



Introduction

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SITRANS F

**Ultrasonic Flowmeters
FST020 IP65 NEMA 4X**

Service Manual




10/2013

A5E03307390-AC

Legal information

Warning notice system

This manual contains notices you have to observe in order to ensure your personal safety, as well as to prevent damage to property. The notices referring to your personal safety are highlighted in the manual by a safety alert symbol, notices referring only to property damage have no safety alert symbol. These notices shown below are graded according to the degree of danger.

 DANGER
indicates that death or severe personal injury will result if proper precautions are not taken.
 WARNING
indicates that death or severe personal injury may result if proper precautions are not taken.
 CAUTION
indicates that minor personal injury can result if proper precautions are not taken.
NOTICE
indicates that property damage can result if proper precautions are not taken.


If more than one degree of danger is present, the warning notice representing the highest degree of danger will be used. A notice warning of injury to persons with a safety alert symbol may also include a warning relating to property damage.

Qualified Personnel

The product/system described in this documentation may be operated only by **personnel qualified** for the specific task in accordance with the relevant documentation, in particular its warning notices and safety instructions. Qualified personnel are those who, based on their training and experience, are capable of identifying risks and avoiding potential hazards when working with these products/systems.

Proper use of Siemens products

Note the following:

 WARNING
Siemens products may only be used for the applications described in the catalog and in the relevant technical documentation. If products and components from other manufacturers are used, these must be recommended or approved by Siemens. Proper transport, storage, installation, assembly, commissioning, operation and maintenance are required to ensure that the products operate safely and without any problems. The permissible ambient conditions must be complied with. The information in the relevant documentation must be observed.

Trademarks

All names identified by ® are registered trademarks of Siemens AG. The remaining trademarks in this publication may be trademarks whose use by third parties for their own purposes could violate the rights of the owner.

Disclaimer of Liability

We have reviewed the contents of this publication to ensure consistency with the hardware and software described. Since variance cannot be precluded entirely, we cannot guarantee full consistency. However, the information in this publication is reviewed regularly and any necessary corrections are included in subsequent editions.

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Introduction

FST020 Spare Parts Kits

Spare parts kits are available for the SITRANS FST020 for replacing the display board, keypad assembly, and the main board, AC or DC. The spare parts kits are listed below and the following procedures provide the guidelines for removing and replacing these parts.

Spare Keypad Assembly Kit P/N A5E03056922

Keypad Assembly, P/N A5E03056923

Spare Main Board Assembly Kit, AC, 100-240 VAC Power, P/N A5E030056936

Main Board Assembly AC, P/N A5E03936843

Spare Main Board Assembly Kit, DC, 11.5 - 28.5 VDC Power, P/N A5E030056938

Main Board Assembly, DC, P/N A5E03936873

Spare Display Board Assembly Kit, P/N A5E03056940

Display Board Assembly, P/N A5E02811735

Installing/Mounting

2.1 PC Board Replacement



! WARNING

Hazardous Voltage

May cause death or serious personal injury.

Disconnect power before working on this product.

NOTICE

Electrostatic Discharge, All Electronic Assemblies

Take precautions against static discharge when handling circuit boards. Semiconductor devices must be protected from electrostatic discharge. A properly grounded conductive wrist strap must be worn whenever a circuit board assembly is handled or touched. A service kit with a wrist strap and static dissipative work mat is available from mail order and local electronic supply companies.

For proper installation, mounting, wiring, and menu configuration of the FST020 flowmeter please refer to the appropriate FST020 IP65 NEMA 4X Operating Instructions manual.

Display Board Replacement

Note

When repairing the FST020 it is best to lay the Enclosure Door on a flat surface, placing a support under the Enclosure Door to keep it in a flat horizontal position.

1. Loosen the six Enclosure Door securing screws and open the unit.
2. Unplug the ribbon cable J2 connecting the display board at the main board.

NOTICE

Display Board Ribbon Cable Damage

The Display Board ribbon cable connector is tightly secured!

Use fingers to carefully remove. If a flat blade screwdriver is used, place thick paper or cardboard between PC board and screwdriver tip to prevent damage to PC board circuitry.

3. If necessary for better access, remove Enclosure Door from unit by carefully sliding the door up to release it from the plastic hinge pins. Lay door on a flat surface.

