

StackFlowMaster FPD580 transmitter and interface unit A

Stack gas metering systems

Measurement made easy



Introduction

This publication provides commissioning instructions for the StackFlowMaster 267CS transmitter and FPD583 interface unit A. The transmitter and interface unit are used in conjunction with a TORBAR sensor.

For more information

Further publications for the StackFlowMaster stack gas monitoring systems are available for free download from www.abb.com (see links and reference numbers below) or by scanning this code:



search for or click on:

StackFlowMaster FPD581, FPD583 and
FPD585 Operating instructions

[OI/FPD580-EN](#)

StackFlowMaster FPD580 TORBAR probe
Commissioning instructions

[CI/FPD580/A-EN](#)

2600T Series Pressure Transmitters
Operating instructions

[IM/267C/269C](#)

Health & Safety

Information in this manual is intended only to assist our customers in the efficient operation of our equipment. Use of this manual for any other purpose is specifically prohibited and its contents are not to be reproduced in full or part without prior approval of the Technical Publications Department.

Health and safety

To ensure that our products are safe and without risk to health, the following points must be noted:

- The relevant sections of these instructions must be read carefully before proceeding.
- Warning labels on containers and packages must be observed.
- Installation, operation, maintenance and servicing must only be carried out by suitably trained personnel and in accordance with the information given.
- 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 manual or any relevant Material Safety Data Sheets (where applicable) may be obtained from the Company address on the back cover, together with servicing and spares information.














Safety standards

This product has been designed to satisfy the requirements of IEC61010-1:2010 3rd edition 'Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory Use' and complies with US NEC 500, NIST and OSHA.

If the equipment is used in a manner NOT specified by the Company, the protection provided by the equipment may be impaired.

Symbols

One or more of the following symbols may appear on the equipment labelling:

	Protective earth (ground) terminal.
	Functional earth (ground) terminal.
	Direct current supply only.
	Alternating current supply only.
	Both direct and alternating current supply.
	The equipment is protected through double insulation.
	This symbol, when noted on a product, indicates a potential hazard which could cause serious personal injury and / or death. The user should reference this instruction manual for operation and / or safety information.
	This symbol, when noted on a product enclosure or barrier, indicates that a risk of electrical shock and / or electrocution exists and indicates that only individuals qualified to work with hazardous voltages should open the enclosure or remove the barrier.
	This symbol indicates that the marked item can be hot and should not be touched without care.
	This symbol indicates the presence of devices sensitive to electrostatic discharge and indicates that care must be taken to prevent damage to them.
	This symbol indicates the need for protective eye wear.
	This symbol indicates the need for protective hand wear.
	Recycle separately from general waste under the WEEE directive.

Manual handling

Caution. Take care when unpacking and installing a StackFlowMaster – use appropriate manual handling techniques.

Product recycling and disposal (Europe only)



Electrical equipment marked with this symbol may not be disposed of in European public disposal systems after 12 August 2005. To conform to European local and national regulations (EU Directive 2002/96/EC), European electrical equipment users must now return old or end-of-life equipment to the manufacturer for disposal at no charge to the user.

ABB is committed to ensuring that the risk of any environmental damage or pollution caused by any of its products is minimized as far as possible.

Note. For return for recycling, contact the equipment manufacturer or supplier for instructions on how to return end-of-life equipment for proper disposal.

