

Installation Instructions

Spare parts

Bus board FMA90

1. Overview of spare part sets

The Installation Instructions apply to the following spare part sets:

Order number	Original spare parts set	Contents
71706822	Bus board FMA90 DIN rail	1x Bus board 1x installation instructions

2. Intended use

- A defective unit can only be replaced with a functioning unit of the same type.
- Use only original parts from Endress+Hauser.

3. Personnel authorized to carry out repairs

Authorization to carry out repairs depends on the measuring device's approval type. The table below shows the authorized group of people in each case.



Whoever carries out the repairs has full responsibility to ensure that work is carried out safely and to the required quality standard. He/she must also guarantee the safety of the device following repair.

Measuring device approval	Personnel authorized to carry out repairs ¹⁾
Without approval	1, 2, 3
With approval (e.g. IECEx)	1, 2, 3
For custody transfer	4

1 = Qualified specialist on customer side,

2 = Service technician authorized by Endress+Hauser,

3 = Endress+Hauser (return measuring device to manufacturer)

4 = Check with local approval center if installation/conversion must be performed under upper vision.

4. Safety instructions

- The spare part set and the Installation Instructions are used to replace a defective unit with a functioning unit of the same type.

Only use original parts from Endress+Hauser.

- Comply with national regulations regarding mounting, electrical installation, commissioning, maintenance and repair.
- The following requirements must be met with regard to specialized technical staff for the mounting, electrical installation, commissioning, maintenance and repair of the measuring devices:
 - Specialized technical staff must be trained in instrument safety.
 - They must be familiar with the individual operating conditions of the devices.
 - In the case of Ex-certified measuring devices, they must also be trained in explosion protection.
- The measuring device is energized! Risk of fatal injury from electric shock. Open the measuring device only when the device is de-energized.
- For measuring devices intended for use in hazardous locations, please observe the guidelines in the Ex documentation (XA).
- For measuring devices in safety-related applications in accordance with IEC 61508 or IEC 61511: following repair, re-commission the device in accordance with the Operating Instructions. Document the repair.
- Danger of burns due to heated surfaces! Before commencing work: allow the system and measuring device to cool down to a touchable temperature.
- In the case of devices in custody transfer, the custody transfer status no longer applies once the seal has been removed.
- The Operating Instructions for the device must be followed.
- Risk of damaging the electronic components! Ensure you have a working environment protected from electrostatic discharge.
- After removing the electronics compartment cover: risk of electrical shock due to missing touch protection! Turn the measuring device off before removing internal covers.
- Modifications to the measuring device are not permitted.
- Only open the housing for a brief period. Avoid foreign objects, moisture or dirt entering the housing.
- Replace defective seals only with original seals from Endress+Hauser.
- If threads are defective the measuring device must be repaired.
- If, during repair work, spacing is reduced or the dielectric strength of the measuring device cannot be guaranteed, perform a test on completion of the work (e.g. high-voltage test in accordance with the manufacturer's instructions).

Contact Endress+Hauser Service if you have questions: www.addresses.endress.com

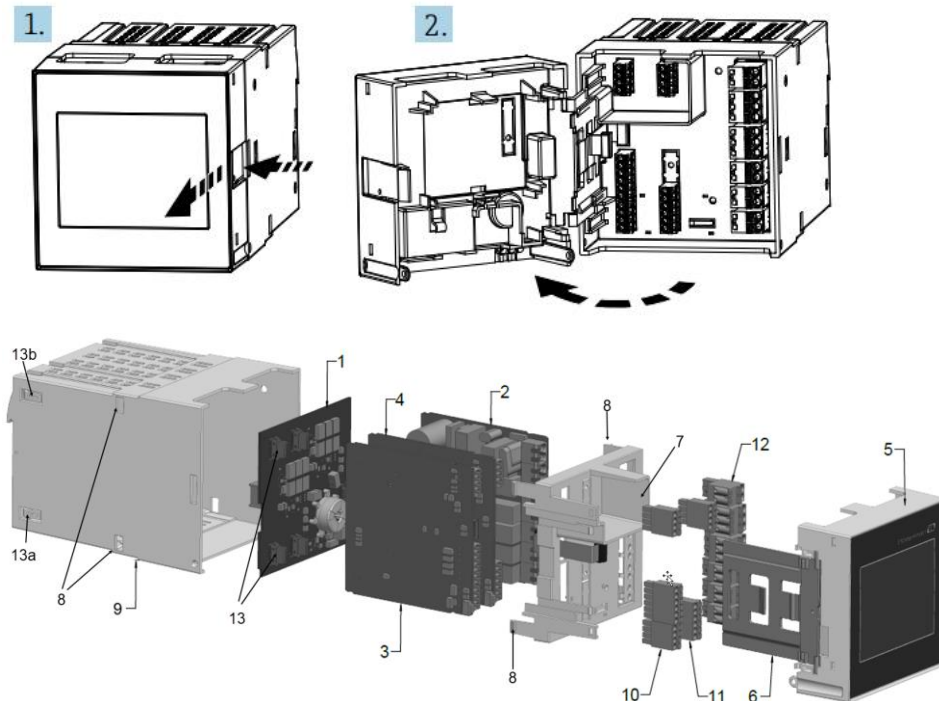
5. Symbols used

Symbol	Meaning
	Permitted Procedures, processes or actions that are permitted.
	Forbidden Procedures, processes or actions that are forbidden.
	Tip Indicates additional information.
1., 2., 3....	Series of steps

6. Tool list

Needle-nose plier

7. Replacing the Bus board of the FMA90



Procedure:

- ⚠ Disconnect the power supply. Open the cover**
Ensure that the device is completely disconnected from the power source.
- Remove terminals and CPU ribbon cable**
Remove all existing terminals (10, 11, 12).  Needle nose pliers may be helpful here. Disconnect the ribbon cable from the CPU board to the device. To do this, press the lock on both sides of the connector and carefully remove the cable.
- Remove the display front.**
Press in the locking tab of the display hinge (6) and pull the display front upwards to remove it.
- Remove circuit board cover**
Press in the 4 locking tabs (8) of the circuit board cover (7) and then carefully pull the cover upwards to remove it.
- Replace/Remove power supply or IO-boards**
By applying pressure to the side of the housing (9), the circuit boards (2 power supply, 3 standard IO board, 4 expansion IO board) can be removed from the housing and replaced with new ones.
- Replace bus board**
If the bus board (1) is defective, remove all circuit boards (2, 3, 4) as described above. The bus board (1) can now be removed from the empty housing by opening two retaining tabs. To do this, pull slightly on the connector (13) from the inside and simultaneously open the retaining tabs (13a & 13b) from the outside.
- Reassemble the device**
Reassemble all components in reverse order. The standard IO card (3) with 14 terminals is placed in the first slot on the side of the housing. The cards must snap into the bus board with light pressure. The circuit board cover (7) must be held horizontally and put vertically into the housing cube (9).
- Restore operation**
Reconnect the device to the power supply and resume normal operation.

8. Disposal



If required by the Directive 2012/19/EU on waste electrical and electronic equipment (WEEE), the product is marked with the depicted symbol in order to minimize the disposal of WEEE as unsorted municipal waste. Do not dispose of products bearing this marking as unsorted municipal waste. Instead, return them to the manufacturer for disposal under the applicable conditions.

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