

McMenon Emission FlowGenie FPD581, FPD583 and FPD585 Stack gas metering systems

Measurement made easy

Flow metering solutions for
Continuous Emissions
Monitoring (CEMS)



Continuous measurement

- provides continuous, in-stack measurement of volume / mass flowrate and velocity

MCERTS approved

- meets the requirements of EN 14181 and EN 15267-3

Manual and automatic versions

- simple system for basic applications
- optional meter purging and automatic zero / span

Complete CEMS package available

- McMenon can combine with analyzer system to offer a complete CEMS package

Optional purging feature

- for solids contamination levels up to 300 mg/m³

Suitable for wide range of stack sizes and gas temperatures

- for stacks from 1 to 8 m (3.3 to 26.25 ft.) diameter and gas temperatures up to 1200 °C (2192 °F)

McMenon Emission FlowGenie FPD581, FPD583 and FPD585

Stack gas metering systems

Introduction

The FPD580 series is a range of stack gas flow metering solutions that, when combined with a CEMS analyzer, forms a complete CEMS package for the measurement of mass flowrate of pollutants into the environment. The FPD580 is based on the MAPT multi-port self-averaging pitot flow meter, thousands of which have been installed into a large variety of industries world-wide over many years.

McMenon Averaging Pitot Tubes

The MAPT probe within the FPD580 series produces an averaged differential pressure (DP) signal proportional to the square of the flow rate or velocity. The DP output is fed to a multi-variable transmitter that generates an electrical signal proportional to the flow rate, compensated for pressure and temperature. The outer impact tube has a number of pressure-sensing holes facing upstream that are positioned at equal annular points across the stack diameter, in accordance with a log-linear distribution. The 'total pressures' developed at each upstream hole by the sum of the impact of the flowing medium and the static pressure are first averaged within the outer impact tube and then averaged to a second, more accurate order within the internal averaging tube. This pressure is represented at the head as the high pressure component of the DP output. The low pressure component is generated from a single sensing hole located on the downstream side of the outer impact tube, that measures the static pressure within the stack.

The MAPT is an improvement on the round sensor design due to the unique profiled flats that are positioned around the downstream hole in order to define the point at which the flow lines separate as the stack gasses pass around the outer impact tube. This feature creates a stable pressure area at the downstream pressure sensing hole, maintaining a constant flow coefficient at high velocities enabling a very wide range of flow measurement (turndown).

Each probe is designed to measure across the complete diameter of the stack. For larger diameters the probe is supplied in 2 pieces that are joined on-site using a flanged centre coupling. This approach simplifies transportation, handling and installation.

The probes are supplied in a variety of materials and are designed for attachment to the stack via a range of flanged mountings. The mountings are available from McMenon (if required), or an existing fitting on the stack or a fitting supplied by the customer can be used. Larger stacks typically require a flanged fitting on both sides of the stack (end-supported) for mechanical stability and to prevent probe resonance that reduces product life. McMenon's sizing program checks automatically for resonance issues and warns when they may be present, enabling selection of an end-supported variant to be made. For combinations of high temperature and long insertion lengths, the probe is designed to lock into the end support to reduce the risk of distortion of the probe material.

Interface units

In many applications an interface unit must be installed between the MAPT and the DCS. Two basic (manual) types of interface unit are available that perform one or more of the following functions:

- send outputs to the DCS (to both those required by legislation and those needed by the user)
- enable regulatory tests to be carried out without having to climb the stack
- enable the DCS to send instructions to the system for testing or purging

An automatic interface unit is also available with the following options:

- probe purging (to clear sensing port blockages)
- or**
- automatic zero and span checks (for regulatory compliance)
- or**
- both purging and automatic zero / span check.

The interface unit can be provided with an optional heater to avoid condensation issues when operating in low ambient temperatures.

McMenon Emission FlowGenie FPD581, FPD583 and FPD585 Stack gas metering systems

FPD585 automatic control system

- with optional manual / automatic meter purging for particle densities of 30 to 300 mg/m³ (for concentrations above 300 mg/m³, contactMcMenon)
- the purge duration and frequency is programmable to keep the Torbar sensing holes clear of contaminants
- optional automatic system zero / span check
- optional MCERTS (future option)



Fig. 3: FPD585 sensor with purge interface unit

System summary

Model	Description	Interface unit type	Purge (30 to 300 mg/m³)	Zero / Span check	Transmitter	MCERTS	Temperature element
FPD581	standard system	None	No	No	Optional	No	Optional
FPD583	MCERTS system	MCERTS 'Manual A'	No	No	Yes	Optional	Optional
FPD585	automated metering system	Automatic-B	No	Yes *	Yes	Optional (future)	Optional
		Automatic-C	Yes	Yes *	Yes		
		Automatic-D	Yes	No	Yes		

* Manual (standard) or Automatic (optional)

Product variants

The FPD580 series comprises 3 versions:

FPD581 manual control system

- for the supply of systems that do not require MCERTS or purging or auto zero / span facilities
- for replacement or spare metering probes



Fig. 1: FPD581 sensor to work with remote transmitter (transmitter not shown)

FPD583 manual control system

- a self-contained flow metering system
- supplied with MCERTS interface unit
- for applications where blockage of the probe metering ports is not expected



Fig. 2: Typical stack gas flow probe with McMenon Emission FlowGenie FPD583 Type A interface unit

Installation and location

Recommended upstream distances

Correct location of the measuring probe in the stack is important in order to optimize performance. Flow that is disturbed by upstream fittings such as valves / dampers, bends and may have an adverse effect on accuracy unless the measuring probe is located at least 8 stack diameters after any such fittings. Minor fittings such as extractive sampling probes (for gas analysis) may be within this distance, providing they are no closer than 3 stack diameters from the probe. If the probe is fitted within distances less than those recommended, the absolute accuracy may be downgraded but repeatability of measurement is still excellent due to the probe's inherent averaging characteristics. Where it is not possible to provide the specified distances and maximum accuracy is required, the use of a flow straightening spool piece enables shorter distances.

