

Endura AZ25 oxygen analyzer

Combustion gas analysis

Superior technology and quality from the
world leader
in oxygen measurement

Measurement made easy



Dependable

- measurement of O₂ in a wide variety of processes
- virtually instantaneous response
- resistance to sulphurous reducing atmospheres

Versatile

- 600 to 1250 mm (2 to 4 ft) lengths
- choice of protective sheath materials
- integral thermocouple for automatic temperature compensation
- high temperature operation up to 1400 °C (2552 °F)

Low cost-of-ownership

- in situ measurement
- no sampling system required
- automatic calibration functionality as standard
- optional automatic calibration hardware

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Combustion gas analysis

Introduction

The Endura AZ25 combustion oxygen analyzer is the latest in a long line of high-quality, combustion gas analyzers from ABB. The AZ25 is designed to measure oxygen concentration in high temperature furnace atmospheres.

The sensor, based on a zirconium oxide cell, is mounted at the tip of the probe that is inserted directly into the furnace. The resulting direct, in-situ measurement provides an accurate and rapid oxygen reading, for combustion control / optimization and process quality control purposes.

The in-situ technique provides a true oxygen measurement inside the process. It eliminates 'equilibrium shift' that is common to systems in which gas samples are extracted and cooled before measurement.

Reference air (500 to 1000 ml/min [1 to 2 ft³/hr]) is required for accurate operation and can be supplied from an ABB mains-powered pump unit or a flow regulator unit.

Applications

- Furnace atmosphere monitoring:
 - Annealing furnace
 - Sintering of metals
 - Ferrite sintering
 - Whiteheart malleablizing
- Combustion measurement and control in:
 - Soaking pits
 - Process heaters
 - Fluidized bed boilers
 - High temperature incinerators
- All other combustion processes where the flue gas temperature is in excess of 600 °C (1112 °F)

Probe lengths up to 1250 mm (49 in.)

A wide range of probe insertion lengths allows for optimum sensor positioning within the furnace or flue duct to ensure accurate and representative oxygen measurement.

A comprehensive range of mounting flanges, provide simple installation when plant-wide standard flanges are required or when replacing existing probes.

The remote transmitter can be mounted up to 100 m (328 ft.) from the probe. Probe locations are often high temperature, hostile and inaccessible areas, the flexibility of long cable lengths permits appropriate siting of the remote transmitter.

Sheath material options

To ensure material compatibility with the process conditions there is a choice of three sheath materials:

Aluminous porcelain

Entry level sheath material suitable for applications with temperatures up to 1250 °C (2282 °F) – limited resistant to corrosive chemicals and mechanical and thermal stress.

Recrystallized alumina

Suitable for applications with temperatures up to 1400 °C (2552 °F) resistant to corrosive chemicals and more severe mechanical and thermal stress are present.

Incoloy 800

Suitable for applications with temperatures up to 850 °C (1562 °F) when mounted horizontally and up to 1000 °C (1832 °F) when mounted vertically.

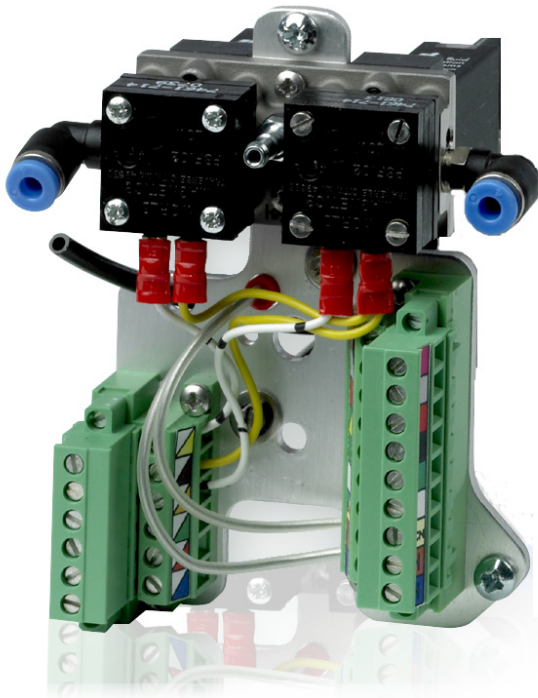
Offering limited resistance to corrosive chemicals and resistant mechanical and thermal stress.



Unique integrated automatic calibration

The Endura AZ25 automatic calibration system eliminates the need for the expensive ancillary equipment required for automatic calibration on traditional flue gas oxygen analyzer systems. ABB's fully integrated, automatic calibration feature controls the test gas sequence and detects test gas availability, eliminating incorrect calibrations due to loss of test gas. Integrated automatic calibration secures the oxygen measurement, providing complete confidence in the analyzer's performance.

Long-term operation without technician intervention minimizes operating costs, total cost-of-ownership and optimizes system accuracy. A significant proportion of service visits to an analyzer result in 'no fault found'. Endura AZ25's high-quality manufacture, advanced diagnostics and automatic calibration is targeted at reducing this wasted effort and cost.



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Combustion gas analysis

Advanced transmitter

The Endura AZ25 transmitter incorporates the most up-to-date design and technology available today. ABB's universal human/machine interface (HMI) with its large, clear, backlit graphical display, 'through-the-glass' control and intuitive menu structure simplifies transmitter configuration and operation.

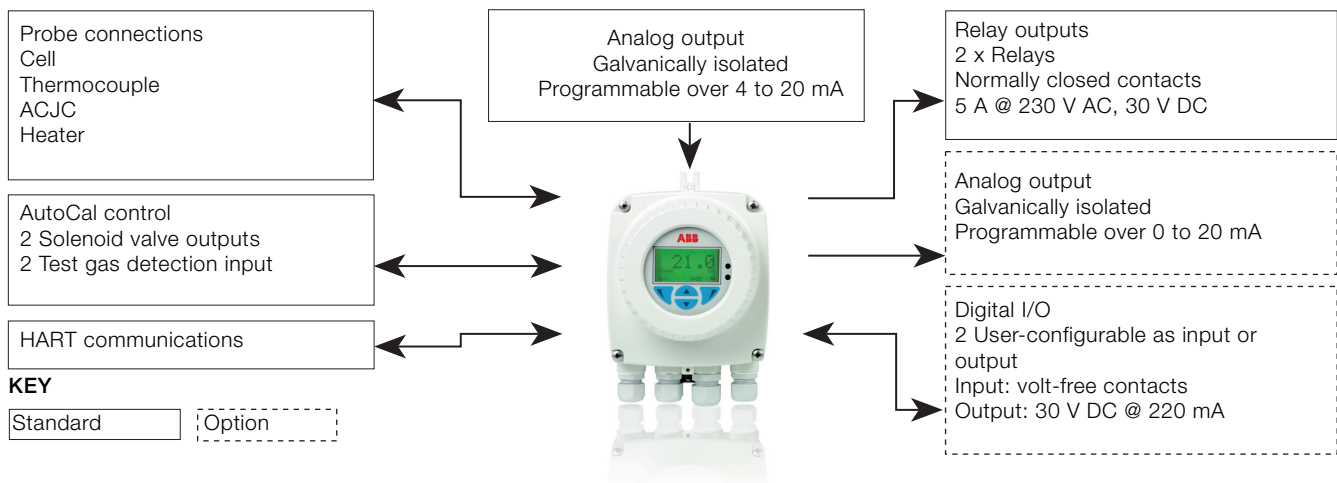
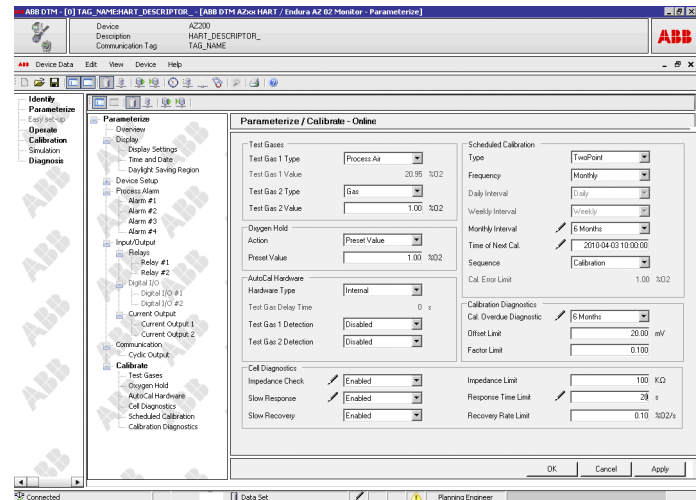
The user-friendly interface enables fast, easy data entry for all parameters and the 'Easy Setup' menu speeds and simplifies system commissioning.

Advanced diagnostics, in accordance with NAMUR NE107, classify alarms and warnings as 'Maintenance Required', 'Check Function', 'Failure' and 'Out-of-Specification'. Cell performance is monitored by the transmitter; indicators such as cell impedance, rate-of-response to test gasses and changes in calibration offset/factor are recorded and analyzed. The current cell 'quality' is displayed by the transmitter as a visual indication of the measurement confidence; providing the operator all the information required to keep the monitor operating at peak performance.

The Performance Log holds up to 100 time-stamped events. When the log is full, the oldest data is overwritten by new entries. The log contains details of measurements and coefficients for all calibrations and accuracy checks. 2 Relay outputs and a traditional analog output are fitted as standard, with the option of adding a second analog output or 2 digital inputs/outputs (I/O).

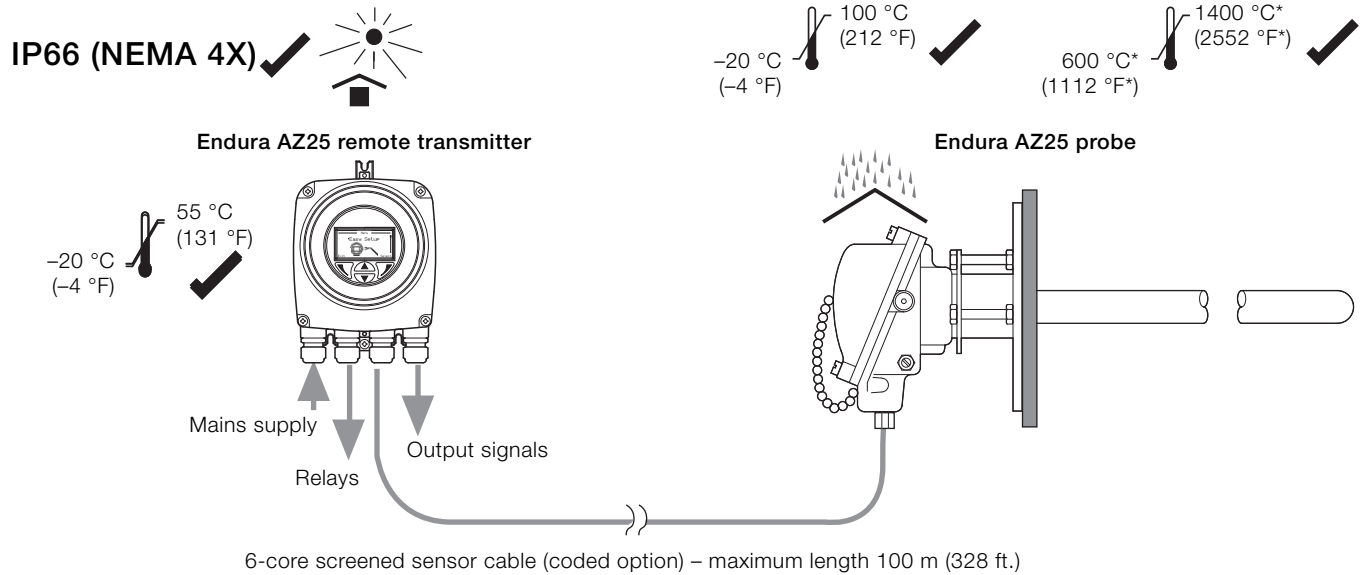
The Endura AZ25 transmitter is equipped with HART communication as standard, supported by a full Device Type Manager (DTM) to enable remote access to the analyzer through a user-friendly graphical interface. The DTM provides full access to the transmitter setup, logged data and diagnostics information as well as live data.