4. Remove the 3 mounting screws (5, 6, & 7). Note that the screw in position 6 has a plastic washer under the screw head. This washer must be returned to the same position.

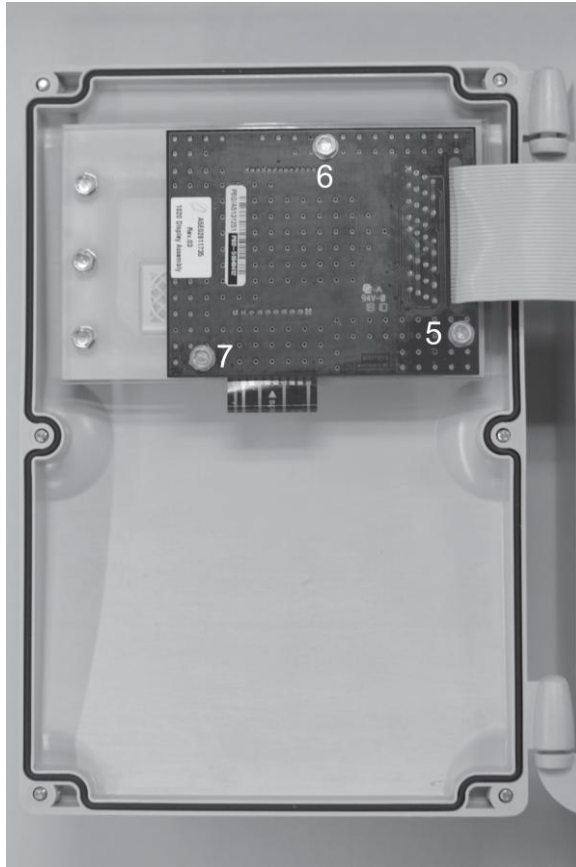


Figure 2-1 Display Board-Mounted (P/N A5E02811735)

5. Lay the display board flat and disconnect it from the keypad assembly as shown in Figure 2-2.

6. Retain the 3 standoffs used to space the display board from the keypad assembly.

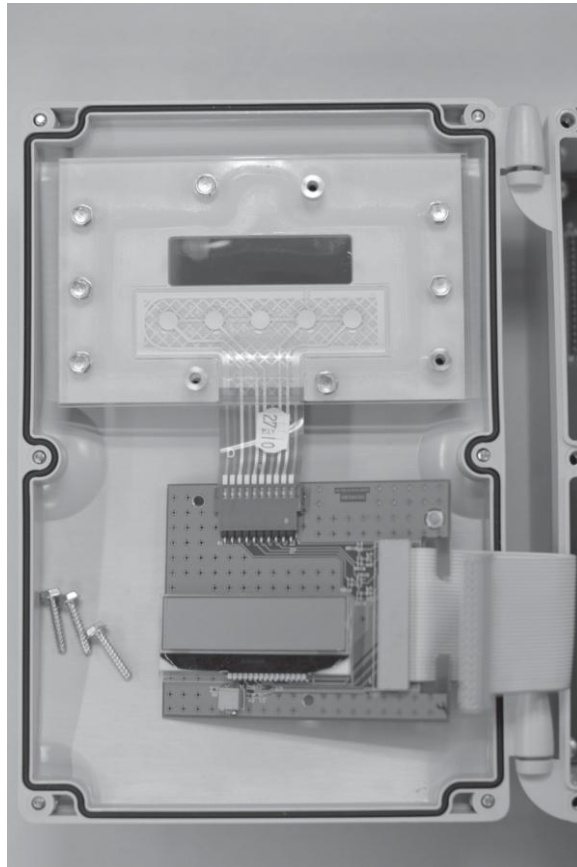


Figure 2-2 Display Board Connected to Keypad

7. Mount the new display board in the reverse order. Be sure to remove the thin plastic membrane that protects the display window prior to mounting. Tighten the three mounting screws just enough that they gently rest against the surface of the board. Then torque them to 9 in-lbs in the order of 5, 6, & 7.
8. Reconnect display board cable J2 making sure J2-pin 1 aligns with the cable red stripe.

Keypad Assembly Replacement

1. Remove the display board as described above.

NOTICE
Display Board Ribbon Cable Damage
The ribbon cable connector is tightly secured!
Use fingers to carefully remove. If a flat blade screwdriver is used, place thick paper or cardboard between PC board and screwdriver tip to prevent damage to PC board circuitry.