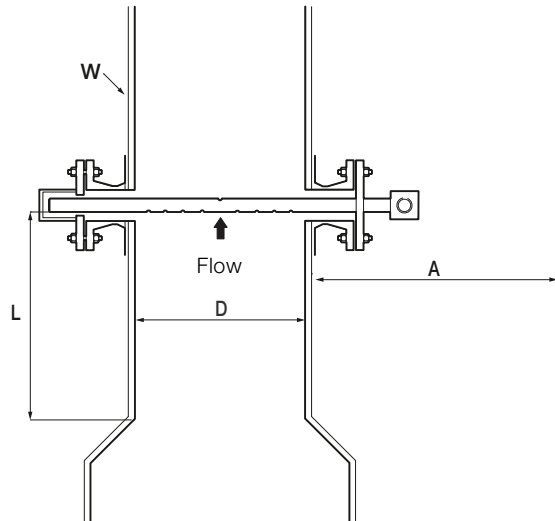


Fig. 4: Installation requirements

Key:

- D = Stack internal diameter (diameter of flow path)
- W = Stack wall thickness (including any refractory lining)
- A = Available access

Note. Care should be taken when the stack is surrounded by a wind shield

- L = Upstream straight length

Orientation in stack

The measuring probe must be installed at right angles to the stack and across the stack diameter within the tolerances shown in Fig. 5.

Before installation or removal of a measuring probe it is imperative that careful reference is made to the appropriate installation instructions that are supplied with each shipment. The installation instructions are also available separately on request.

Caution. A vibrating stack can distort the output signal and affect the structural limits of the measuring probe.

Warning. Refer to the instruction manual before installing any FPD580-series.

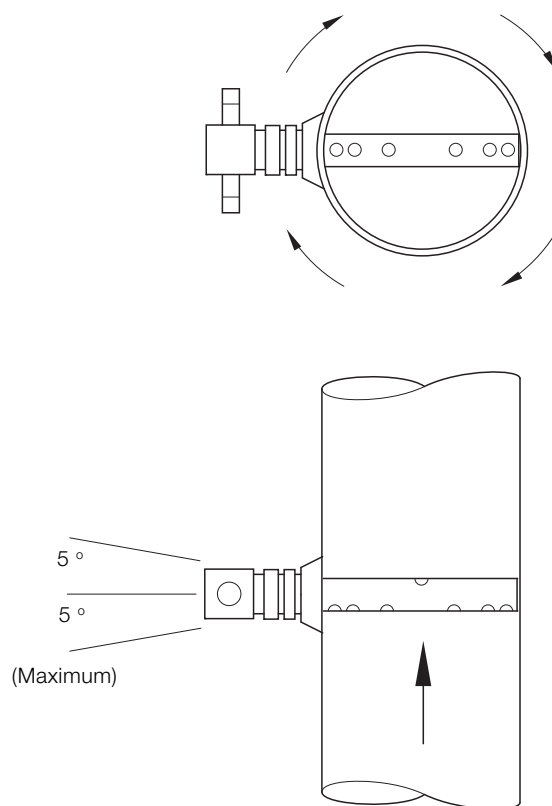


Fig. 5: Orientation

McMenon Emission FlowGenie FPD581, FPD583 and FPD585 Stack gas metering systems

Specification – probe

Diameter

25 mm (1 in.) or 60 mm (2.36 in.)

Insertion length

1 to 8 meters (3.3 to 26.25 ft.)

Construction

- Single piece
- 2-piece with centre coupling for unsupported lengths ≥ 5 m (16.4 ft.) (optional)
- Bayonet-style lock within end support for large stacks at high temperatures (optional)

Mounting

- Flanged fittings (single or end-supported) – supplied by McMenon or customer
- PN10 RF in sizes DN 40, DN 50, DN80, DN 100 and DN 150— ASME 150 lb RF in sizes 1½, 2, 3, 4, 6 in. NB

Temperature measurement

Optional, via integral RTD or remote thermocouple (for stack temperatures >600 °C [1112 °F])

Fluid velocity

Up to 50 m/s (3 to 35 m/s for MCERTS approved systems)

Process fluid

Combustion gases
(details of the gas composition are required by McMenon for sizing)

Process temperature limits

316L and 321H stainless steel probes

550 °C (1022 °F)

700 °C (1292 °F) with bayonet fitting option

UNS N06625 Gr.2 probe

— 900 °C (1652 °F)

— 1200 °C (2192 °F) *

With remote transmitter

As above, depending on probe material

With integral transmitter

180 °C (356 °F)

* possible but with limited probe life

Process pressure limits

Up to pressure rating of mounting flange at operating/design temperature

Construction materials

Probe

- 316L stainless steel
- 321H stainless steel
- UNS N06625 Gr.2

Mountings

- Carbon steel
- A105 carbon steel
- 316L stainless steel
- 321H stainless steel
- UNS N06625 Gr.2

Nuts and bolts

- ASTM A193 B7 / ASTM A194 2H
- ASTM A193 8M / ASTM A194 8MA

Gaskets

- Asbestos-free
- Spiral wound 316 stainless steel (optional)

Specification – transmitter

Type

McMenon multivariable transmitter type 267CS

Measuring range & span limits

Sensor code	Upper range limit (URL)	Lower range limit (LRL)	Minimum span
A	1 kPa 10 mbar 4 in. H ₂ O	0	0.05 kPa 0.5 mbar 0.2 in. H ₂ O
C	6 kPa 60 mbar 24 in. H ₂ O	0	0.2 kPa 2 mbar 0.8 in. H ₂ O