The IrDA standard infrared communication port can also be used with the DTM to upload and download device configurations. In addition, it enables data logged values and diagnostics to be viewed on a hyper-terminal interface or a PC. The device's firmware can also be upgraded using this port.



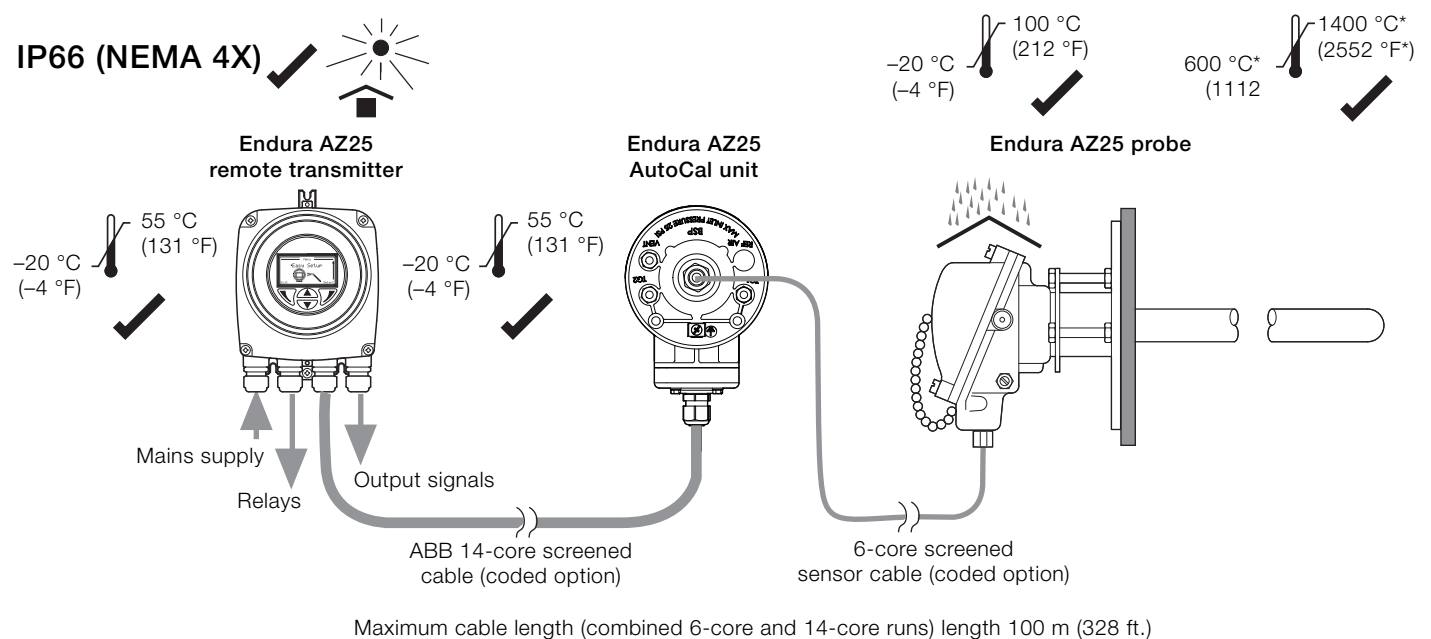
System location requirements

Endura AZ25 system without AutoCal



*Maximum temperature is sheath-dependant – see 'Sheath material options' on page 2.

Endura AZ25 system with AutoCal



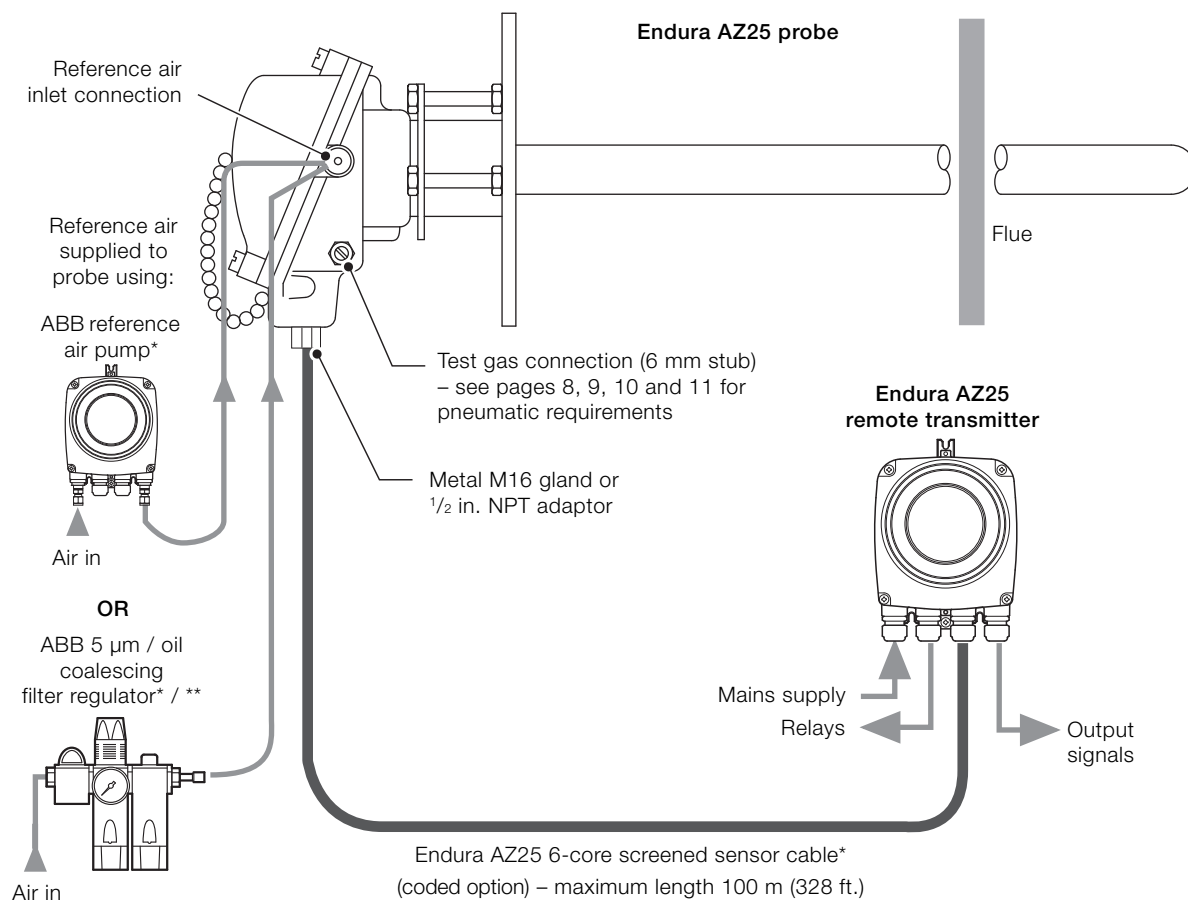
*Maximum temperature is sheath-dependant – see 'Sheath material options' on page 2.

