



TechnipFMC

Smith Meter[®] AccuLoad[®] IV SoM Replacement Manual

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Important

All information and technical specifications in this document have been carefully checked and compiled by the author; however, we cannot completely exclude the possibility of errors. TechnipFMC is always grateful to be informed of any errors; contact us at TechnipFMC.com.

Caution

The default or operating values used in this document and in the configuration parameters of the AccuLoad IV are for factory testing only and should not be construed as default or operating values for your metering system. Each metering system is unique and each configuration parameter must be reviewed and programmed for that specific metering system application.

Disclaimer

TechnipFMC hereby disclaims all responsibility for damages, including but not included to consequential damages arising out of or related to the inputting of incorrect or improper program or default values entered in connection with the AccuLoad IV.

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Literature Library

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1 Introduction

This manual provides instructions for replacing the system on module (SoM) using the SoM Replacement Kit, located on the A4M board on all AccuLoad IV models.

This procedure assumes the appropriate Ethernet communications cabling is accessible in a safe area for connection between a personal computer (PC) and the sealed AccuLoad IV enclosure that is mounted in the hazardous area.

1.1 Weights and Measures Requirements

The AccuLoad IV Electronic Preset Delivery Systems are used in a global market. Requirements regarding weights and measures may vary depending on the region of installation and type of installation. In the majority of cases in which the measurement system is controlled by a weights and measures certificate, the software version is defined and controlled.

In the case of a controlled measurement application, users are required to verify that the AccuLoad IV is configured and operated in a manner consistent with the controlling certificate and local codes, and that proper notification (permit for use) or registration has been filed with the local authority or jurisdiction. This requirement also pertains to software updates of the device.

Weights and measures authorities rely on either physical sealing or electronic sealing with password protection to secure metrological parameters for use in legal trade applications. For instructions on setting a password for metrological parameters and information about physically sealing the electronic enclosure and specific components, refer to the AccuLoad IV Installation and Maintenance Manual ([MN06201](#)).

1.2 SoM Replacement Kit Contents

The AccuLoad IV SoM Replacement Kit (Part Number P8000020832) contains:

- One SoM board
- One electrostatic discharge (ESD) wrist strap

1.3 Receipt of Equipment

Upon receipt of the SoM Replacement Kit, check the exterior packing case for any shipping damage.

If the packing case is damaged, contact the shipping carrier immediately regarding their liability.

Carefully remove the control board module from the exterior packaging and inspect it for damaged or missing parts. The SoM is packaged in an antistatic, sealed, zipper storage bag; it should not be opened or the SoM should not be handled without using the antistatic wrist strap.

Prior to installation, the unit should be stored in its original packaging and protected from adverse weather conditions and abuse.

If the control board module is damaged or parts are missing, a written report must be submitted to:

TechnipFMC
c/o Inside Sales Department, Measurement Solutions
PO Box 10428
Erie, PA 16514

1.4 Storage Instructions

To ensure your replacement SoM is not damaged by moisture or water before being installed, it must be properly stored in a cool, dry, protected location and remain in its resealable zipper antistatic bag.

1.5 Warnings and Precautions

Before you begin the process to replace the SoM, please read all of the following warnings and cautions to reduce the risk of injury, equipment damage, or malfunction.

1.5.1 Hazardous Locations

The AccuLoad IV is approved for use in an explosive environment or hazardous location. This manual only provides information pertaining to the installation of the SoM replacement.

To maintain equipment safety, it is required to keep the front cover of the enclosure bolted tightly while power is applied when operating in a hazardous location. The closing and sealing of the enclosure is the key to maintaining explosion protection. It is imperative that servicing be performed by a qualified individual who is familiar with associated risks involved with the operation and maintenance of electrical equipment in hazardous (classified) locations. This individual must have knowledge of local and national electrical codes, in addition to ordinances concerned with hazardous location safety requirements. It is recommended (and may be required in some jurisdictions) that the final installation be verified and inspected by the authority having jurisdiction before placing the equipment back into service. Electrical installations in hazardous areas have features specifically designed to make them suitable for use in such locations and it is the operator's responsibility to maintain the integrity of those special features.