Display

LCD display, plug-in and rotatable with optional back-lighting

Communications

- HART digital communication and 4 to 20 mA
- Modbus RS485

Electrical connections

- 1/2 to 14 NPT
- M20 x 1.5

Electrical certification and hazardous atmospheres (FPD581 & FPD583 only)

Note. All interface units must be installed in safe area

- ATEX Ex ia, ATEX EEx d or ATEX Ex nL (upon application)
- UL (future)
- Factory Mutual (FM) – intrinsically safe (future)
- Factory Mutual (FM) – explosion-proof (future)
- Canadian Standard Association – explosion-proof (future)

Construction materials

Process isolating diaphragms

Hastelloy™ C276

Process flange, adapter, plugs and drain/vent valves

Stainless steel

Sensor fill fluid

Silicone oil

Sensor housing

Stainless steel

Mounting bracket

Stainless steel

Gaskets

PTFE

Nuts and bolts

Stainless steel class A4-70 according to ISO 3506, conforming to NACE MR0175 Class II

Electronics housing and cover

- Aluminum alloy with low copper content
- Baked epoxy finish
- Stainless steel

Cover O-rings

Viton™

McMenon Emission FlowGenie FPD581, FPD583 and FPD585 Stack gas metering systems

Specification – interface unit

FPD583 MCERTS manual system

Protection

IP65 (NEMA 4) rated. Not suitable for use in hazardous area

Electrical connection

Via 3 x M20 plastic cable glands

Thermostatic internal heater (optional)

Power supply:

- 90 (min.) to 264 V (max.)
- 100 to 240 V AC $\pm 10\%$, 50 / 60 Hz

Housing construction

Epoxy painted steel

FPD585 automatic system

Protection

IP65 (NEMA 4) rated – not suitable for use in hazardous area

Process connections

1/2 in. BSP stainless steel

Supply air connection

1/2 in. BSP stainless steel

Electrical connection

Via 4 x M20 plastic cable glands

Thermostatic internal heater (optional)

Power supply:

- 90 (min.) to 264 V (max.)
- 100 to 240 V AC $\pm 10\%$, 50 / 60 Hz

Ambient temperature

–20 to 50 °C (–4 to 122 °F) – below 0 °C requires heater option

Air supply

Max. 6 barg (87 psig)

Display

89 mm (3.5 in.) color TFT, 1/4 VGA (320 x 240 pixels)

Display backlight

White LED

Operator switches

6 keys accessible without opening the front door

Power supply

- 90 (min.) to 264 V (max.)
- 100 to 240 V AC $\pm 10\%$, 50/60 Hz

Measured components

- Operating pressure
- Operating temperature (optional)
- Differential pressure

Calculated components

- Mass flowrate
- Volumetric flowrate
- Velocity

Digital inputs / outputs

6

Input Functions

- Remote purge activation
- Remote zero check
- Remote span check

Output functions

- Out of service
- Purge in process
- Zero check in process
- Span check in process
- Zero check alarm
- Span check alarm

Analog outputs

Up to 4 with retransmission of pressure, temperature, DP and flow

Type

Programmable, 4 to 20 mA

Housing construction

Epoxy painted steel

Measurement performance

System accuracy

±2 %

Repeatability

≤ 2 % of measuring range

Drift

<0.5 % of measuring range

Data logging parameters

- Temperature
- Operating pressure
- Differential pressure
- Velocity
- Mass flow