Endura AZ25 oxygen analyzer

Combustion gas analysis

System options

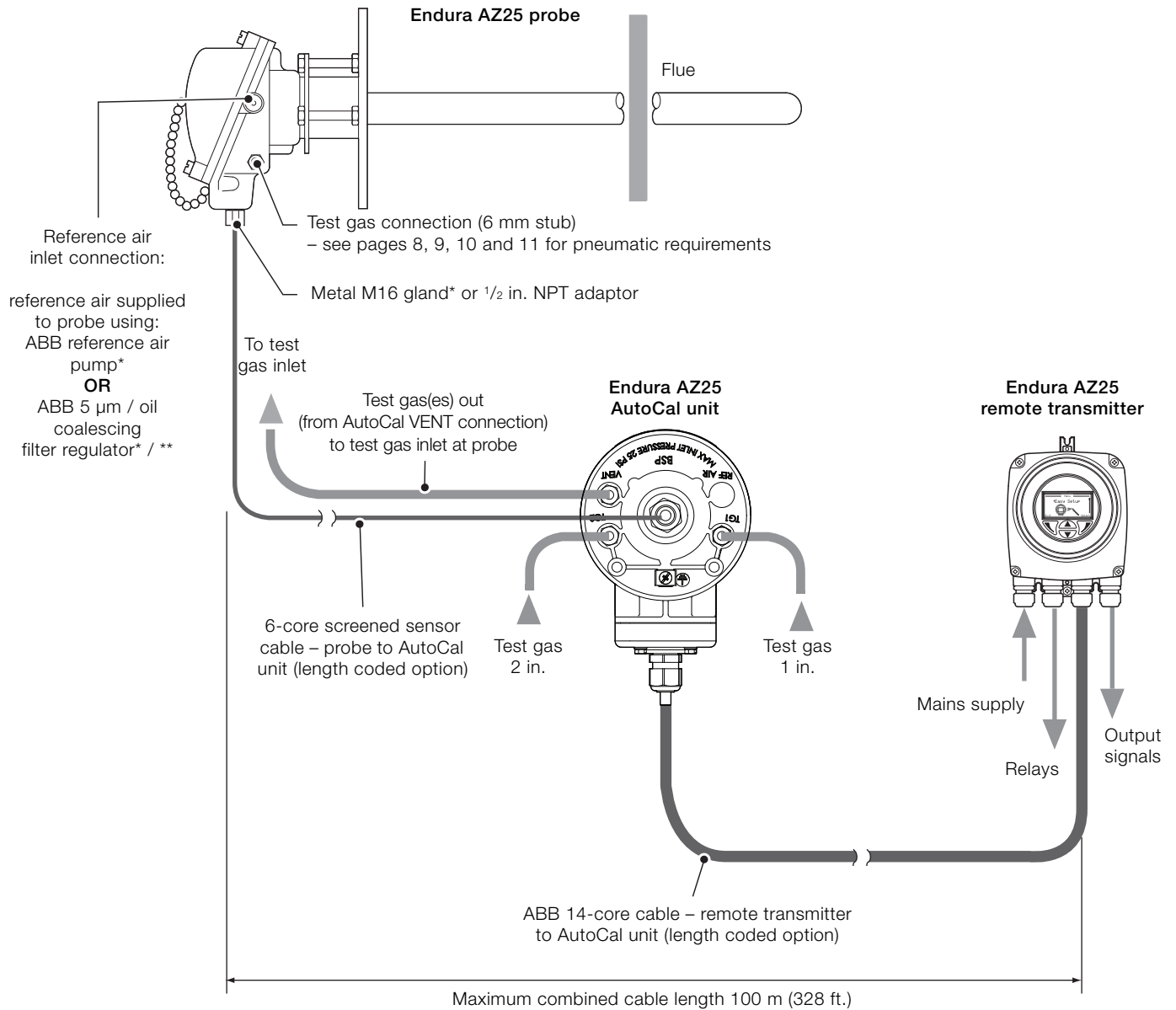
Endura AZ25 system without AutoCal



*Refer to page 26 for ABB part numbers

**Clean dry instrument air free from hydrocarbons

Endura AZ25 system with AutoCal



*Refer to page 26 for ABB part numbers

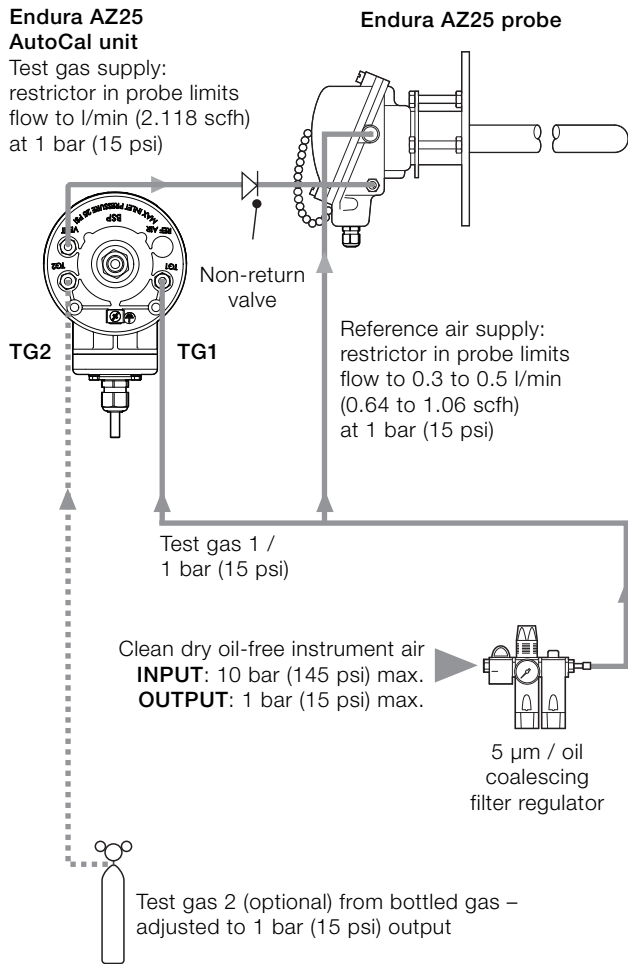
**Clean dry instrument air free from hydrocarbons

Endura AZ25 oxygen analyzer

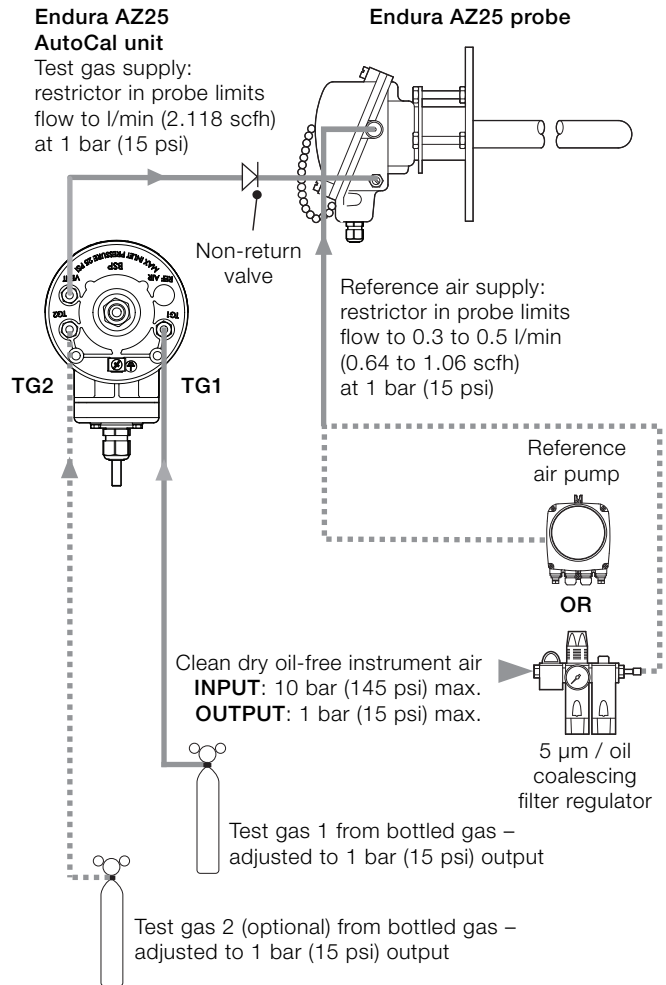
Combustion gas analysis

Test gas and reference air supply configurations – AutoCal systems with restrictors

System using air as test gas 1 and bottled gas as (optional) test gas 2

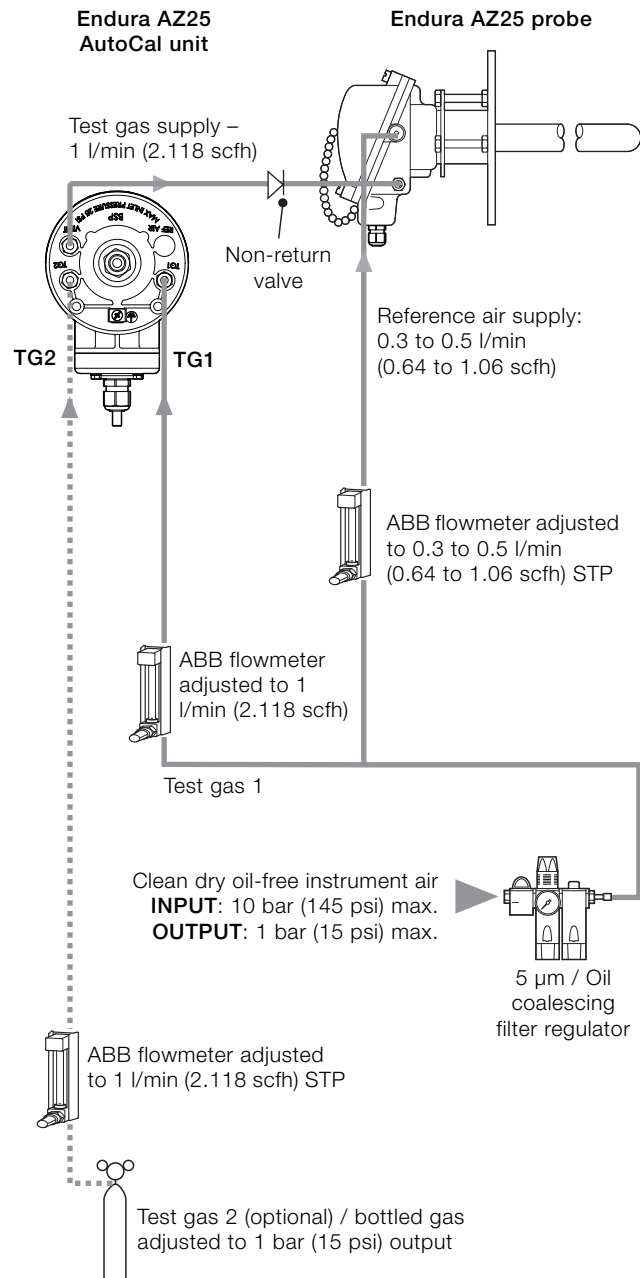


System using 2 bottled test gases

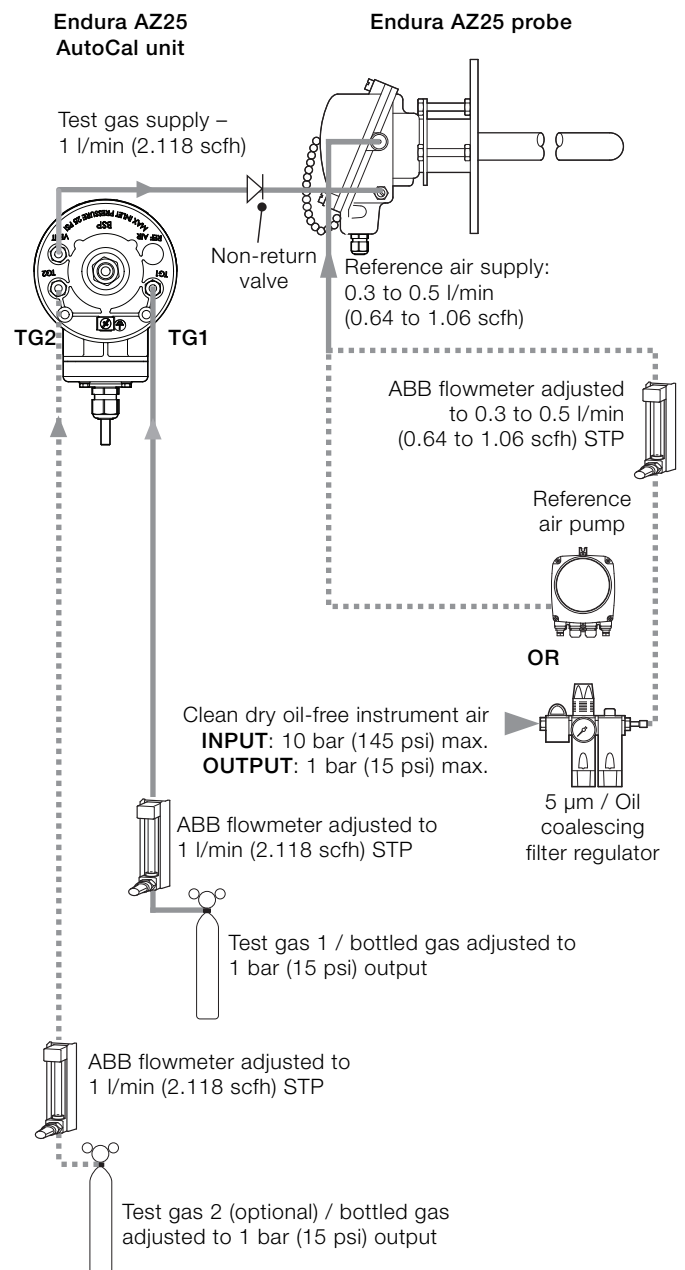


Test gas and reference air supply configurations – AutoCal systems without restrictors

