



Ultrasonic Flow Meter Series 6 Q.Sonic[®]

**Manual
Exchanging PCB boards in
TIP**

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1 Preface

1.1 About these instructions

This document describes how to replace PCB boards of the TIP (Transducer Interface Processor) in an Ultrasonic Flow Meter Series 6. The Ultrasonic Flow Meter Series 6 is also referred to as USM Series 6, UFM Series 6 or Q.Sonic Series 6.

The TIP consists of several PCB boards, which are arranged over 3 combinations of boards (⇒ Fig. 1):

1. Main board together with CPU3
2. Flow board together with a standard analogue board
3. Flow board together with a low gain analogue board

These combinations are always preassembled by Elster and should be treated as one. They may not be disassembled without explicit permission of Elster or its local representative. A meter that is equipped with a flow board / low gain analogue board assembly should never be replaced by a flow-board / standard analogue board assembly and vice versa.

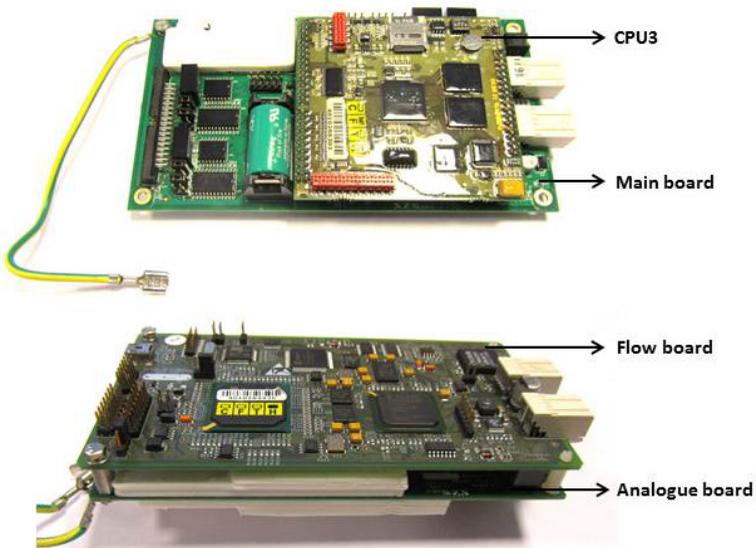


Fig. 1: Overview of the boards



WARNING!

All activities described may only take place when no explosive gas atmosphere is present.

Maintenance and replacement may only be carried out by qualified personnel under safe conditions and in compliance with all applicable regulations.

Do not use any tools to handle the PCB boards. Only handle them with your hand using suitable gloves, ensuring that no build-up of static electricity can be released on the boards.

⇒ [1.2 Relevant user documentation](#) (p. 6)

Before starting the procedure, read this manual carefully. When questions arise feel free to contact Elster or its local representative. Also verify if the meter is sealed on the inside of the flame proof box (⇒ [2 Preparation](#), step 5). Don't ever break a seal without explicit permission. So, verify upfront if it is allowed to break it.

1.2 Relevant user documentation

Elster Gas Metering business provides the user documentations such as manuals, certificates, technical information for your UFM Series 6 meter in a ZIP file. The download information for this ZIP file is supplied with your device. Manuals referenced by this manual are included in this ZIP, such as UFM Series 6 “Safety Instructions”.

Single documents are published in the Docuthek. The documents are updated regularly.

www.docuthek.com/

Use the device series or the device type as search term:

UFM Series 6 or **Q.Sonic-max**

1.3 Limitation of liability

This manual is based on the latest information. It is provided subject to alterations. We reserve the right to change the construction and/or configuration of our products at any time without obligation to update previously shipped equipment.

The warranty conditions specified in the manufacturer's terms of delivery apply to the product. Warranty claims are excluded in the following cases:

- The repair or replacement of the equipment or parts thereof has been required by natural wear and tear, in whole or in part due to a catastrophe, or because of a defect or fault on the part of the purchaser.
- Maintenance or repair of the device or device parts has not been carried out by an authorized representative of the manufacturer, or modifications have been made to the device or device parts without prior express written consent of the manufacturer.
- No original parts are used.
- The device has been used incorrectly, carelessly, improperly, or not in accordance with its nature and/or intended use.

- The product has been used with unauthorized components or peripherals such as cables, test equipment, computers, or with unauthorized voltages.

The manufacturer is not liable for incidental or consequential damages arising from breach of express or implied warranties, including property damage, and to the extent permitted by law, personal injury.

We reserve the right to make technical changes within the scope of optimizing the performance characteristics and continuous further development of the device.

