



Retrofitting C-RS Transducers into an Existing C-PT Installation

Note: This document is intended to guide the user in the replacement of C-PT transducers with new C-RS transducers.

Overview

Before you install the new C-RS transducers, you must order the necessary parts in order to properly replace the C-PT transducers. Once you have the necessary parts, you will need to program the meter to obtain the new transducer spacing and then install the new C-RS transducers.

Use the procedure below to properly retrofit your application.

What You Need

You will need to order the following parts:

- C-RS transducers
- Aluminum insert (part C-RS-INSERT-AL). Use the same part # for both the UCF and CFBL clamping fixtures. *This piece will already be installed on the new C-RS transducers when you receive them.*
- Junction boxes, if necessary.

Obtaining the Transducer Spacing

How you enter transducer information for the new C-RS transducers is dependent on the version of software installed in the meter.

1. Power up the unit. The meter will display the current version of software during the power up sequence.
2. Check the current version of software against Table 1 below.

Table 1: Software Versions

Flowmeter	Program
AT868	Version AT2E or higher
DF868	Version F2AD or higher
XMT868	Version X2N or higher
PT868	Special
6X68	Special
PT878	Version 1.N or higher

If the software version:

- is equal to or higher than the version listed in the table above, you can enter the transducer number (engraved on the transducer) into the user program and skip to Step 5.
- is lower than the version listed in the table above or you are using a PT868 or 6X68 meter, you will have to program the transducer as a special. Proceed to Step 4.



Obtaining the Transducer Spacing (cont.)

- Use Table 2 below to program the meter to obtain the spacing.

Table 2: Special Transducer Parameters

Transducer #	Type	Tw (μsec)	Frequency	Wedge Sound Speed	Wedge Angle
401	Shear	20.3	0.5 MHz	8150.3 ft/s (2484.2 m/s)	42.0
402		17.3	1.0 MHz		
403		15.8	2.0 MHz		

Note: Wedge sound speed is for a default wedge temperature of 20°C. For other wedge temperatures use the following formula:

$$\text{Wedge sound speed} = [2516 - (1.59 \times \text{wedge temp. } ^\circ\text{C})] \text{ m/s}$$

- The meter will calculate the new transducer spacing. Record the new spacing. If the difference in spacing is less than 1/4", you can override the spacing in the meter by typing in the old spacing.

Installing the C-RS Transducers

Use the steps below to remove C-PT transducers and install new C-PT transducers.

Note: For more installation, programming or diagnostic information, refer to the transducer installation guide and/or the user's manual supplied with your meter.

- Remove the old C-PT transducers by unscrewing the pressure bolt and sliding the transducer out.
- If necessary, reset the clamping fixture spacing to the newly calculated spacing.
- If you are using a junction box, apply a thread sealant to the transducer threads (European Community only) and thread the new junction box onto the end of the new C-RS transducer. Ensure that at least 5 full threads are engaged.
- Ensure the aluminum insert has been properly installed on the C-RS transducer.
- Apply a thin bead of couplant to the bottom of one of the transducers.
- Place the transducer into the block.
- Use the pressure bolt to secure the transducer in place. High-tighten enough to hold the transducer in place, but not lift the block of the pipe.



Installing the C-RS Transducers
(cont.)

8. Tighten the locking nut on the pressure bolt.
9. Repeat steps 3 through 8 for the other transducer.
10. Once transducers are installed, verify the installation using diagnostics,