System using air as test gas 1 and bottled gas as (optional) test gas 2



System using 2 bottled test gases

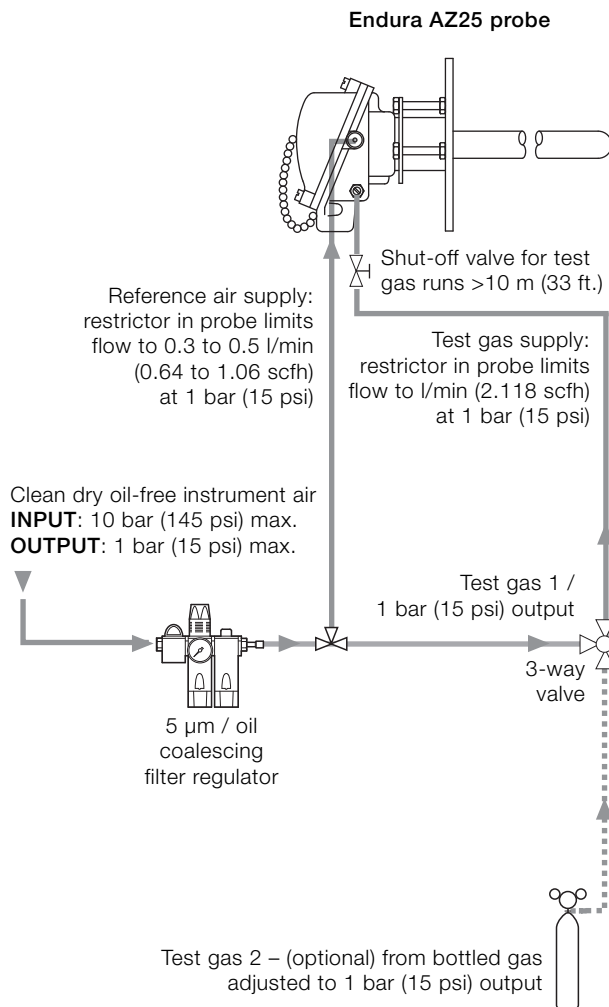


Endura AZ25 oxygen analyzer

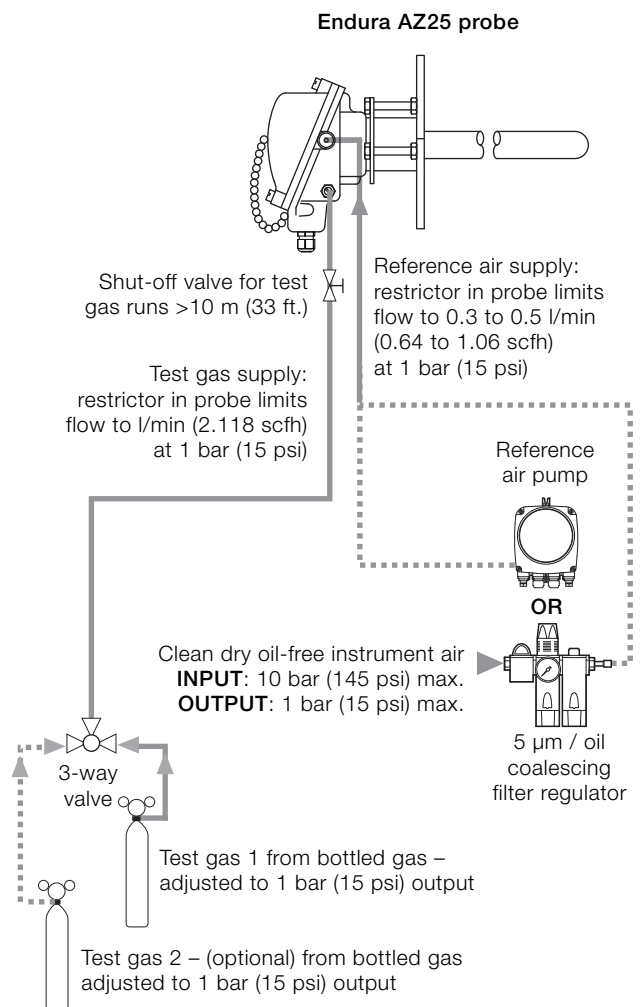
Combustion gas analysis

Test gas and reference air supply configurations – non-AutoCal systems with restrictors

System using air as test gas 1 and bottled gas as (optional) test gas 2

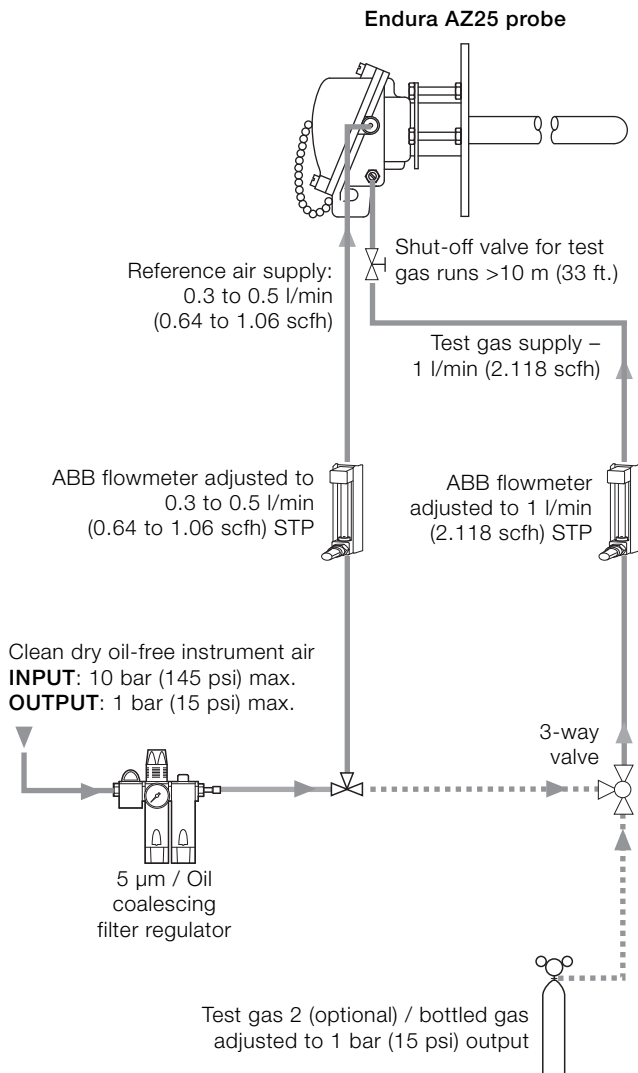


System using 2 bottled test gases

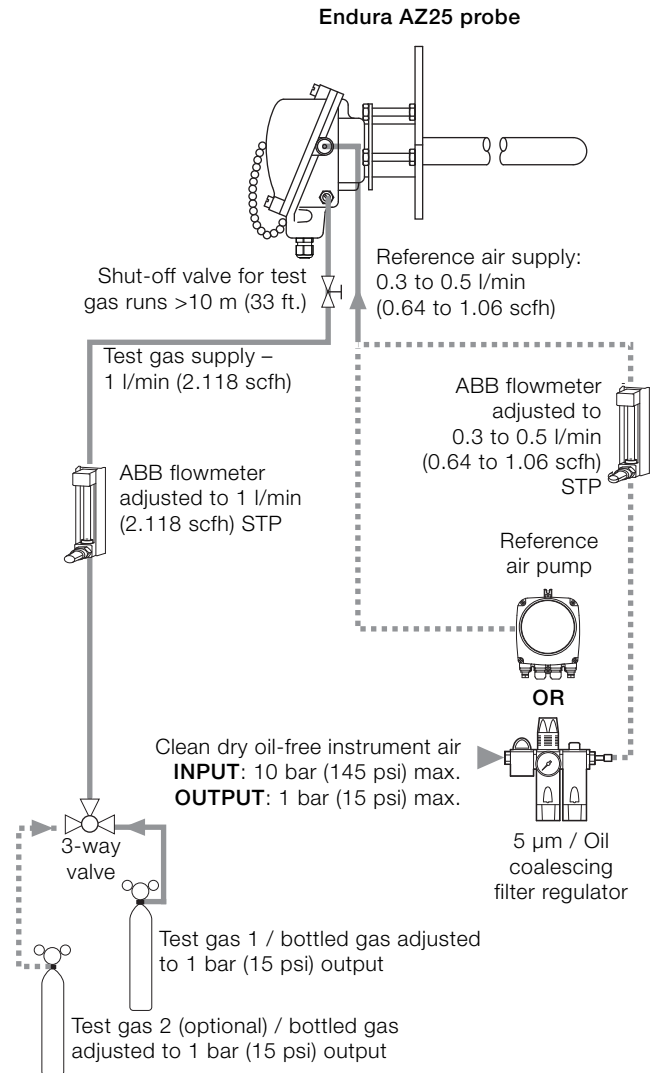


Test gas and reference air supply configurations – non-AutoCal systems without restrictors

System using air as test gas 1 and bottled gas as (optional) test gas 2



System using 2 bottled test gases



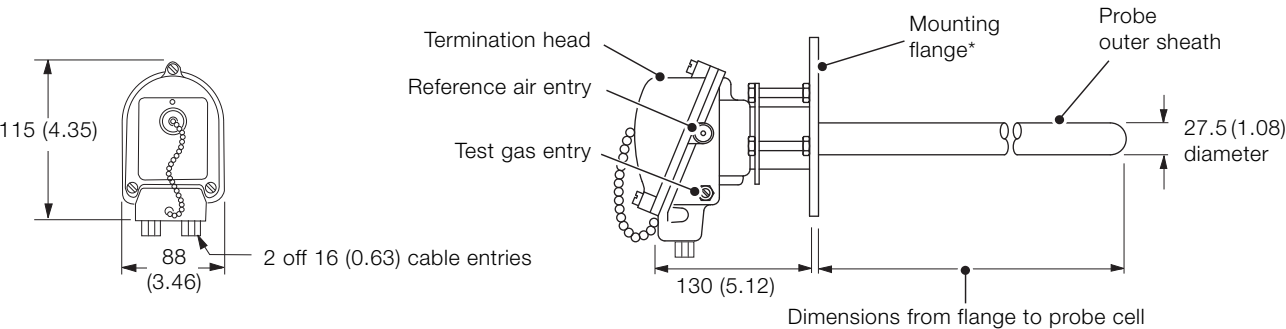
Endura AZ25 oxygen analyzer

Combustion gas analysis

Overall dimensions

Probe

Dimensions in mm (in.)