Data storage and retrieval

Internal – SD interface

Sampling frequency

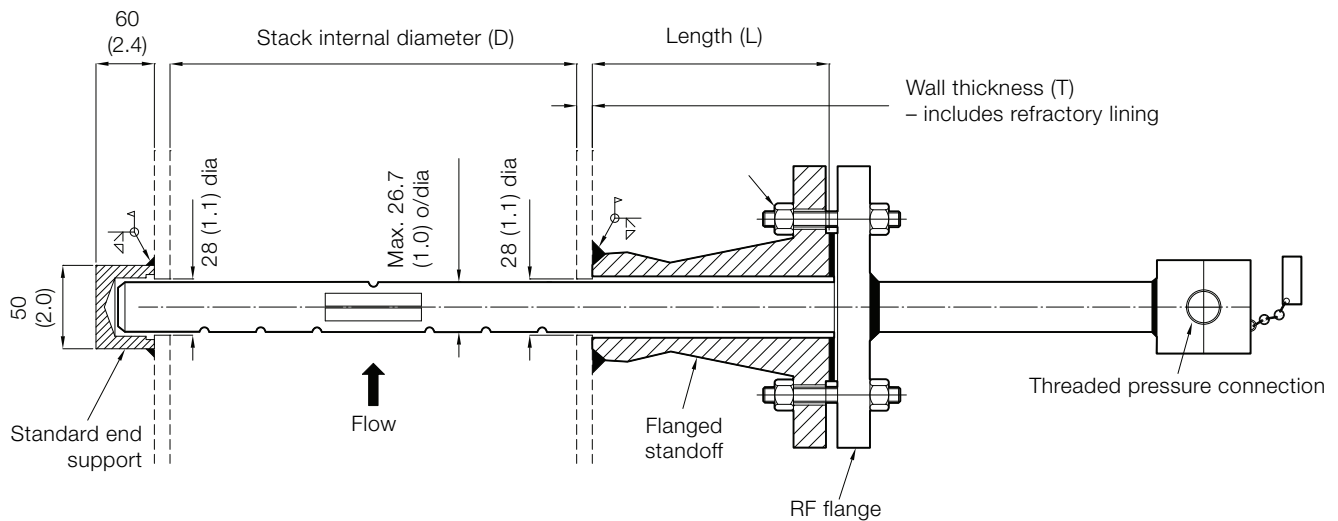
1 to 180 seconds, fully-adjustable

McMenon Emission FlowGenie FPD581, FPD583 and FPD585 Stack gas metering systems

Dimensions

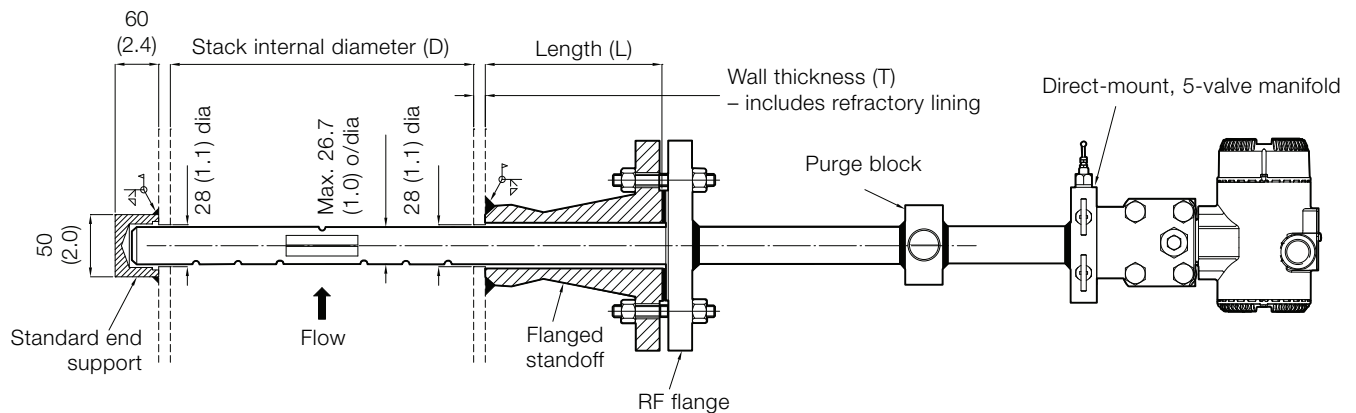
Probe – 25 mm (1.0 in.) diameter with weldcup end support (for remote transmitter)

Dimensions in mm (in.)



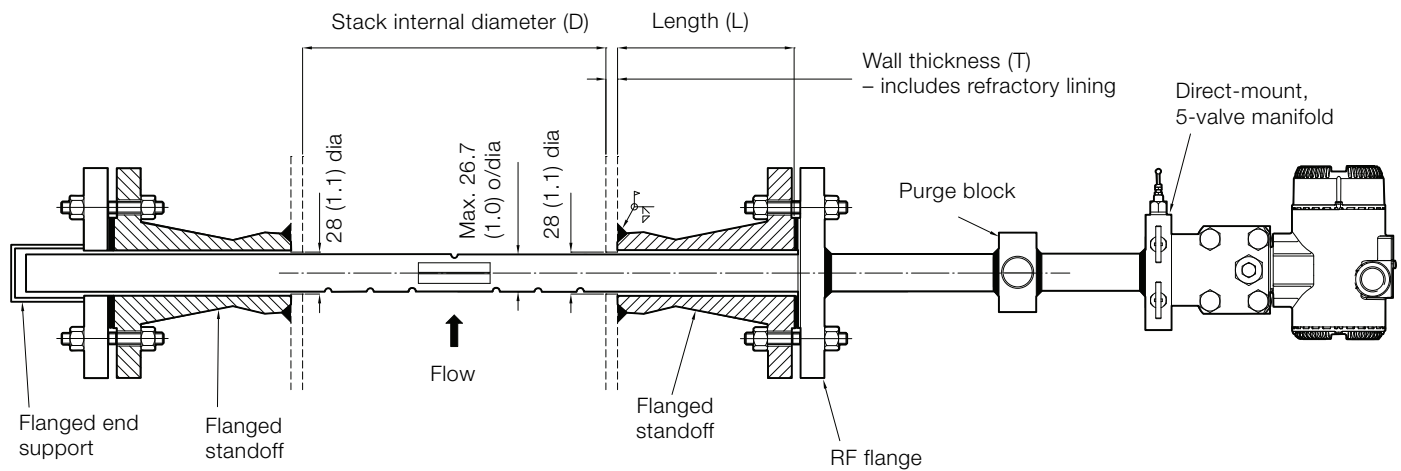
Probe – 25 mm (1.0 in.) diameter with weldcup end support (with integral transmitter)

Dimensions in mm (in.)



