S-1-M | Titanium Alloy | RS485 + 4-20mA               | 0.01          | 0-100µS     | M12        |
| C450-J-S-1-M | Titanium Alloy | RS485 + 4-20mA               | 0.1           | 0-1,000µS   | M12        |
| C450-M-S-1-M | Titanium Alloy | RS485 + 4-20mA               | 1             | 0-10,000µS  | M12        |
| C450-P-S-1-M | Titanium Alloy | RS485 + 4-20mA               | 10            | 0-200,000µS | M12        |

Last digit: "M" for M12 Connection (std), "F" Flying Lead - consult factory

Consult factory for custom ranges

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## Fittings

Easy Install Clamp On Pipe Saddles

| Part Number | Material | Size | Seal | Thread | Connection |
|-------------|----------|------|------|--------|------------|
| PSA-2       | PVC      | 2"   | FPM  | ¾" NPT | PVC        |
| PSA-3       | PVC      | 3"   | FPM  | ¾" NPT | PVC        |
| PSA-4       | PVC      | 4"   | FPM  | ¾" NPT | PVC        |
| PSA-6       | PVC      | 6"   | FPM  | ¾" NPT | PVC        |
| PSA-8       | PVC      | 8"   | FPM  | ¾" NPT | PVC        |



True Union Tee Fitting

| Part Number | Material | Size   | Seal             | Thread | Connection   |
|-------------|----------|--------|------------------|--------|--------------|
| TUPA-PV-5   | PVC      | 1/2"   | FPM (std)   EPDM | ¾" NPT | Socket   NPT |
| TUPA-PP-5   | PP       | 1/2"   | FPM (std)   EPDM | ¾" NPT | Butt   NPT   |
| TUPA-PF-5   | PVDF     | 1/2"   | FPM (std)   EPDM | ¾" NPT | Butt   NPT   |
| TUPA-PV-7   | PVC      | 3/4"   | FPM (std)   EPDM | ¾" NPT | Socket   NPT |
| TUPA-PP-7   | PP       | 3/4"   | FPM (std)   EPDM | ¾" NPT | Butt   NPT   |
| TUPA-PF-7   | PVDF     | 3/4"   | FPM (std)   EPDM | ¾" NPT | Butt   NPT   |
| TUPA-PV-1   | PVC      | 1"     | FPM (std)   EPDM | ¾" NPT | Socket   NPT |
| TUPA-PP-1   | PP       | 1"     | FPM (std)   EPDM | ¾" NPT | Butt   NPT   |
| TUPA-PF-1   | PVDF     | 1"     | FPM (std)   EPDM | ¾" NPT | Butt   NPT   |
| TUPA-PV-15  | PVC      | 1 1/2" | FPM (std)   EPDM | ¾" NPT | Socket   NPT |
| TUPA-PP-15  | PP       | 1 1/2" | FPM (std)   EPDM | ¾" NPT | Butt   NPT   |
| TUPA-PF-15  | PVDF     | 1 1/2" | FPM (std)   EPDM | ¾" NPT | Butt   NPT   |
| TUPA-PV-2   | PVC      | 2"     | FPM (std)   EPDM | ¾" NPT | Socket   NPT |
| TUPA-PP-2   | PP       | 2"     | FPM (std)   EPDM | ¾" NPT | Butt   NPT   |
| TUPA-PF-2   | PVDF     | 2"     | FPM (std)   EPDM | ¾" NPT | Butt   NPT   |



by