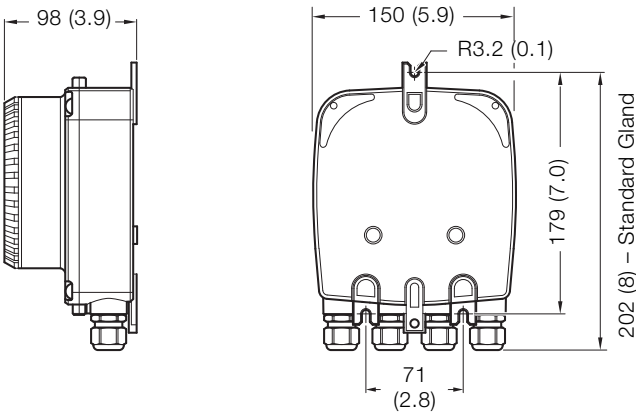


Probe length	Probe insertion length
500 mm (23.62 in.)	556 mm (21.89 in.)
700 mm (27.56 in.)	701 mm (27.60 in.)
800 mm (31.50 in.)	801 mm (31.53 in.)
900 mm (35.43 in.)	901 mm (35.47 in.)
1000 mm 39.37 in.)	956 mm (37.64 in.)
1250 mm (49.21 in.)	1251 mm (49.25 in.)

*Fixing holes in mounting flange to be drilled by customer – see page 14 for flange details

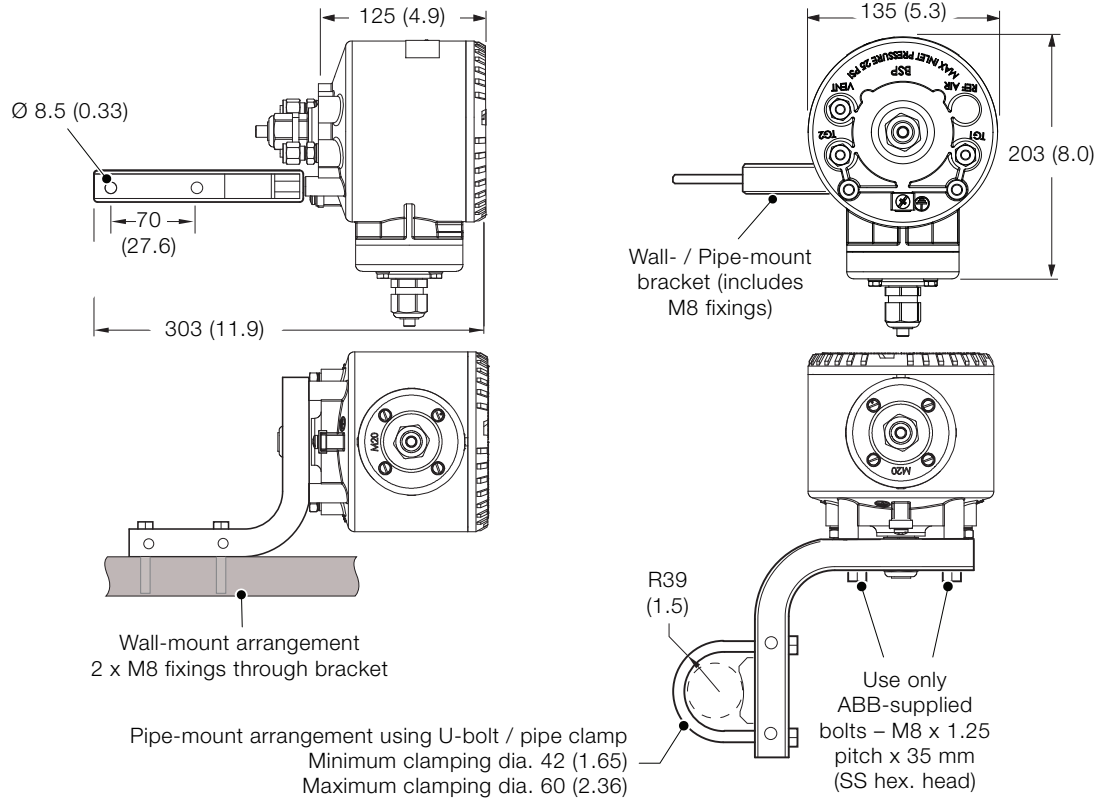
Transmitter (standard gland shown)

Dimensions in mm (in.)



AutoCal unit (with wall / pipe-mounting bracket)

Dimensions in mm (in.)



Endura AZ25 oxygen analyzer

Combustion gas analysis

Probe flanges (all probe lengths) and mounting plates for standard probe flanges

Dimensions in mm (in).

The pressure ratings for these flanges do not apply.

Flange type	A	B	C (Ø)	D (PCD)
ABB standard (0.5 m [1.7 ft.] probes only)	101 (3.97)	6 (0.24)	7.3 (0.29)	80 (3.15)
ABB standard (ZGP2 heritage)	165 (6.50)	12 (0.47)	12.5 (0.50)	140 (5.51)

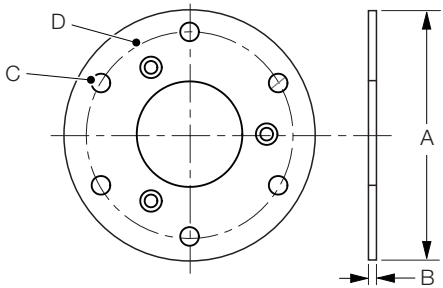


Table 1: ABB 6-hole probe flanges

Flange type	A	B	C (Ø)	D (PCD)
ANSI 2 in 150	152.4 (6.00)	12 (0.47)	19 (0.75)	120.6 (4.75)
ANSI 2.5 in 150	177.8 (7.00)	12 (0.47)	19 (0.75)	139.7 (5.50)
ANSI 3 in 150	190.5 (7.50)	12 (0.47)	19 (0.75)	152.4 (6.00)
DIN 65 PN16	185 (7.28)	12 (0.47)	18 (0.70)	145 (5.70)
JIS 65 5K	155 (6.10)	12 (0.47)	15 (0.59)	130 (5.12)
JIS 80 5K	180 (7.08)	12 (0.47)	19 (0.75)	145 (5.71)
JIS 100 5K	200 (7.87)	12 (0.47)	19 (0.75)	146 (6.50)

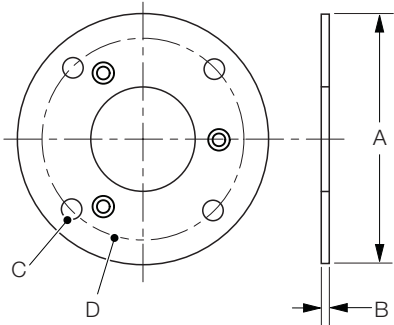


Table 2: 4-hole probe flanges

Flange type	A	B	C (Ø)	D (PCD)
ANSI 4 in 150	228.6 (9.0)	12 (0.47)	19 (0.75)	190.5 (7.50)
DIN 80 PN16	200 (7.87)	12 (0.47)	18 (0.70)	160 (6.30)
DIN 100 PN16	220 (8.66)	12 (0.47)	18 (0.70)	180 (7.08)
JIS 100 5K	200 (7.87)	12 (0.47)	19 (0.75)	165 (6.50)

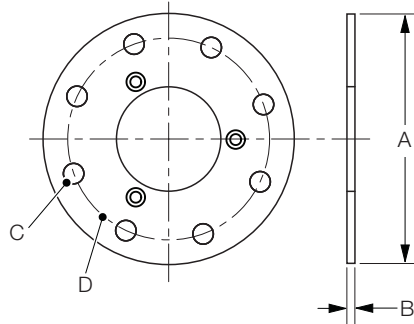
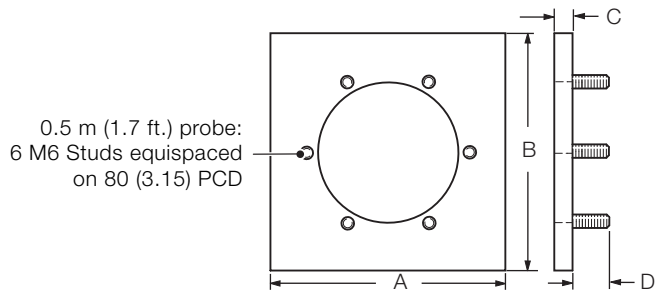


Table 3: 8-hole probe flanges

Mounting plate	A	B	C	D
0.5 m (1.7 ft.)	160 (6.3)	160 (6.3)	7 (0.27)	16 (0.63)

Comprising: mounting plate, gasket, 6 each:

M6/M10 shakeproof washers, plain washers and nuts.



Standard plate for 0.5 m (1.7 ft.) probe – part No. AZ200 796

Table 4: ABB flange mounting plates

Blank flange	A	B	C
	125 (4.92)	5 (0.2)	Fixing holes (location / quantity) drilled by customer

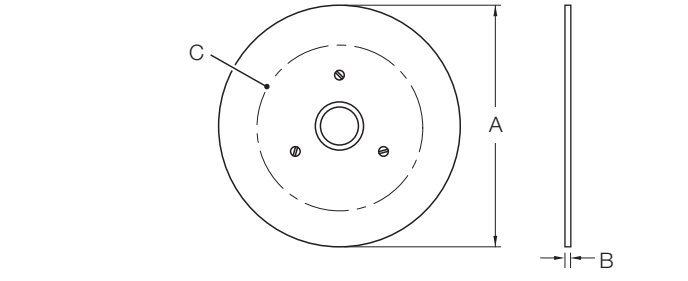


Table 5: ABB blank (heritage) flange

Flange type	A	B	C
in. NPT / BSP	69.8 (2.74)	15 (0.59)	45 (1.77)

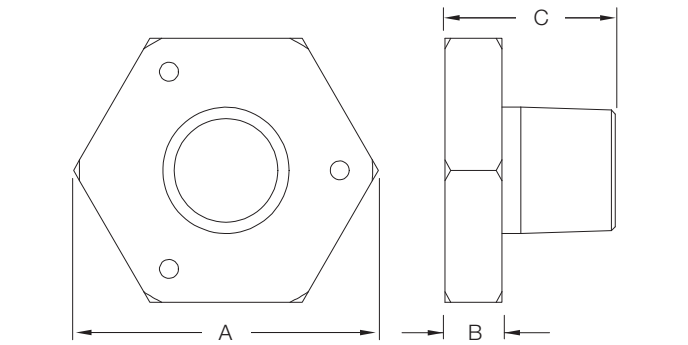


Table 6: NPT / 1 in. BSP mounting flange

Endura AZ25 oxygen analyzer

Combustion gas analysis

Weights (excluding flanges)

Transmitter / AutoCal unit

Transmitter-only – unpacked	AutoCal unit only – packed / unpacked	AutoCal unit with bracket – unpacked
4.4 kg (8.8 lb)	8.5 kg (18.7 lb) / 3.0 kg (6.6 lb)	11.0 kg (24.5 lb)