2. Remove the 7 screws that mount the keypad assembly to the Enclosure Door. See Figure 2-3 below. Note that these screws are shorter than the ones that mount the display board.
3. Mount the new keypad assembly using the 7 screws in the positions shown but turn the screws only enough for their heads to rest gently against the window's surface. DO NOT TIGHTEN ANY FURTHER.
4. Tighten screws 1, 2, 3, & 4 in that order to 9 in-lbs.
5. Mount the display board. Start by turning screws 5, 6 and 7 just enough so that they rest gently against the board. Then tighten screws 5, 6, 7, 8, 9 & 10, in that order, to 9 in-lbs.

6. Replace Enclosure Door by aligning plastic hinge pins and pressing door downward until it snaps into place.
7. Reconnect the display board cable J2 making sure J2-pin 1 aligns with the cable red stripe.



Figure 2-3 Keypad Assembly (P/N A5E03056923)

Main Board Replacement



WARNING

Hazardous Voltage

May cause death or serious personal injury.

Disconnect power before working on this product.

1. Disconnect power by unplugging power connector J12.
2. Unplug the display board ribbon connector J2 from the main board (AC board shown in photo).

NOTICE

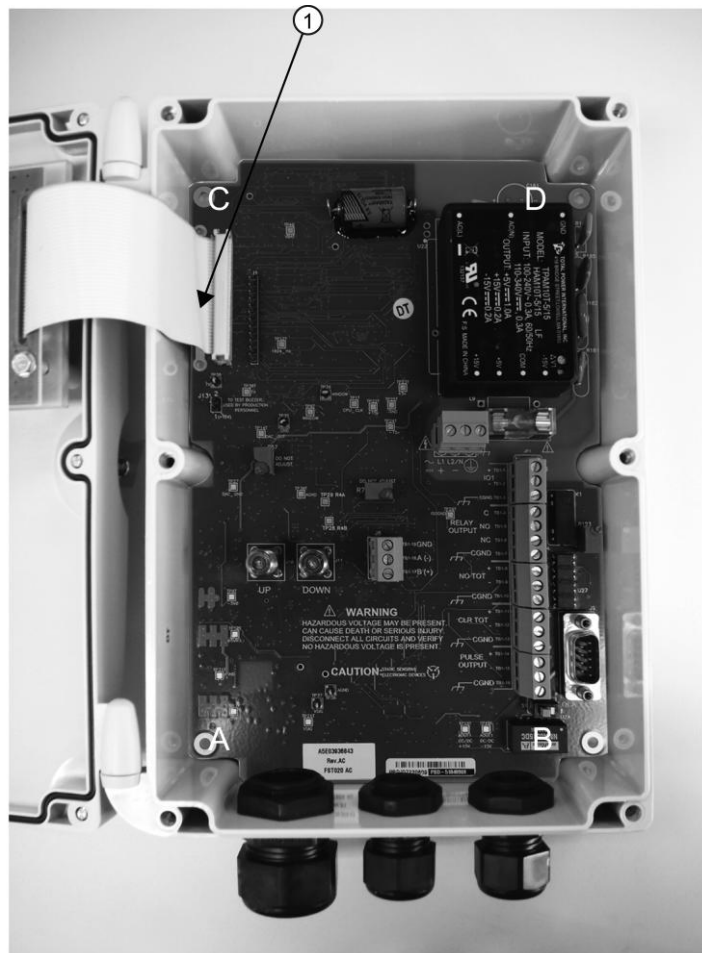
Display Board Ribbon Cable Damage

The ribbon cable connector is tightly secured!

Use fingers to carefully remove. If a flat blade screwdriver is used, place thick paper or cardboard between PC board and screwdriver tip to prevent damage to PC board circuitry.

3. Remove the 4 main board mounting screws A, B, C & D.
4. Carefully remove the main board.
5. Mount the new main board using the same screws.

6. Reconnect display board connector J2 making sure J2-pin 1 aligns with the cable red stripe.
7. Reconnect power connector J12.



① Display Board Connector J2

Figure 2-4 Main Board Assembly AC = P/N A5E03936843 / DC = P/N A5E03936873

After removal and replacement procedures of the desired PC boards are complete close the Enclosure Door and torque cover screws to 6 in-lbs.