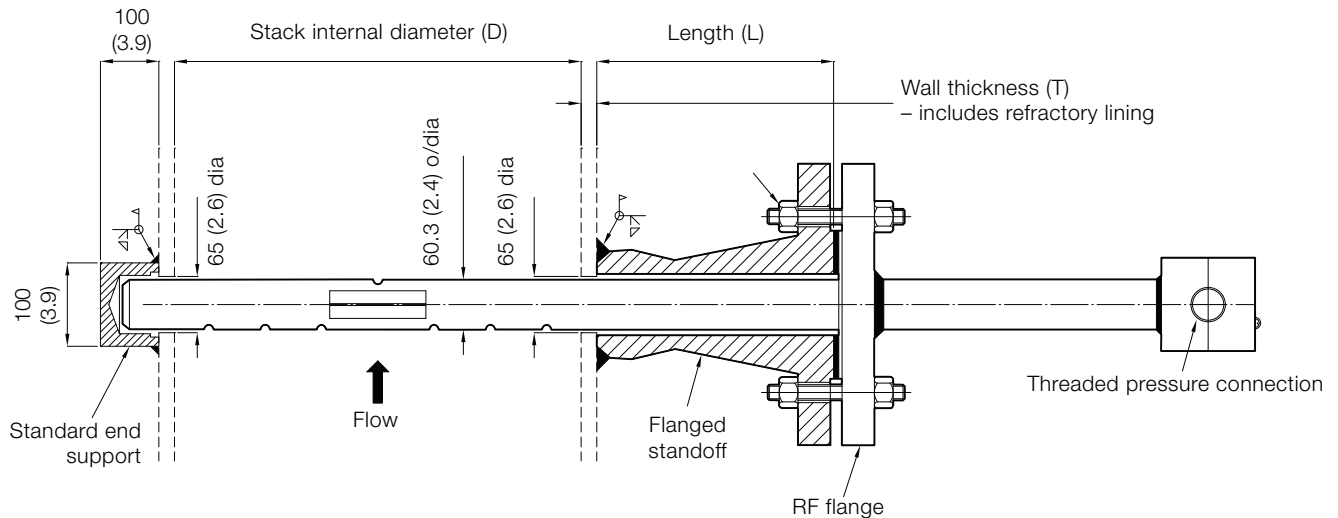
Probe – 25 mm (1.0 in.) diameter with flanged end support (with integral transmitter)

Dimensions in mm (in.)



Probe – 60 mm (2.4 in.) diameter with weldcup end support (for remote transmitter)

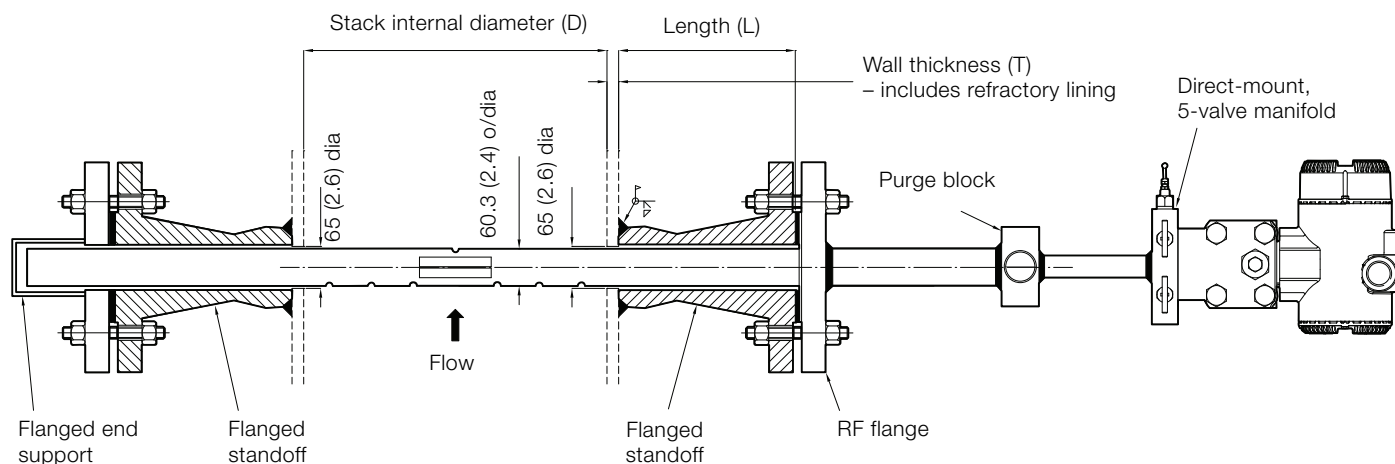
Dimensions in mm (in.)



McMenon Emission FlowGenie FPD581, FPD583 and FPD585 Stack gas metering systems

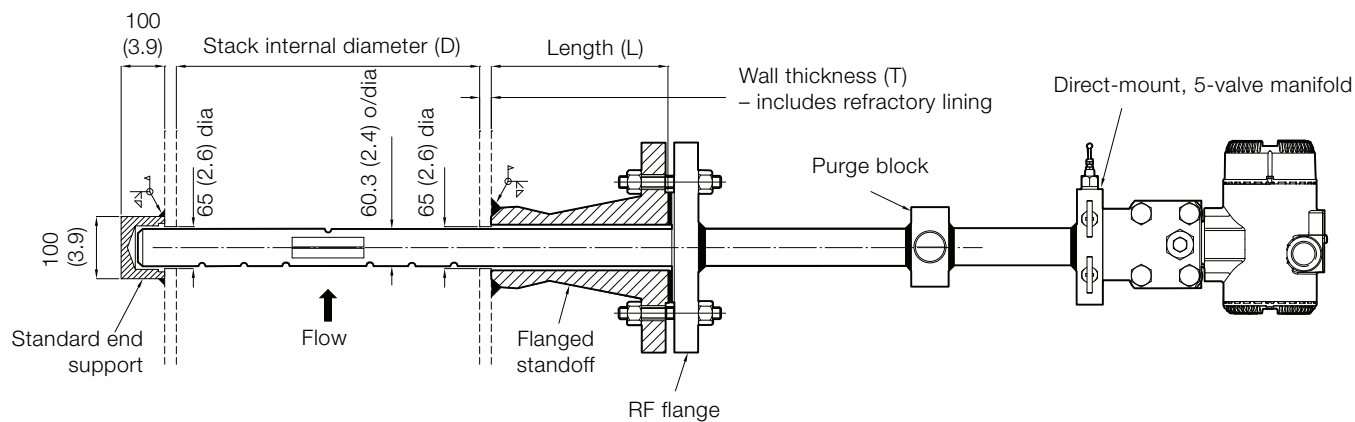
Probe – 60 mm (2.4 in.) diameter with flanged end support (for integral transmitter)

Dimensions in mm (in.)