The current warranty conditions in the General Terms and Conditions are available on our website:

process.honeywell.com/us/en/site/elster-instromet/about-us

2 Preparation

1. If possible, connect from a safe (non-hazardous) area with Sonic-Explorer (meter firmware up to V 3.02 only) or enSuite to the meter. Take a logfile and the meter configuration.
2. Shut down the power supply of the flowmeter.
3. Enable gas detector and ensure it remains enabled and present during the entire procedure. Do not continue when gas is detected.
4. Wait 10 minutes after the power has been shut down. Then open the left side of the SPU, when facing the display screen. Unscrew the lock screw in the side cover just enough to unlock the side cover:



Fig. 2: Opening SPU

5. Remove seal bracket, by the bolt on top and disconnecting the grounding wire of the main board and IS cables on the main board (⇒ Fig. 3).



WARNING!

It is possible, that the seal bracket is secured with a calibration seal. Ensure upfront if it is allowed to break it. Never break any seals without explicit authorization

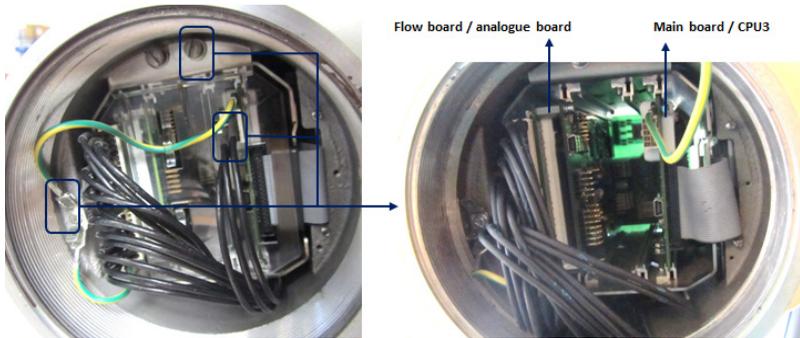


Fig. 3: Removing seal bracket

3 Replacement procedure

Depending on the boards which need to be replaced, choose the correct section.

- ⇒ [3.1 Main board / CPU3 exchange](#) (p. 10)
- ⇒ [3.2 Flow board / analogue board exchange](#) (p. 11)

3.1 Main board / CPU3 exchange

1. Disconnect the flat cable.



Fig. 4: Disconnecting flat cable

2. Reconnect the flat cable.

ENSURE the connection is straight in the middle of the connector:

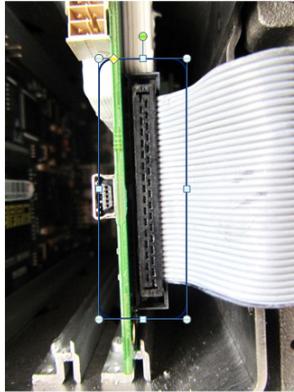


Fig. 5: Connection flat cable

3.2 Flow board / analogue board exchange

1. Disconnect the grounding wire and the IS cable.

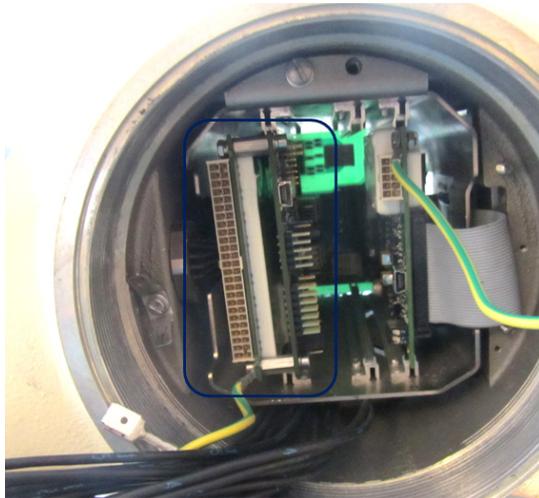


Fig. 6: Disconnecting flow board / analogue board

2. Remove the flow board / analogue board and replace it with the new one.

When the new board doesn't contain the grounding wire, take the ground wire of the old board!

3. Reconnect the grounding wire and the IS cable.

4 Finalizing replacement

1. Put the grounding wire of the main board through the seal bracket and reconnect it. Then reconnect all other cables. You can seal the boards using the bolts on top.



Fig. 7: Reconnecting seal bracket

2. Screw the cover back on the SPU. Ensure it is completely closed. Do not forget to fasten the lock screw (⇒ Fig. 2).
3. Repower the meter and verify if everything is working, either using the display on the SPU or the software program SonicExplorer (meter firmware up to V 3.02 only) or enSuite.



WARNING!

If main board / CPU 3 have been changed, it might be possible that the meter needs to be reconfigured. Use SonicExplorer (meter firmware up to V 3.02 only) or enSuite for this.

If the meter configuration has been taken before the exchange, use this configuration.

Please contact Elster or its local agent if assistance is required.

4. Fill in 'returned material Authorization' of Elster for the replaced PCB boards.

The form can be obtained via Elster.