

Endura AZ40 Transmitter Main board spares kit

Kit reference: AZ400–767

Measurement made easy



1 Introduction

This publication details replacement procedures for the AZ40 transmitter main board (AZ400 767) fitted to Endura AZ40 transmitters.

Before carrying out any procedures, read Section 3, page 2. These procedures must be carried out by a suitably-trained technician.

Kit contains:

- Transmitter main board assembly
- This publication – Endura AZ40 | Sensor assembly | Main board spares kit (part no. INS/ANAINST/018–EN)

2 Tools / Items required

- Transmitter door key (supplied with transmitter)
- Operating instruction [OI/AZ40-EN*](#)
- Anti-static strap
- T8 x 40 Torx screwdriver
- Small flat-bladed screwdriver
- Small crosshead screwdriver
- Medium crosshead screwdriver

*Operating instruction [OI/AZ40-EN](#) contains mandatory safety information and can be downloaded via the link (above) or by scanning this code:



3 Health & Safety

3.1 Safety precautions

Be sure to read, understand and follow the instructions contained within this document before and during use of the equipment. Failure to do so could result in bodily harm or damage to the equipment.



- WARNING – Bodily injury** Installation, operation, maintenance and servicing must be performed:
- by suitably trained personnel only
 - in accordance with the information provided in this document
 - in accordance with relevant local regulations

3.2 Potential safety hazards

3.2.1 Process conditions and requirements



WARNING – Bodily injury
Environmental conditions



- High air / equipment / structure temperatures, poor air quality and adverse environmental conditions may be present when the process is running.
- It is recommended that the process is shut down before performing these procedures.
- The process must be cool enough to enable shutdown, disconnection and removal of the sensor in a safe manner and in accordance with relevant local regulations.
- Appropriate PPE, including mask and goggles must be worn when preparing the process for these procedures.

3.2.2 Endura AZ40 sensor – fibrous material in probe assembly



WARNING – Serious damage to health

Fibrous material



- The sensor and probe assemblies (standard and high temperature versions) contain fibrous material that can be a health hazard if airborne.
- The material, predominantly – aluminosilicate refractory fibres, CAS 142844-00-6. Refractory ceramic fibres (RCF) are classified as:
 - Category 1B carcinogen under regulation (EC) No 1272/2008 – the classification, labelling and packaging regulations.
 - Category 2B carcinogen by inhalation by The International Agency for Research on Cancer (IARC).
- When removing the sensor cover and subsequent maintenance activities, exposure to the airborne fibres could occur. ABB have conducted air sampling assessments within the breathing zone of the operator and have identified that an exposure limit of 1 fibre / cubic centimetre is unlikely to occur.
- Exposure to any carcinogen must be kept as low as reasonably practicable.
- Appropriate PPE defined below, must be worn when working with probe assemblies (all installation, replacement, maintenance procedures):
 - A face fit tested, half mask conforming to EN140 (or equivalent) with a level 3 particulate filter conforming to EN 143 (or equivalent).
 - Disposable protective coveralls in accordance with Type 5 ISO 13982-1:2004 (or equivalent).
 - Goggles and gloves.

3.2.3 Endura AZ40 sensor / probe – installation to pressurized process



DANGER – Serious damage to health / risk to life
Pressurized equipment – do not install / remove / the sensor / probe if the process is at positive pressure

- Installation, operation, maintenance and servicing of pressurized equipment must be performed:
- by suitably trained personnel only
 - in accordance with the information provided in this document
 - in accordance with relevant local regulations
 - when process conditions are suitable to allow enough to enable installation / maintenance

3.2.4 Endura AZ40 sensor – high operational temperature on exposed parts



WARNING – Bodily injury

High temperature on exposed surfaces

- During operation, exposed sensor surfaces can reach 200 °C (392 °F).
- Ensure suitable PPE is available and is worn before handling the sensor.
- Do not touch exposed surfaces until the sensor / probe is cool enough to handle with PPE.

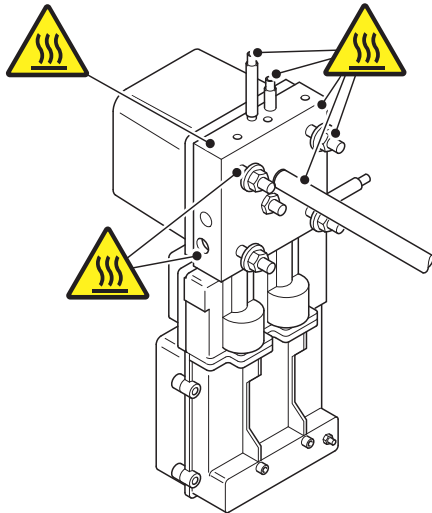


Fig. 3.1 High temperature points on exposed sensor surfaces during operation

3.2.5 Endura AZ40 sensor – weight



WARNING – Bodily injury

- The sensor weighs 9.0 kg (20 lb). When fitted with a probe / filter assembly, the combined sensor / probe weight is dependent on probe length / type plus filter option – refer to Operating instruction [OI/AZ40-EN](#) for weight details.
- The sensor / probe assembly must be mounted in accordance with the information supplied in Operating instruction [OI/AZ40-EN](#).
- Suitable lifting equipment must be available when installing / removing the sensor / probe from the process.