Probe with aluminous porcelain sheath

Probe version	Total probe length	Probe-only – packed / unpacked	Probe + Tx – packed / unpacked
500 mm (23.62 in.)	686 mm (27.01 in.)	3.9 kg (8.5 lb) / 1.4 kg (3.0 lb)	6.4 kg (14.0 lb) / 3.9 kg (8.5 lb)
700 mm (27.56 in.)	831 mm (32.72 in.)	4.1 kg (9.0 lb) / 1.6 kg (3.5 lb)	6.6 kg (14.5 lb) / 4.1 kg (9.0 lb)
800 mm (31.50 in.)	931 mm (36.56 in.)	4.2 kg (9.2 lb) / 1.7 kg (3.7 lb)	6.7 kg (14.7 lb) / 4.2 kg (9.2 lb)
900 mm (35.43 in.)	1031 mm (40.59 in.)	4.3 kg (9.4 lb) / 1.8 kg (3.9 lb)	6.8 kg (14.9 lb) / 4.3 kg (9.4 lb)
1000 mm (39.37 in.)	1086 mm (42.76 in.)	4.4 kg (9.6 lb) / 1.9 kg (4.1 lb)	6.9 kg (15.1 lb) / 4.4 kg (9.6 lb)
1250 mm (49.21 in.)	1381 mm (54.37 in.)	5.8 kg (12.8 lb) / 2.1 kg (4.5 lb)	8.3 kg (18.3 lb) / 4.6 kg (10.0 lb)

Probe with Incoloy 800 (1.4876) sheath

Probe version	Total probe length	Probe-only – packed / unpacked	Probe + Tx – packed / unpacked
500 mm (23.62 in.)	686 mm (27.01 in.)	4.7 kg (10.2 lb) / 2.2 kg (4.7 lb)	7.2 kg (15.7 lb) / 4.7 kg (10.2 lb)
700 mm (27.56 in.)	831 mm (32.72 in.)	5.0 kg (10.9 lb) / 2.5 kg (5.4 lb)	7.5 kg (16.4 lb) / 5.0 kg (10.9 lb)
800 mm (31.50 in.)	931 mm (36.56 in.)	5.2 kg (11.3 lb) / 2.7 kg (5.8 lb)	7.7 kg (16.8 lb) / 5.2 kg (11.3 lb)
900 mm (35.43 in.)	1031 mm (40.59 in.)	5.4 kg (11.8 lb) / 2.9 kg (6.3 lb)	7.9 kg (17.3 lb) / 5.4 kg (11.8 lb)
1000 mm (39.37 in.)	1086 mm (42.76 in.)	5.6 kg (12.2 lb) / 3.1 kg (6.7 lb)	8.1 kg (17.7 lb) / 5.6 kg (12.2 lb)
1250 mm (49.21 in.)	1381 mm (54.37 in.)	7.2 kg (15.8 lb) / 3.5 kg (7.6 lb)	9.7 kg (21.3 lb) / 6.0 kg (13.1 lb)

Probe with recrystallized alumina sheath

Probe version	Total probe length	Probe-only – packed / unpacked	Probe + Tx – packed / unpacked
500 mm (23.62 in.)	686 mm (27.01 in.)	4.1 kg (9.0 lb) / 1.6 kg (3.5 lb)	6.6 kg (14.5 lb) / 4.1 kg (9.0 lb)
700 mm (27.56 in.)	831 mm (32.72 in.)	4.3 kg (9.4 lb) / 1.8 kg (3.9 lb)	6.8 kg (14.9 lb) / 4.3 kg (9.4 lb)
800 mm (31.50 in.)	931 mm (36.56 in.)	4.4 kg (9.6 lb) / 1.9 kg (4.1 lb)	6.9 kg (15.1 lb) / 4.4 kg (9.6 lb)
900 mm (35.43 in.)	1031 mm (40.59 in.)	4.5 kg (10.0 lb) / 1.9 kg (4.1 lb)	6.9 kg (15.1 lb) / 4.4 kg (9.6 lb)
1000 mm (39.37 in.)	1086 mm (42.76 in.)	4.7 kg (10.2 lb) / 2.2 kg (4.7 lb)	7.2 kg (15.7 lb) / 4.7 kg (10.2 lb)
1250 mm (49.21 in.)	1381 mm (54.37 in.)	6.2 kg (13.6 lb) / 2.4 kg (5.3 lb)	8.7 kg (19.1 lb) / 4.9 kg (10.8 lb)

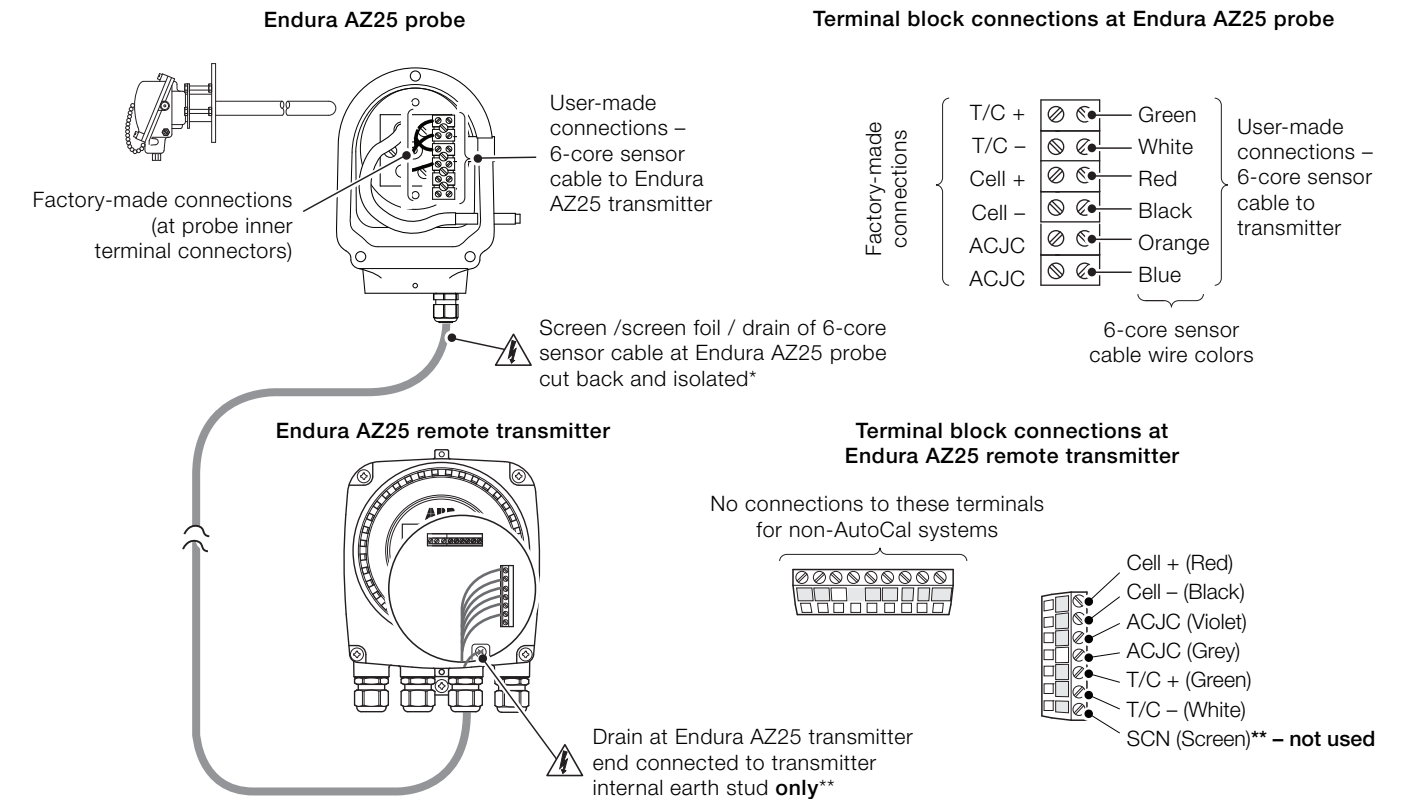
Cable – AutoCal cable / probe (sensor) cable

Cable length	AutoCal cable (14-core) – unpacked	Probe (sensor) cable (6-core) – unpacked
5 m (16 ft.)	1 kg (2.2 lb)	0.2 kg (0.44 lb)
10 m (33 ft.)	3 kg (6.6 lb)	0.4 kg (0.88 lb)
25 m (82 ft.)	7 kg (15.4 lb)	0.9 kg (1.98 lb)
50 m (164 ft.)	15 kg (33 lb)	1.8 kg (2.2 lb)
75 m (246 ft.)	22 kg (48.4 lb)	2.7 kg (7.92 lb)
100 m (328 ft.)	N/A	3.6 kg (7.92 lb)

Electrical connections

6-core screened sensor cable connections – remote transmitter to probe (non-AutoCal system)

Sensor cable wire colors	Terminal connections at remote Endura AZ25 transmitter terminal block	Terminal connections at Endura AZ25 probe terminal block (outer connectors)
Green	TC+ (green wire to green connector)	TC+ (green wire)
White	TC- (white wire to white connector)	TC- (white wire)
Red	Cell + (red wire to red connector)	Cell + (red wire)
Black	Cell - (black wire to black connector)	Cell - (black wire)
Orange	ACJC (orange wire to violet connector)	ACJC (orange wire)
Blue	ACJC (blue wire to grey connector)	ACJC (blue wire)
Screen (drain)	SCN – not used, drain connected to transmitter internal earth stud	Screen, screen foil and drain at probe head cut back and isolated – not connected at probe



*Cut back and isolate the screen, screen foil and drain at the probe head – **do not connect it to the probe**