1 Dimensions

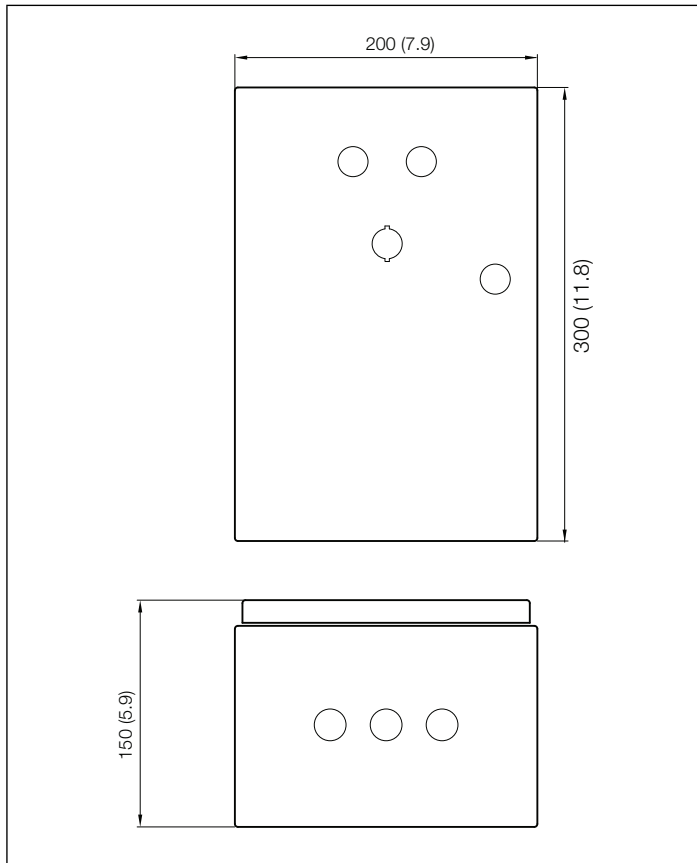


Fig. 1 FPD583 manual interface unit dimensions

2 Interface unit installation

General

When choosing a location for the interface unit enclosure, ensure the DP transmitter inside the enclosure is above the level of the TORBAR head.

It must be far enough above the TORBAR to enable the pneumatic tubing (see Operating Instruction [OI/FPD580-EN](#)) to slope down towards the TORBAR connections at an incline of at least 25 mm per 300 mm (1 in. per 12 in.).

Mounting

1. Referring to Fig. 2, fit the 4 supplied mounting brackets to the enclosure as shown.
2. Using M8 fixings, attach the enclosure to a wall or panel that is rigid and free from excessive vibration.

Note. Mount the housing with the cable glands at the bottom to avoid fluid collection and entry if the cable glands are loosened.

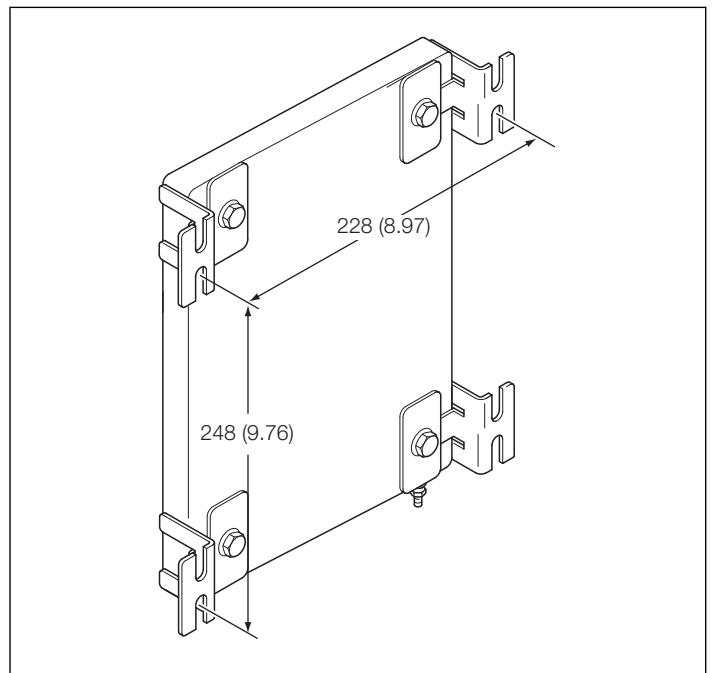


Fig. 2 Fitting enclosure mounting brackets

3 Electrical connections

Temperature sensor

When the DP transmitter is mounted on the TORBAR, connect the temperature sensor to the transmitter.

For remote mounted DP transmitters, connect the temperature sensor as follows:

1. Ensure the DP transmitter is powered-down.
2. Remove the DP transmitter termination cover.
3. Disconnect the temperature sensor wiring from the terminals and remove it from the cable entry.
4. Route the temperature sensor wiring through the cable entry and reconnect to the appropriate terminals – refer to the DP transmitter Operating instructions (IM 267C/269C).
5. Power-up the DP transmitter.

FPD583 – Interface unit A

Warning. Interface unit A is not fitted with a switch therefore a disconnecting device such as a switch or circuit breaker, conforming to local safety standards, **must** be fitted to the final installation. It must be fitted in close proximity to the interface unit within easy reach of the operator and must be marked clearly as the disconnection device for the interface unit.

Caution.