3.2.6 Endura AZ40 analyzer – electrical



WARNING – Bodily injury

To ensure safe use when operating this equipment, the following points must be observed:

- up to 240 V AC may be present. Ensure the supply is isolated before removing the terminal cover
- normal safety precautions must be taken to avoid the possibility of an accident occurring when operating in conditions of high pressure and / or temperature

Safety advice concerning the use of the equipment described in this document or any relevant Material Safety Data Sheets (where applicable) can be obtained from the Company, together with servicing and spares information.

Endura AZ40 transmitter – weight



WARNING – Bodily injury

- The transmitter weighs 7.6 kg (17 lb) and must be mounted in accordance with the information supplied in Operating instruction [OI/AZ40-EN](#).
- Suitable lifting equipment must be available when installing / removing the transmitter from the mounting.

4 Isolating the transmitter

4.1 Isolating the transmitter

Referring to Fig. 4.1.

1. Isolate transmitter (A) from incoming mains powers supplies (B).



DANGER – Serious damage to health / risk to life

The transmitter must be isolated from mains powers supplies before carrying out this procedure.

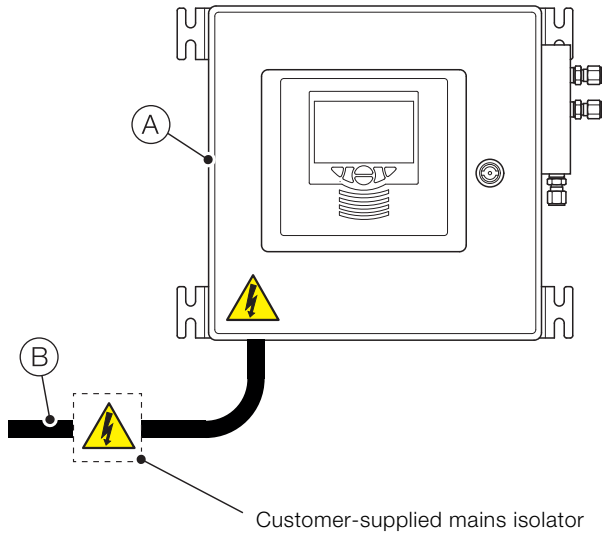


Fig. 4.1 Isolating the transmitter from incoming mains power supplies

5 Disconnecting transmitter cables

Referring to Fig. 5.1:

1. Unlock transmitter door (A) using the transmitter door key and open the transmitter door.
2. Use a small crosshead screwdriver to unscrew 4 (captive) terminal cover screws (B) and remove transmitter terminal cover (C).

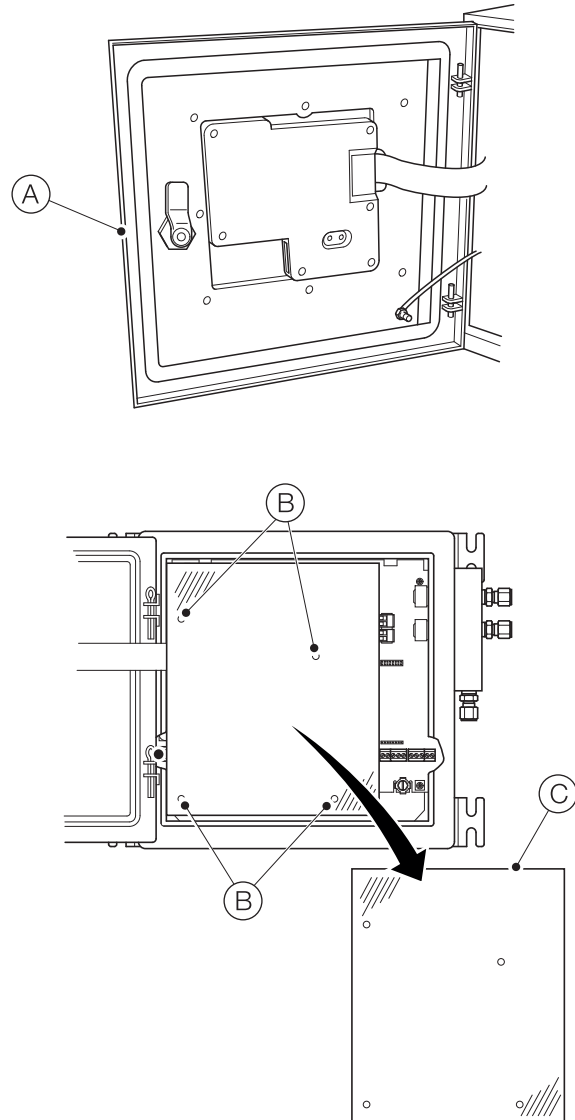


Fig. 5.1 Accessing the main board

Referring to Fig. 5.2:

- Use a small flat-bladed screwdriver to disconnect wires at terminal blocks (A) and (B) and any connections made at terminal blocks (C).

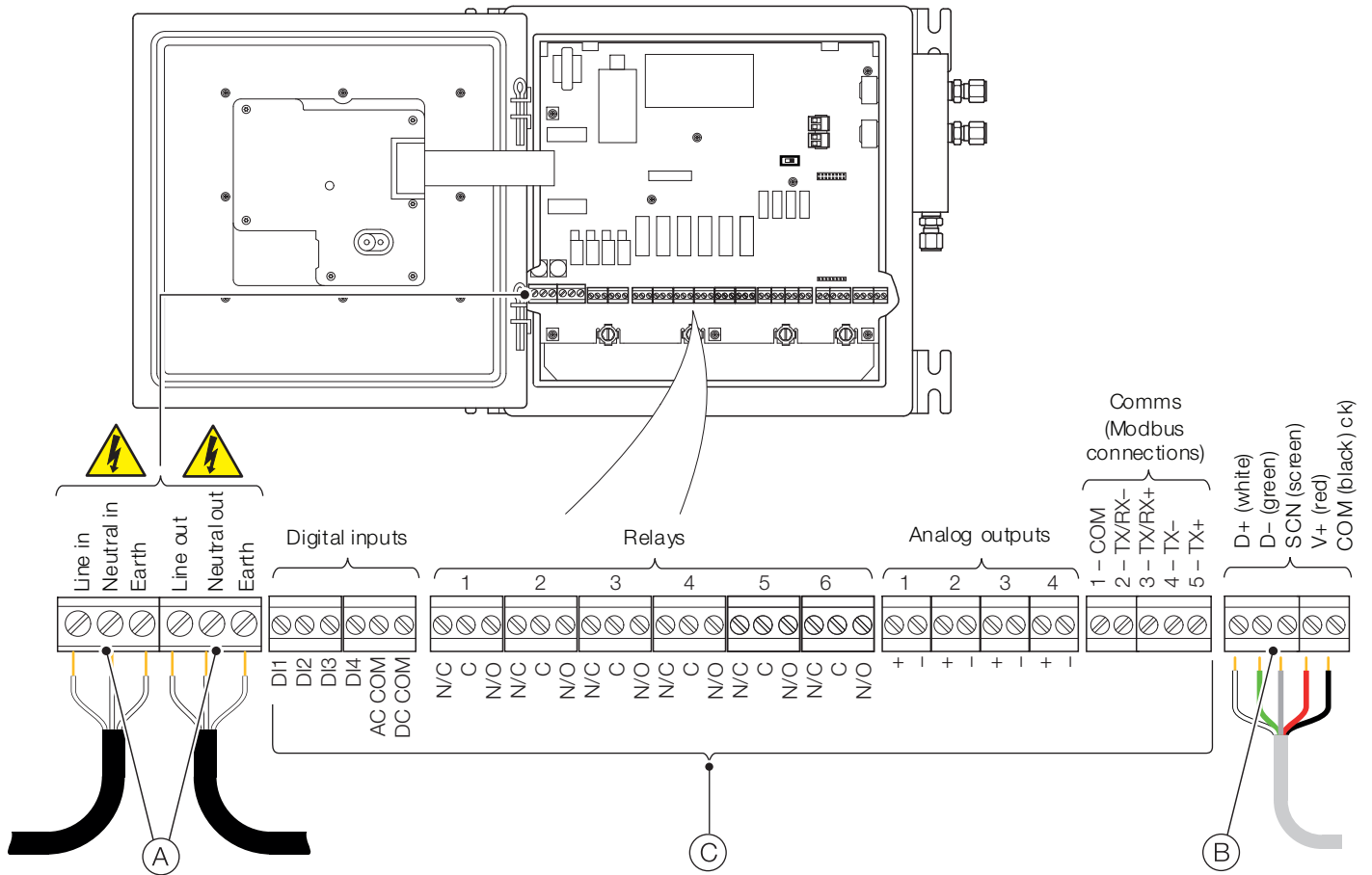


Fig. 5.2 Disconnecting transmitter mains, signals, relays and digital inputs

6 Replacement procedure

Referring to Fig. 6.1:

1. Use a T8 x 40 Torx screwdriver to unscrew 6 Torx screws (A) and remove processor / display board cover (B).
2. Disconnect the flexi-cable (C) from the processor display board (D).