Warning: The electronics inside the explosion-proof enclosure are not suitable for exposure in a hazardous area while power is applied. Proper precautions must be taken before opening the enclosure when installed in a hazardous area. The area must be verified that hazardous gases or vapors are not present, and all power to the equipment has been removed.

1.5.2 Electrostatic Discharge Precautions

The AccuLoad IV printed circuit board assemblies are susceptible to damage by static discharge. To minimize the risk of damage, the following precautions should be followed:

- Before touching a circuit board with hands or tools, personnel and tools should be grounded using a wrist strap.
- Avoid touching components or traces on the circuit boards and handle by the edges or mounting holes.
- Circuit boards should be kept in static control packaging, such as static shielding bags, when not installed.
- Provisions should be made to protect against electrostatic discharge (ESD) in work spaces when handling circuit boards.

2 Replacing the SoM

This guide provides instructions for replacing the SoM in an AccuLoad IV and assumes the replacement was provided by a SoM Replacement Kit (PN P8000020832). Replacing the SoM can be required when a diagnosis indicates a failure of the SoM itself and also is recommended for any SoM known to have run revision 1.1 or 1.2 firmware.

Caution: Before working with any AccuLoad electronic circuit boards, ensure that the system is made safe for work, removing energy sources, and tagging out, as required.

Note: The SoM hosts the configuration database and all data log files. These must be restored or recreated after the new SoM has been installed. Before replacing the SoM, use AccuMate (if possible) to back up the configuration and log files.

2.1 Removing the A4M Board

If removing the A4M board from the housing is necessary due to wiring that blocks access before replacing the SoM, follow procedures according to the manual and note the Warnings and Precautions section of the AccuLoad IV Installation and Maintenance Manual ([MN06201](#)).

This procedure is only required when access to the A4M board is limited.

2.2 Required Tools

The tools needed to replace the SoM in XP models include:

- 8 millimeter (mm) hex screwdriver
- Small Phillips electrical screwdriver

The tools needed to replace the SoM in N4 models include:

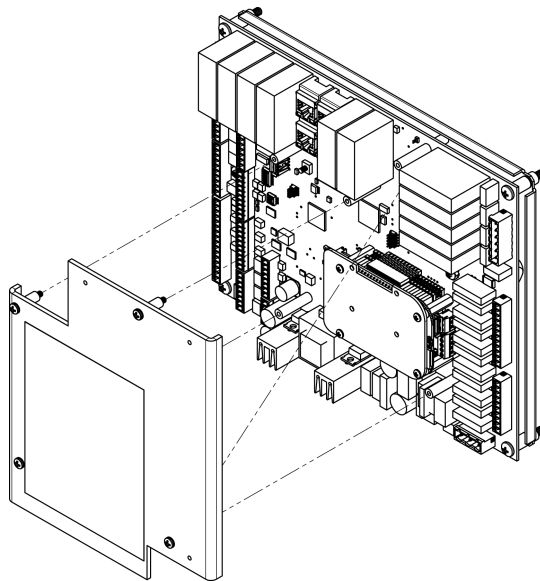
- Large Phillips or flat-head screwdriver
- Small Phillips electrical screwdriver

2.3 Removing the SoM

Complete the following steps to remove the SoM from the AccuLoad's enclosure:

1. Verify that all power to the explosion-proof housing is removed.
2. For XP models, remove the bolts attaching the cover to the housing.
3. For N4 models, loosen the cover clamp screws sufficiently to enable the clamps to clear the lip of the housing.
4. Remove the input/output (I/O) shield from the A4M board.

Figure 1: Removing the I/O shield from the A4M



Note: Technicians should employ proper grounding procedures while using the ESD wrist strap supplied in the kit.

5. Remove the shield covering the SoM.
6. Disconnect the SoM from the Ethernet cable connecting to ETH1 on the A4M board.
7. Gently pull up the long end of the SoM from the board a few millimeters at a time, alternating ends until it is sufficiently loosened, taking care to not bend the header pins. Remove the SoM from the A4M.