- Electrical connection must be performed only by suitably qualified personnel.
- Ensure mains supply cable is routed clear of heater mounting bracket (if fitted).

Interface unit A is supplied with 3 x M20 cable glands to enable entry of the AC power and multi-core signal cables. Make connections as shown in Fig. 3.

The DP transmitter is connected to the '1+S' and '-' terminals observing the appropriate polarity at the transmitter. These terminals are active and supply power to one DP transmitter only. Make connections to terminals '+' and '1-S' to complete the mA loop.

Terminals '20, 21' and '30, 31' are passive contact out and provide signalling for the 'System Fault' and the 'Maintenance Mode' functions. This panel must be earthed.

Note. ABB recommends termination of the end of the multi core cable screen. Do not terminate the screen in such a way that an earth-loop is created.

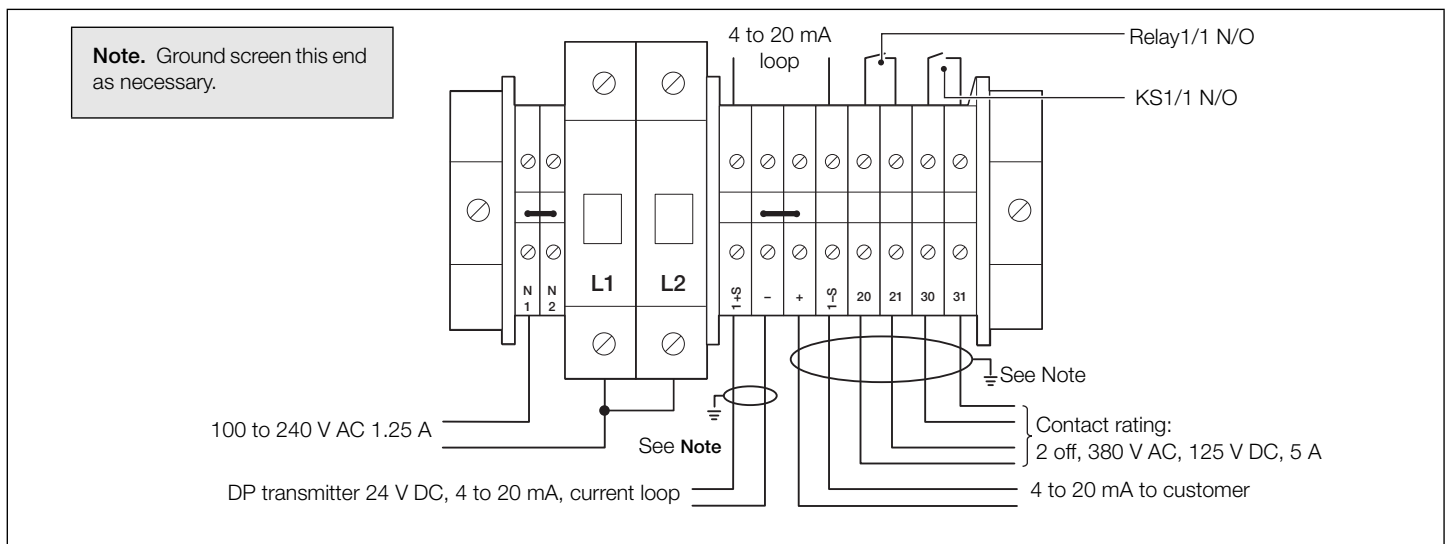


Fig. 3 Interface unit A connections

4 Pneumatic connections

Integral DP transmitter

The DP transmitter is supplied fitted to the TORBAR ready for use. The assembly has passed hydrostatic pressure testing to ensure there are no leaks.

If there is a need to remove and refit the DP transmitter, use new manifold seals and ensure they are fitted correctly in the manifold recesses. Pressure test the assembly to ensure there are no leaks.

Remote DP transmitter

The DP transmitter is supplied fitted to a pipe-to-flange 5-valve manifold ready for use. The assembly has passed hydrostatic pressure testing to ensure there are no leaks.

If there is a requirement to remove and refit the DP transmitter, use new O-ring seals and ensure they are fitted correctly in the manifold recesses. Pressure test the assembly to ensure there are no leaks.

Connect the high-pressure connection (marked H) of the TORBAR to the high pressure side of the differential pressure instrument and the low pressure connection (marked L) to the low pressure side of the differential pressure instrument.