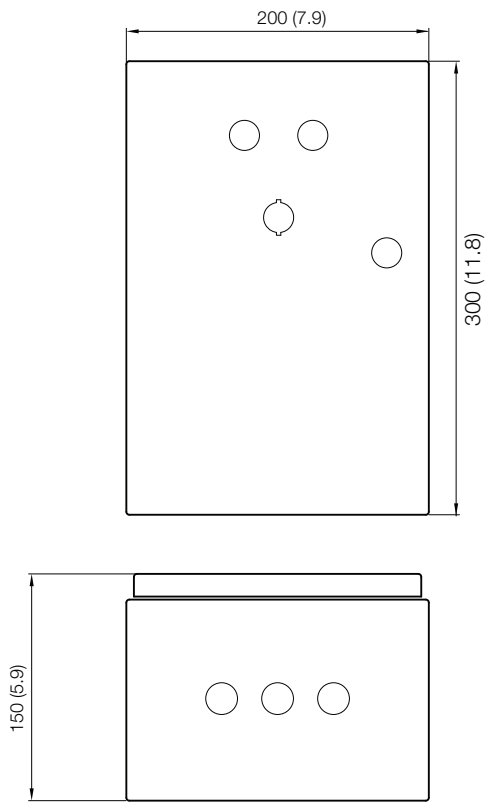
Probe – 60 mm (2.4 in.) diameter with weldcup end support (with integral transmitter)

Dimensions in mm (in.)



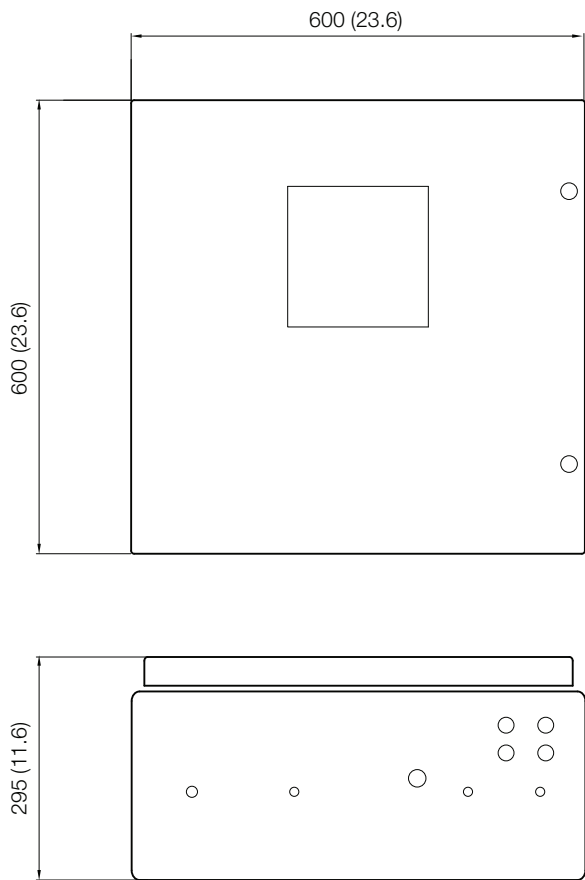
FPD583 manual interface unit

Dimensions in mm (in.)



FPD585 automatic interface unit

Dimensions in mm (in.)



McMenon Emission FlowGenie FPD581, FPD583 and FPD585 Stack gas metering systems

Ordering information

McMenon Emission FlowGenie FPD581 – probe only

Standard codes										Optional codes					
McMenon Emission FlowGenie probe	FPD581	XX	XX	XX	XX	XXX	XXX	X	X	X	X	X	XX	X	X
Design level															
Not applicable		Y0													
1 – mass flow (267CS)		M1													
Probe type															
25 mm OD flanged probe without end support		F3													
25 mm OD flanged probe with cup end support		F4													
25 mm OD flanged probe with flanged external end support		F5													
60 mm OD flanged probe without end support		G3													
60 mm OD flanged probe with flanged external end support		G5													
Probe material															
316L stainless steel		S6													
321H stainless steel		S1													
UNS N06625 Gr.2		N2													
Other		Z9													
Stack fitting material															
Not required		YO													
Carbon steel		C3													
316L stainless steel		S6													
321H stainless steel		S1													
UNS N06625 Gr.2		N2													
Other		Z9													
Process connection size															
DN 40 (1½ in.)		040													
DN 50 (2 in.)		050													
DN 80 (3 in.)		080													
DN 100 (4 in.)		100													
DN 150 (6 in.)		150													
Other		999													
Process connection rating															
ASME 150 lb RF		A1F													
PN 10 / PN 16 RF		D1F													
Other		Z9Z													
Standoff															
Not required		0													
Flange standoff		1													
2 x flange standoff + flanged end support		2													
Flanged end support only		3													

See page 16

Continued on page 15

		Standard codes														
McMenon Emission FlowGenie probe	FPD581	XX	XX	XX	XX	XXX	XXX	X	X	X	X	X	X	XX	X	X
		See page 14														
Interface unit options																
No interface unit		Y														
DP transmitter mounting position																
1/4 in. NPT needle valves (remote transmitter mounting only)		1														
1/2 in. NPT needle valves (remote transmitter mounting only)		2														
Integral 5-valve manifold (direct mount transmitter only)		5														
Other		9														
DP span limits																
Not applicable		Y														
1 kPa / 10 mbar / 4 in. H ₂ O		A														
6 kPa / 60 mbar / 24 in. H ₂ O		C														
Seal material																
Not applicable		0														
PTFE		4														
Communications output																
Not applicable		Y0														
HART digital communication and 4 to 20 mA		H1														
Modbus 485		M1														
DP transmitter housing																
Not applicable		Y														
Aluminium alloy / 1/2 – 14 NPT		A														
Aluminium alloy / M20 x 1.5		B														
AISI 316L stainless steel / 1/2 – 14 NPT		S														
AISI 316L stainless steel / M20 x 1.5		T														
Integrated LCD display																
Not applicable		0														
LCD display (backlit)		2														