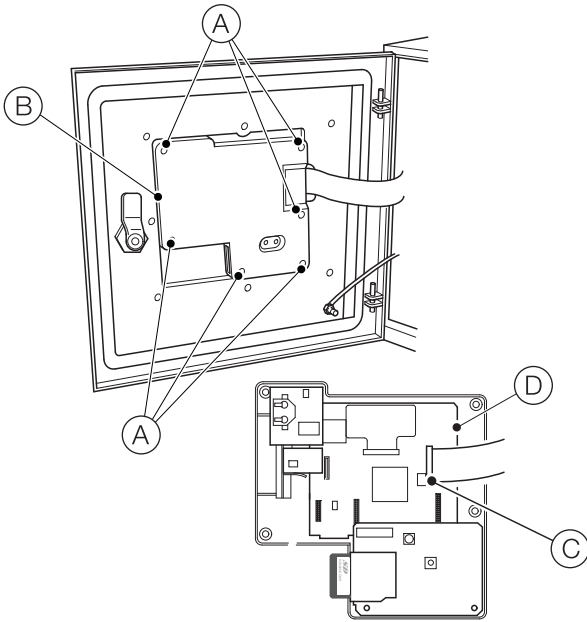


Fig. 6.1 Disconnecting the flexi-cable from the transmitter display board

Referring to Fig. 6.2:

3. Unplug 2 solenoid valve connectors (A) and use a medium crosshead screwdriver to unscrew and remove earth stud connector screw and washer (B). Disconnect the earth wire and retain washer and screw for re-use.

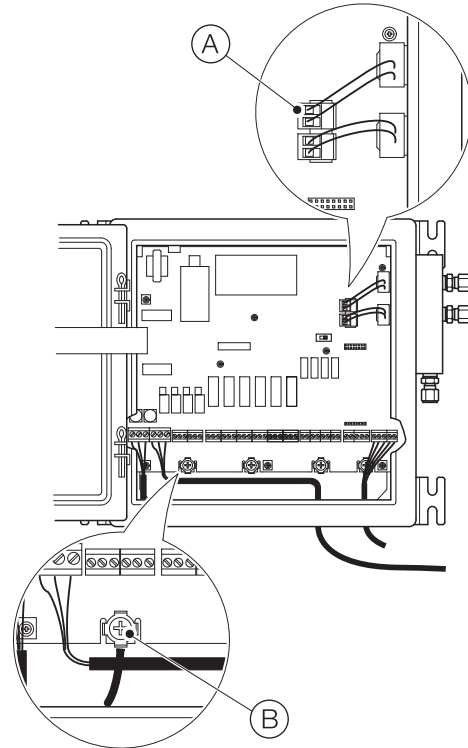


Fig. 6.2 Unplugging solenoid valve connectors and disconnecting earth wire at earth stud

Referring to Fig. 6.3:

4. Use a small crosshead screwdriver to unscrew and remove 6 main board retaining screws (A). Retain for re-use.
Remove the main board from the transmitter enclosure.
5. Disconnect the flexi-cable (B) from back of the main board (C). Retain the cable for re-use.

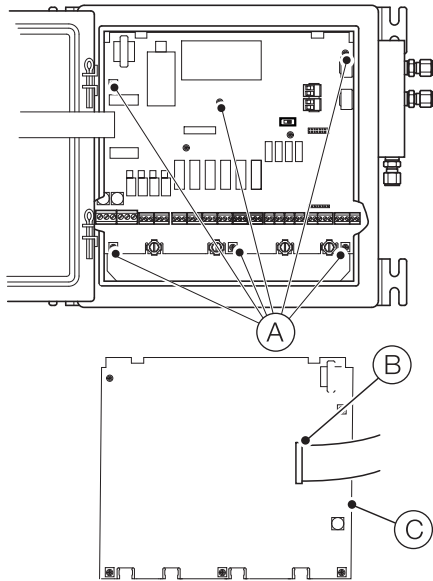


Fig. 6.3 Removing the main board from the transmitter cubicle

6. Connect the existing flexi-cable to the back of the new main board and fit the new main board in the reverse order of steps 1 to 5.
7. Re-make cable connections – refer to Section 5, page 4.
8. Prepare the transmitter for operation by reversing the isolation procedure – refer to Section 4, page 4.
9. Refer to [OI/AZ40-EN](#) to restore the analyzer to full operational condition.

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