The remote DP transmitter must be connected to the TORBAR on site using impulse tubing, observing the following instructions:

- Mount the DP transmitter above the level of the TORBAR head, ensuring the tubing slopes down towards the TORBAR connections at an incline of at least 25 mm per 300 mm (1 in. per 12 in.).
- Use minimum 6 mm (0.25 in.) ID piping suitable for the pressure, temperature and process.
- Keep the tubing as short as possible but ensure the differential pressure measuring instrument can operate within its specified temperature limits.
- Support the tubing over its entire length and isolate it from sources of vibration or damage.
- Route the tubing from the high and low pressure connections as close together as possible to maintain equal temperatures.
- Do not route the tubing in areas where the ambient temperature may fluctuate.

5 Initial calibration

Zeroing the DP transmitter following installation

To ensure correct operation, the DP transmitter must be zeroed at the normal operating pressure of the process. – refer to the DP transmitter Operating instructions (IM/267C/269C).

FPD581 and FPD583

The DP transmitter for the manual system is supplied mounted on a 5-valve manifold, either integrally to the TORBAR or remote mounted.

Referring to Fig. 4:

1. Ensure the stack is at the normal operating pressure, the DP transmitter power supply is on and the transmitter has been allowed to warm up – refer to the transmitter's Operating instructions (IM/267C/269C).
2. Ensure vent valves V4 and V5 are closed).
3. Close isolation valves I2 and I3.
4. Open equalization valve E1. The DP transmitter should now indicate a value close to zero.
5. Zero the DP transmitter – refer to the transmitter's Operating instructions (IM/267C/269C).
6. Open isolation valves I2 and I3.
7. Close equalization valve E1. The transmitter should now indicate flow. For information on fault diagnosis refer to the Operating instructions (OI/FPD580-EN).

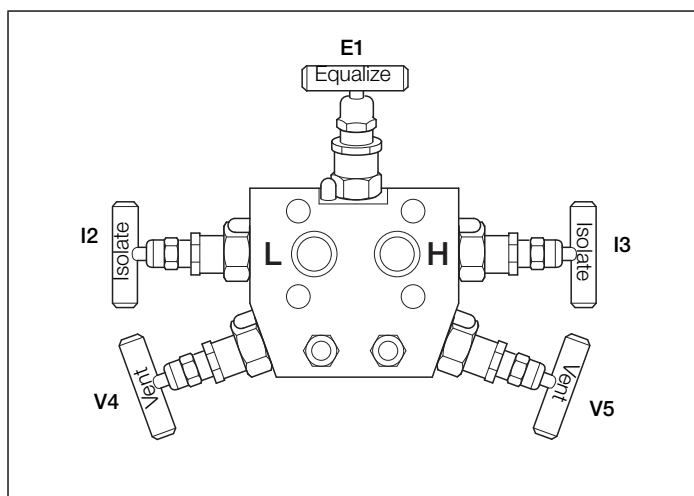


Fig. 4 Valve identification (viewed from underside of manifold)

6 Operation – FPD583

Description

The panel is supplied with a 2-position key switch and 2 indicator lights:

Green = Healthy

Red = Fault

With the key switch in the run position the interface unit monitors the health of the pressure transmitter. When the pressure transmitter is healthy the system provides a contact output on terminals 20 and 21.

Maintenance

Before working on the system, set the key switch to the 'MAINTAIN' position.

Note. The indicator lights are not lit but the system provides a contact output on terminals 30 and 31.

Fault

If a fault occurs, the transmitter's red indicator is lit and the contact output from terminals 20 and 21 is lost.

In case of an indicated fault, refer to the DP transmitter's Operating instructions ([IM 267C/269C](#)).

Heater HC2 or HC3

If the panel is fitted with the optional heater HC2 or HC3, adjust the thermostat to the required minimum temperature. The default setting is -5°C (23°F).

Caution. The heater remains hot for some time after power has been switched off.

Contact us

ABB Limited

Process Automation

Salterbeck Trading Estate
Workington, Cumbria
CA14 5DS
UK

Tel: +44 (0)1946 830 611

Fax: +44 (0)1946 832 661

ABB Inc.

Process Automation

125 E. County Line Road
Warminster
PA 18974
USA

Tel: +1 215 674 6000

Fax: +1 215 674 7183

www.abb.com

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