Optional codes					
XX	XX	XXX	XX	XX	XX
See page 16					

McMenon Emission FlowGenie FPD581, FPD583 and FPD585 Stack gas metering systems

Standard codes															Optional codes												
McMenon Emission Flow Genie probe	FPD581	XX	XX	XX	XX	XXX	XXX	X	X	X	X	X	XX	X	X	XX	XX	XXX	XX	XX	XX						
See pages 14 and 15																											
Temperature element																											
Integral to probe (RTD)															AT												
Integral to probe (thermocouple – no temperature compensation)															AV												
Bolts and gaskets																											
Asbestos free gasket, B7 / 2H stud bolts															K1												
Asbestos free gasket, 8M / 8MA stud bolts															K2												
Spiral wound gasket, B7 / 2H stud bolts															K3												
Spiral wound gasket, 8M / 8MA stud bolts															K4												
Probe design																											
2-piece construction															TP2												
Bayonet fitting															TP3												
DP transmitter explosion certificates																											
Factory mutual (FM) – intrinsically safe															EA												
Factory mutual (FM) – explosion-proof															EB												
Canadian Standard Association (CSA) – explosion-proof															EE												
Certificates																											
Material monitoring with inspection certificate 3.1 acc. EN 10204															C2												
Material monitoring NACE MR 01-75 with inspection certificate 3.1 acc. EN 10204															CN												
Dye penetrant NDE of welds															C9												
Hydrostatic pressure test certificate															CB												
Documentation language* (supplied in English as standard)																											
German															M1												
Italian															M2												
Spanish															M3												
French															M4												
Chinese															M6												

*Commissioning instructions are supplied with each transmitter.

Comprehensive operating instructions are available as a free download from www.mcmenon.com or printed copies can be ordered as additional items.

McMenon Emission FlowGenie FPD583 – manual system

		Standard codes												Optional codes					
McMenon Emission FlowGenie system (manual) FPD583		XX	XX	XX	XX	XXX	XXX	X	X	X	X	X	XX	X	X	XX	XX	XX	XX
Design level																			
Not applicable		Y0																	
1 – mass flow (267CS)		M1																	
Probe type																			
Interface unit only		Y0																	
25 mm OD flanged probe without end support		F3																	
25 mm OD flanged probe with cup end support		F4																	
25 mm OD flanged probe with flanged external end support		F5																	
60 mm OD flanged probe without end support		G3																	
60 mm OD flanged probe with flanged external end support		G5																	
Probe material																			
Interface unit only		Y0																	
316L stainless steel		S6																	
321H stainless steel		S1																	
UNS N06625 Gr.2		N2																	
Other		Z9																	
Stack fitting material																			
Not required		Y0																	
Carbon steel		C3																	
316L stainless steel		S6																	
321H stainless steel		S1																	
UNS N06625 Gr.2		N2																	
Other		Z9																	
Process connection size																			
Not required (interface unit only)						000													
DN 40 (1½ in.)						040													
DN 50 (2 in.)						050													
DN 80 (3 in.)						080													
DN 100 (4 in.)						100													
DN 150 (6 in.)						150													
Other						999													
Process connection rating																			
Interface unit only						Y0Y													
ASME 150 lb RF						A1F													
PN 10 / PN 16 RF						D1F													
Other						Z9Z													

Continued on page 18

McMenon Emission FlowGenie FPD581, FPD583 and FPD585 Stack gas metering systems

		Standard codes												Optional codes					
McMenon Emission FlowGenie system (manual)	FPD583	XX	XX	XX	XX	XXX	XXX	X	X	X	X	X	XX	X	X	XX	XX	XXX	XXX
See page 17																			
Standoff																			
Not required								0											
Flange standoff								1											
2 x flange standoff + flanged end support								2											
Flanged end support only								3											
Interface unit options																			
Status module interface unit – safe area only									A										
DP transmitter mounting position																			
Interface unit only								0											
1/4 in. NPT needle valves (remote transmitter mounting only)								1											
1/2 in. NPT needle valves (remote transmitter mounting only)								2											
Integral 5-valve manifold (direct mount transmitter only)								5											
Other								9											
DP span limits																			
Not applicable										Y									
1 kPa / 10 mbar / 4 in. H ₂ O										A									
6 kPa / 60 mbar / 24 in. H ₂ O										C									
Seal material																			
Not applicable													0						
PTFE													4						
Communications output																			
Not applicable														Y0					
HART digital communication and 4 to 20 mA														H1					
Modbus 485														M1					
DP transmitter housing																			
Not applicable															Y				
Aluminium alloy / 1/2 – 14 NPT															A				
Aluminium alloy / M20 x 1.5															B				
AISI 316L stainless steel / 1/2 – 14 NPT															S				
AISI 316L stainless steel / M20 x 1.5															T				
Integrated LCD display																			
Not applicable																0			
LCD display (backlit)																2			