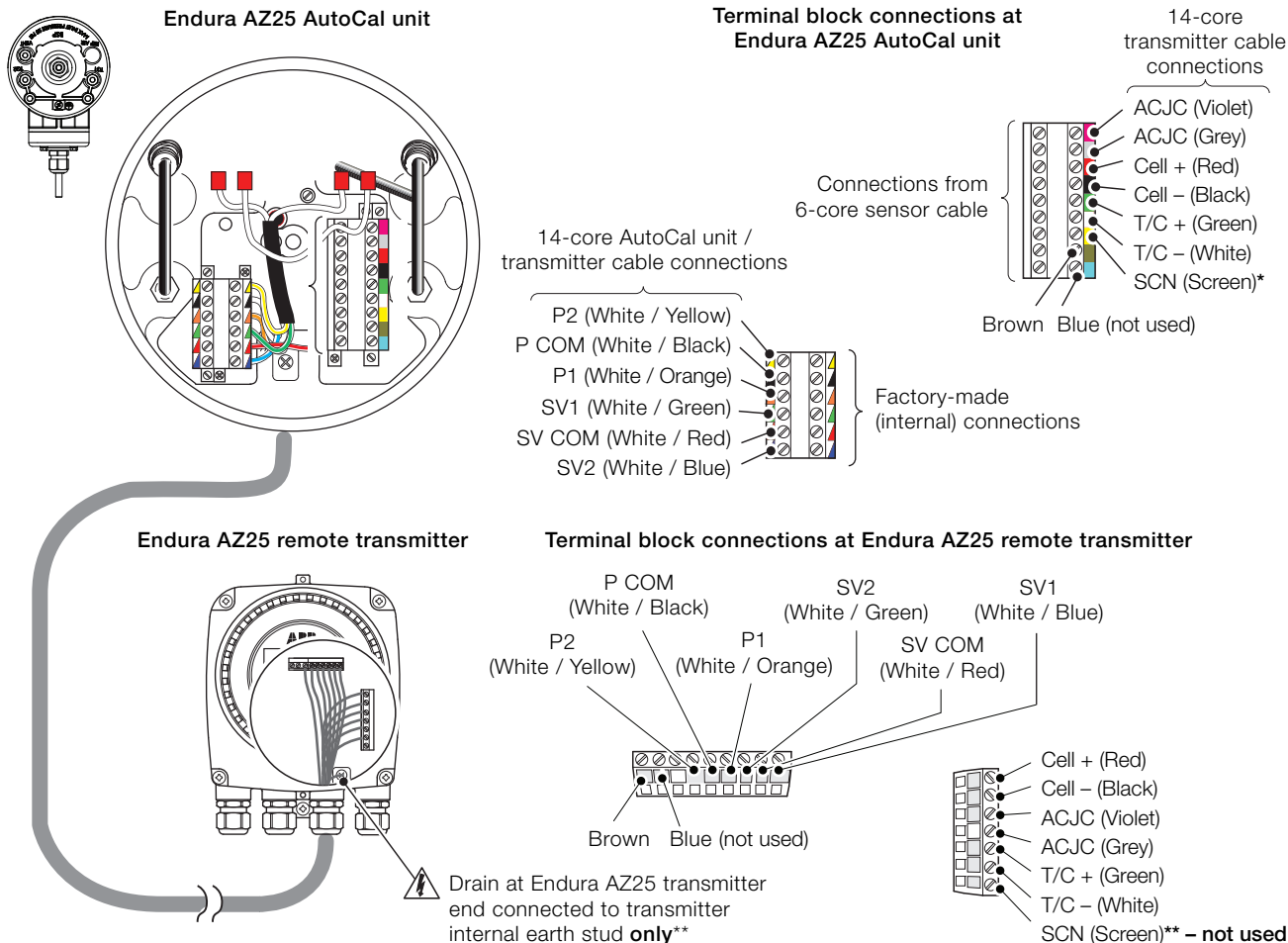
Connect the 6-core sensor cable drain to the transmitter's internal earth stud **only – **do not connect it to the transmitter's SCN terminal**

Endura AZ25 oxygen analyzer

Combustion gas analysis

14-core screened cable connections – AutoCal unit to remote transmitter

Connection at remote transmitter terminal block (label color)	Connection at AutoCal unit (outer) removable terminal block (label color)	Connection type	Cable color
White / Yellow	White / Yellow	PS2 (test gas 2)	White / Yellow
White / Black	White / Black	P COM	White / Black
White / Orange	White / Orange	PS1 (test gas 1)	White / Orange
White / Green	White / Green	SV2	White / Green
White / Red	White / Red	SV COM	White / Red
White / Blue	White / Blue	SV1	White / Blue
Red	Red	Cell + (oxygen input)	Red
Black	Black	Cell – (oxygen input)	Black
Violet	Violet	ACJC	Violet
Grey	Grey	ACJC	Grey
Green	Green	T/C +	Green
White	White	T/C –	White
Brown (not used)	Brown (not used)	Not used	Brown (wire cut back)
Blue (not used)	Blue (not used)	Not used	Blue (wire cut back)



⚠ *Connect the 14-core cable drain to the AutoCal unit's **outer** SCN terminal **only**

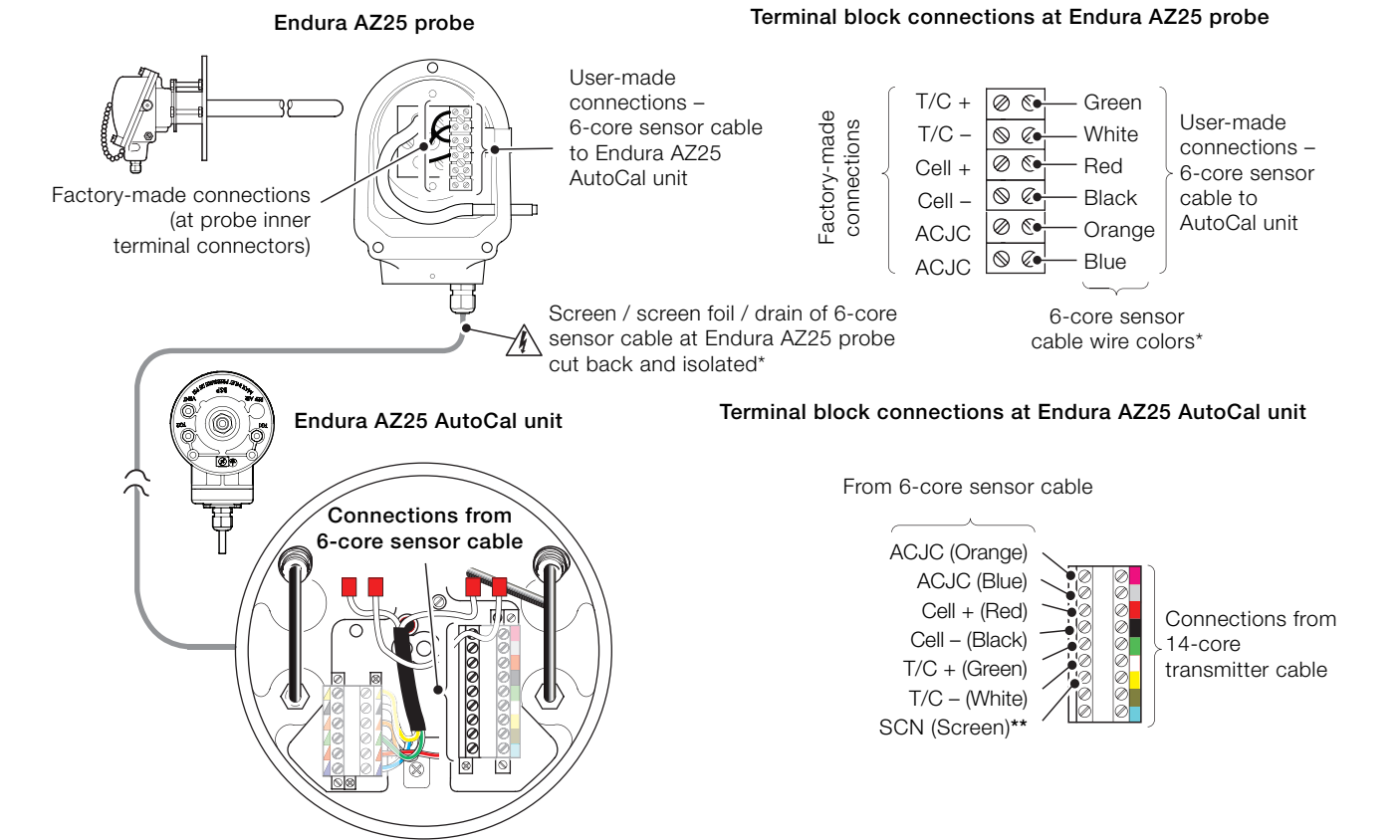
⚠ **Connect the 14-core cable drain to the transmitter's internal earth stud **only** – **do not connect it to the transmitter's SCN terminal or the transmitter external earth**

Endura AZ25 oxygen analyzer

Combustion gas analysis

6-core screened sensor cable connections – probe to AutoCal unit

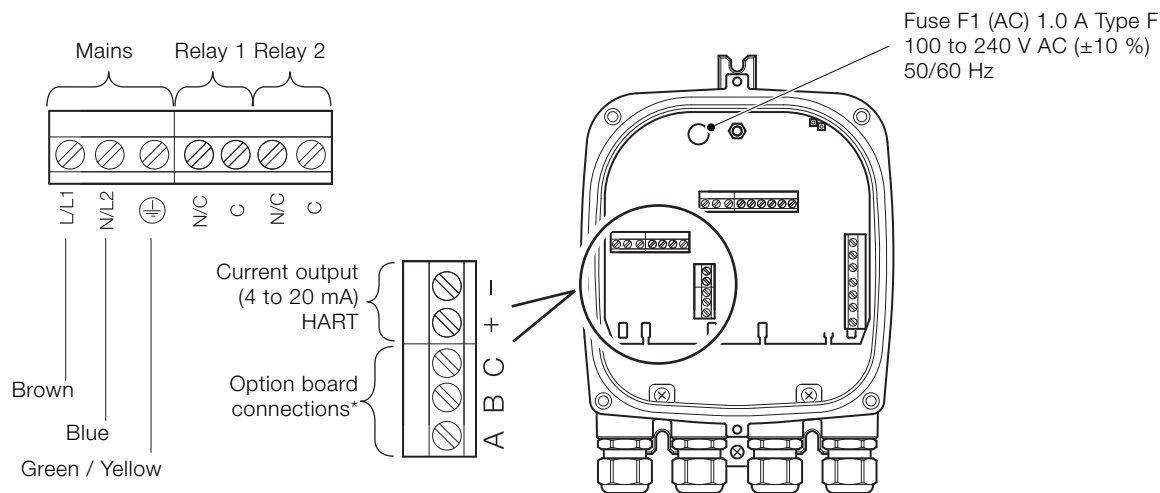
6-core screened sensor cable terminal connections at probe (outer terminal connections)	6-core screened sensor cable terminal connections at AutoCal unit inner terminal connections
TC+ (green wire)	TC+ (green wire)
TC– (white wire)	TC– (white wire)
Cell + (red wire)	Cell + (red wire)
Cell – (black wire)	Cell – (black wire)
ACJC (orange wire)	ACJC (orange wire)
ACJC (blue wire)	ACJC (blue wire)
Screen / screen foil / drain of 6-core sensor cable at Endura AZ25 probe cut back and isolated (not connected at probe)	SCN (drain from 6-core sensor cable must be connected to this SCN only)



*Cut back and isolate the screen, screen foil and drain at the probe head – **do not connect it to the probe**

Connect the 6-core sensor cable drain to the AutoCal unit's **inner SCN terminal **only**

Transmitter power supply and output connections



*Option board connections	A	B	C
Analog output	+	-	
Digital I/O	DIO1	DIO2	COM

Endura AZ25 oxygen analyzer

Combustion gas analysis

System specification

Measurement performance

Range

0 to 25 % O₂

Test gas response time

Initial dead time 3 seconds

T₉₀ < 10 seconds

System accuracy

< ±2.0 % of reading or 0.2 % O₂, whichever is the greater
(reference conditions)

Drift

< ± 1 % maximum % O₂ range value per month
(without calibration)

< ± 0.2 % typical

Environmental data

Ambient operating temperature

Transmitter: -20 to 55 °C (-4 to 131 °F)

Probe standard cable:

-20 to 100°C (-4 to 212 °F)

Storage temperature

-40 to 85 °C (-40 to 185 °F)

Operating humidity

Up to 95 % RH, non-condensing

Sunlight

Store and operate out of direct sunlight

Ingress protection

Electronics / AutoCal enclosures: IP66 (NEMA 4X)

Power supply

AC power supply

100 to 240 V AC ±10 %

(90 V min. to 264 V max.) 50 / 60 Hz

Electronics

< 10 W

EMC

Emissions and immunity

Conforms to EN61326-1:2006

Safety

General safety

Conforms to EN61010-1: 2001

Approvals and safety certification

CE mark

Probe specification

Physical

Probe insertion lengths

556 mm (21.89 in.)
700 mm (27.60 in.)
800 mm (31.53 in.)
900 mm (35.47 in.)
956 mm (37.64 in.)
1250 mm (49.25 in.)