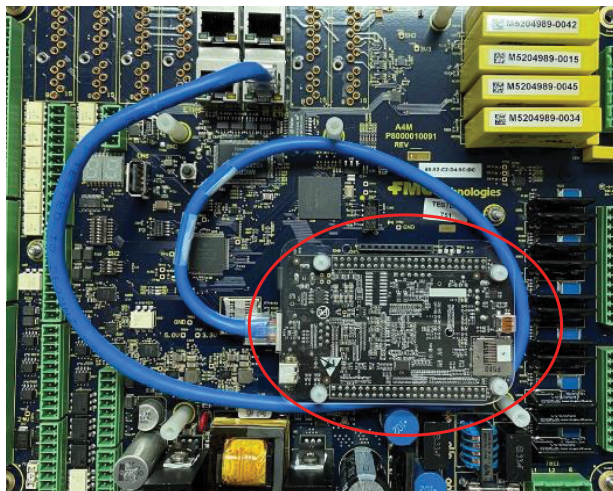
2.4 Exchanging the SoM

Complete the following steps to exchange the SoM:

When removing the SoM, do not touch the gold-plated contacts.

1. Remove the USB license key dongle from the original SoM and insert it into the new replacement SoM.
2. Install the new SoM onto the A4M in the same orientation as the original SoM. See [Figure 2: Installing SoM onto the A4M below](#).

Figure 2: Installing SoM onto the A4M



3. Reconnect the Ethernet cable from ETH1 on the A4M board to the new SoM.
4. Reinstall the SoM shield.
5. On the A4M board and, if applicable on the A4B and A4I boards, turn the S1-6 dual in-line package (DIP) switch setting ON.

Table 1: A4M S1 DIP Switch Settings

Switch	Setting
S1-1	Factory use
S1-2	Factory use
S1-3	Reserved
S1-4	Reserved
S1-5	Reserved
S1-6	Clear pairing information

Switch	Setting
S1-7	Off for ST, QT, and N4 models
	Board set selector for SA model set (see the AccuLoad IV Split Architecture Upgrade manual (MN06206) for details)
S1-8	Off for ST, QT, and N4 models
	Board set selector for SA model set

2.5 Power On the AccuLoad IV

1. Power on the AccuLoad IV, then navigate to Main > Diagnostics > Connected Devices.
2. Select each I/O board (A4M, A4B, A4I 1, and A4I 2) one at a time and select the Add button, then select Confirm.
3. Verify all I/O devices show as Connected.

Note: If the Touch Human Machine Interface (THMI) module does not connect after a few minutes, see the Device Settings section in the AccuLoad IV Operator Reference manual ([MN06200](#)) to re-establish communication.

2.6 Reinstalling the I/O Shield

1. Remove power from the AccuLoad IV.
2. Turn the S1-6 DIP switch setting to OFF on all boards where it was previously ON (A4M, A4B, and A4Is).
3. Reinstall the I/O shield on the A4M board.
4. Re-secure the cover. For XP modules, tighten the cover bolts to the specified torque, following the bolt tightening pattern described in the AccuLoad IV Installation and Maintenance manual ([MN06201](#)).
5. Power on the AccuLoad IV.
6. Restore the configuration, using AccuMate and the previously backed up data files, if available (.al4/ .al4rep/.al4equ/ .al4lang/ .al4ddb).

3 Changing the IP Address

The replacement SoM is factory initialized with an external internet protocol (IP) address of 192.168.0.1 and an internal network address of 10.0.0.6.

If the SoM being replaced contains a non-default internal IP address, the THMI display module will not communicate until the THMI board's networking parameters are set to the default values or until the new SoM's internal IP is set to match the configuration being replaced, either by configuration upload or by remote browser access.

For instructions on configuring internal IP addresses for the ST, QT, N4, and SA models using the AccuLoad's touch screen, refer to the AccuLoad IV Operator Reference manual ([MN06200](#)).

Note: When changing the IP Address, the AccuLoad IV must be power cycled for the new IP address to take effect.

3.1 Default THMI Settings

The default THMI display module settings are:

- Primary URL: `http://10.0.0.1/?secret=HMI#`
- Network Settings/Static IP: 10.0.0.6
- Network Settings/Netmask: 255.255.255.0
- Network Settings/Gateway: 10.0.0.1

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