See page 19

Standard codes															Optional codes													
McMenon Emission FlowGenie (manual)			FPD583	XX	XX	XX	XX	XXX	XXX	X	X	X	X	XX	X	X	XX	XX	XXX	XXX	XX	XX	XX	XX				
See pages 17 and 18																												
Temperature element																												
Integral to probe (RTD)																	AT											
Integral to probe (thermocouple – no temperature compensation)																	AV											
Bolts and gaskets																												
Asbestos free gasket, B7 / 2H stud bolts																	K1											
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Spiral wound gasket, B7 / 2H stud bolts																	K3											
Spiral wound gasket, 8M / 8MA stud bolts																	K4											
Probe design																												
2-piece construction																	TP2											
Bayonet fitting																	TP3											
Heater interface unit																												
Heater – 230 V AC																			HC2									
Heater – 110 V AC																			HC3									
DP transmitter explosion certificates																												
Factory mutual (FM) – intrinsically safe																			EA									
Factory mutual (FM) – explosion-proof																			EB									
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Material monitoring NACE MR 01-75 with inspection certificate 3.1 acc. EN 10204																			CN									
Dye penetrant NDE weld inspection																			C9									
Hydrostatic pressure test certificate																			CB									
MCerts																			CV									
EN 14181 / EN 15267-3 (TÜV Report)																			CU									
Documentation language* (supplied in English as standard)																												
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McMenon Emission FlowGenie FPD585 – automatic system

Standard codes														Optional codes							
McMenon Emission FlowGenie system (automatic) FPD585	XX	XX	XX	XX	XXX	XXX	X	X	X	X	X	XX	X	XX	XX	XXX	XXX	XXX	XX	XX	XX
Design level																					
1 – mass flow (267CS)	M1																				
Probe type																					
Interface unit only	Y0																				
25 mm OD flanged probe without end support	F3																				
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60 mm OD flanged probe without end support	G3																				
60 mm OD flanged probe with flanged external end support	G5																				
Probe material																					
Interface unit only	Y0																				
316L stainless steel	S6																				
321H stainless steel	S1																				
UNS N06625 Gr.2	N2																				
Other	Z9																				
Stack fitting material																					
Not required	Y0																				
Carbon steel	C3																				
316L stainless steel	S6																				
321H stainless steel	S1																				
UNS N06625 Gr.2	N2																				
Other	Z9																				
Process connection size																					
Not required (interface unit only)	000																				
DN 40 (1½ in.)	040																				
DN 50 (2 in.)	050																				
DN 80 (3 in.)	080																				
DN 100 (4 in.)	100																				
DN 150 (6 in.)	150																				
Other	999																				
Process connection rating																					
Interface unit only	Y0Y																				
ASME 150 lb RF	A1F																				
PN 10 / PN 16 RF	D1F																				
Other	Z9Z																				

Continued on page 21

		Standard codes											
McMenon Emission FlowGenie (automatic)	FPD585	XX	XX	XX	XX	XXX	XXX	X	X	X	X	XX	X
See page 20													
Standoff													
Not required								0					
Flange standoff								1					
2 x flange standoff + flanged end support								2					
Flanged end support only								3					
Interface unit options													
Control interface unit with zero and span check – safe area only									B				
Control interface unit with zero and span check and purge – safe area only									C				
Control interface unit with purge – safe area only									D				
DP transmitter mounting position													
Interface unit only								0					
1/4 in. NPT needle valves (remote transmitter mounting only)								1					
1/2 in. NPT needle valves (remote transmitter mounting only)								2					
Other								9					
DP span limits													
1 kPa / 10 mbar / 4 in. H ₂ O									A				
6 kPa / 60 mbar / 24 in. H ₂ O									C				
Seal material													
PTFE										4			
Communications output													
4...20 mA output											M5		
Modbus 485											M6		
DP transmitter housing													
Aluminium alloy / M20 x 1.5												B	
Integrated LCD display													
LCD display												1	
LCD display (backlit)												2	

Optional codes							
XX	XX	XXX	XXX	XXX	XX	XX	XX
See page 22							

McMenon Emission FlowGenie FPD581, FPD583 and FPD585 Stack gas metering systems

Standard codes														Optional codes					
McMenon Emission FlowGenie system (automatic)	FPD585	XX	XX	XX	XX	XXX	XXX	X	X	X	X	X	XX	XX	XX	XX	XX	XX	XX
See pages 20 and 21																			
Temperature element																			
Integral to probe (RTD)													AT						
Integral to probe (thermocouple – no temperature compensation)													AV						
Bolts and gaskets																			
Asbestos free gasket, B7 / 2H stud bolts													K1						
Asbestos free gasket, 8M / 8MA stud bolts													K2						
Spiral wound gasket, B7 / 2H stud bolts													K3						
Spiral wound gasket, 8M / 8MA stud bolts													K4						
Probe design																			
2-piece construction													TP2						
Bayonet fitting													TP3						
Heater interface unit																			
Heater – 230 V AC													HC2						
Heater – 110 V AC													HC3						
Span check regulator																			
Span check regulator													PC1						
DP transmitter explosion certificates																			
Factory mutual (FM) – intrinsically safe													EA						
Factory mutual (FM) – explosion-proof													EB						
Canadian Standard Association (CSA) – explosion-proof													EE						
Certificates																			
Material monitoring with inspection certificate 3.1 acc. EN 10204													C2						
Material monitoring NACE MR 01-75 with inspection certificate 3.1 acc. EN 10204													CN						
Dye penetrant NDE weld inspection													C9						
Hydrostatic pressure test certificate													CB						
MCerts (future option)													CV						
EN 14181 / EN 15267-3 (TÜV Report) (future option)													CU						
Documentation language* (supplied in English as standard)																			
German													M1						
Italian													M2						
Spanish													M3						
French													M4						
Chinese													M6						

*Commissioning instructions are supplied with each transmitter.

Comprehensive operating instructions are available as a free download from www.McMenon.com or printed copies can be ordered as additional items.

Notes

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