Process connection

All probe lengths:

ANSI B16.5 150 lb

2, 2.5, 3, 4 in

DIN2501 Part 1

65, 80, 100 mm

JIS B2238 5K

65, 80, 100 mm

1 in. NPT

1 in. BSP

(flange pressure ratings do not apply)

ABB pattern heritage flange

Probe body material

Aluminous Porcelain

Incoloy 800

Recrystallized alumina

Mounting angle

Horizontal to vertically down

Process conditions

Process temperature

Aluminous Porcelain: 600 to 1250 °C (1112 to 2282 °F)

Incoloy 800: 600 to 850 °C (1112 F to 1562 °F)

Probe mounted horizontally

Incoloy 800: 600 C to 1000 C (1112 to 1832 °F)

Probe mounted vertically down

Recrystallized alumina: 600 to 1400 °C (1112 F to 2552 °F)

Process pressure

5 kPa (0.7 psi) positive or negative (Nernstian response)

Operating requirements

Reference air

Regulated supply:

— probes with restrictors:

reference air supply set to 1 bar (15 psi), gives flow of 0.3 to 0.5 l / min (0.64 to 1.06 scfh) flowmeters not required

— probes without restrictors:

1 bar (15 psi) flowmeters required with flow set to 0.3 to 0.5 l / min (0.64 to 1.06 scfh)

Pumped supply:

— probes with / without restrictors:

preset flow: 0.3 to 0.5 l / min (0.64 to 1.06 scfh)

Test gas

User-selectable, 25 to 0.1 % O₂ balance N₂ and / or air (air 20.95 % is recommended as one of the test gases)

— AutoCal system with restrictors:

1 bar (15 psi) – flowmeters not required as restrictors preset flow to 1 l/min (2.118 scfh)

— systems without restrictors:

1 bar (15 psi) flowmeters required, set to 1 l/min (2.118 scfh)

Calibration

Manual, semi-automatic or automatic

(controlled by Endura AZ25 transmitter)

Automatic calibration

AutoCal hardware

Optional standalone unit with built-in solenoid valves for control of test gas flow

Built-in pressure switches to detect presence of test gases

Endura AZ25 oxygen analyzer

Combustion gas analysis

Transmitter specification

Transmitter enclosures

Remote

Wall-, pipe- or stand-mounted

4 gland entries

Optional 1/2 in NPT, M20

Integral

Head-mounted

3 gland entries

Optional 1/2 in NPT, M20

Automatic calibration

AutoCal hardware

Isolated solenoid valve control as standard, 24 V @ 2 W per valve*

Dedicated isolated digital inputs to monitor pressure switch contacts as standard – voltage-free, normally closed with gas present

Display and switches

Display type

Graphical 128 x 64 pixel LCD

Display backlight

Green LED

Operator switches

4 capacitive switches (operated through the front glass)

*For driving internal automatic calibration (AutoCal) probes or can be used to drive external calibration units on remote transmitters only.

Relay outputs

Number

2 standard

Type

Normally closed

5 A @ 230 V AC or 30 V DC (non-inductive)

Functions

User-configurable – can be activated by one or more of the following signals:

Process alarm 1, 2, 3, 4

Calibration in progress

Calibration failed

Out of test gas 1, 2

Test gas 1 valve control

Test gas 2 valve control

Failure diagnostic

Out-of-specification diagnostic

Maintenance required diagnostic

Function check diagnostic

Analog outputs

Standard

1 isolated current output

Programmable to retransmit oxygen (linear or logarithmic) or temperature

Programmable over 4 to 20 mA

Over-range capability to indicate system failure programmable from 4 to 22 mA

Optional

1 isolated current output

Programmable to retransmit oxygen (linear or logarithmic) or temperature

Programmable over 0 to 20 mA

Over-range capability to indicate system failure programmable from 0 to 22 mA

Digital inputs / outputs

Number

2 (optional)

Type

User-configurable as either input or output

Input

Volt-free contact

Output

Transistor switch capable of sinking 220 mA

Low output, < 2 V DC

Switch voltage 30 V DC maximum

Isolation

Not isolated from each other or from other circuitry

Input functions

User-configurable for:

- Automatic calibration start
- Automatic calibration stop
- Automatic calibration start/stop

Functions

User-configurable – can be activated by one or more of the following signals:

- Process alarm 1, 2, 3, 4
- Calibration in progress
- Calibration failed
- Out of test gas 1
- Out of test gas 2
- Test gas 1 valve control
- Test gas 2 valve control
- Failure diagnostic
- Out-of-specification diagnostic
- Maintenance required diagnostic
- Function check diagnostic

Hart communications

Integration

Device Type Manager (DTM) and Electronic Device Description (EDD)
Provide online/offline device configuration, online monitoring of measurement values and diagnostic states

Version

5.7 as standard

DTM

FDT v1.2.1 compliant

Works with FDT framework packages
(for example, ABB Asset Vision Basic)

EDD

Compliant with suitable framework tools
(for example, SDC 625 and Simatic PDM tools)

Infrared service port

Accessibility

Through front face

Type

IrDA standard

Baud rate

Up to 115K baud

Functions

Firmware update
Remote HMI
Diagnostic log download
Datalog output
HART via IrDA

Languages

English

Calibration

Manual calibration

- 1 point (offset)
- 1 point (factor)
- 2 point (offset + factor)

Automatic calibration

- 1 point (offset)
- 2 point (offset + factor)

Calibration control

Front panel controls
Digital inputs
HART commands
User-defined schedule

Calibration scheduler

User-defined schedule enables automatic calibration frequency to be set from 1 day to 12 months

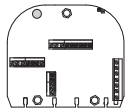
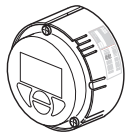
Endura AZ25 oxygen analyzer

Combustion gas analysis

Spares and accessories

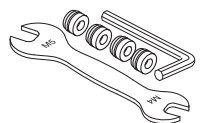
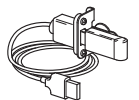
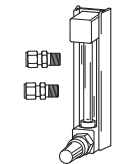
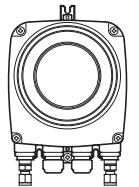
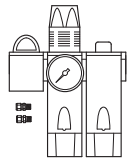
Transmitter spares

Part No.	Description
AZ200 750	AZ20 transmitter cartridge Standard
AZ200 751	Standard + analog O/P
AZ200 752	Standard + digital O/P
AZ200 758	Remote (Type 4) transmitter backplane



Accessories

Part No.	Description
AZ200 731	Coalescing filter-regulator 1/4 NPT
AZ200 732	1/4 BSP
AZ200 770	ABB reference air pump 1/4 BSP (metric) 230 V AC 50 / 60 Hz
AZ200 771	1/4 BSP (metric) 115 V AC 50 / 60 Hz
AZ200 772	1/4 NPT (imperial) 230 V AC 50 / 60 Hz
AZ200 773	1/4 NPT (imperial) 115 V AC 50 / 60 Hz
AZ200 788	ABB flowmeter 1/4 NPT
AZ200 789	1/4 BSP
AZ200 785	USB to IrDA adaptor kit
E35	Connection cables Type K
E37	Type R
YBM 1178	Signal cable
AZ200 798	Probe tool kit* NPT (AZ20)
AZ200 799	BSP (AZ20)
*Included with probe as standard	



Ordering information

		Tx			Probe													0	X	/STD
		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
Transmitter options																				
None	0																			
Standard	1																			
Standard + 2 nd analog output	2																			
Standard + 2 digital inputs / outputs	3																			
Transmitter entry type																				
None (no transmitter required)		0																		
Metric (M20)		1																		
Imperial (NPT)		2																		
Transmitter system type																				
None (no transmitter required)				0																
Remote				2																
Probe type																				
None (no probe required)					0															
Standard – no restrictor					1															
Standard – with restrictor					3															
Probe entry type																				
None (no probe required)						0														
Metric (M16)						1														
Imperial (1/2 in. NPT)						2														
Insertion length																				
None (no probe required)							0													
0.5 m (2 ft.)							1													
0.7 m (2.3 ft.)							2													
0.8 m (2.6 ft.)							3													
0.9 m (3 ft.)							4													
1.0 m (3.3 ft.)							5													
1.25 m (4.1 ft.)							6													
Protective sheath material																				
None (no probe required)							0													
Aluminous porcelain, standard							1													
Incoloy 800 (1.4876)							2													
Recrystallised alumina							3													
Thermocouple type																				
None (No Probe Required)								0												
Type R Pt/Pt 13% Rh EN60584.1 Pt 2								1												
Type K NiCr/NiAl EN60584.1 Pt 4								2												
Type S Pt/Pt 10% Rh EN60584 Pt 1								3												
Type B Pt 30% Rh/Pt 6% Rh EN60584.1 Pt 7								4												

Continued on next page

Endura AZ25 oxygen analyzer

Combustion gas analysis

	Tx				Probe													
	AZ25/	X	X	X	X	X	X	X	X	X	X	X						
See page 27																		
Flange type																		
None (no probe required)													0					
ABB standard flange													1					
DIN 65 mm flange													2					
DIN 80 mm flange													3					
DIN 100 mm flange													4					
ANSI 2 in. flange													5					
ANSI 2.5 in. flange													6					
ANSI 3 in. flange													7					
ANSI 4 in. flange													8					
JIS 65 mm flange													9					
JIS 80 mm flange													A					
JIS 100 mm flange													B					
1 in. NPT													C					
1 in. BSP													D					
ZGP2 heritage flange													E					
Sensor cable length																		
None													0					
5 m (16 ft.)													1					
10 m (33 ft.)													2					
25 m (82 ft.)													3					
50 m (164 ft.)													4					
75 m (246 ft.)													5					
100 m (328 ft.)													6					
Automatic calibration																		
None (no probe required)														1				
Automatic calibration / NPT connections														3				
Automatic calibration / BSP connections														5				

Continued on next page

	Tx			Probe													
AZ25/	X	X	X	X	X	X	X	X	X	X	X	X	X	0	X	/STD	
Automatic calibration unit cable length																	
None														0			
5 m (16 ft.)														1			
10 m (33 ft.)														2			
25 m (82 ft.)														3			
50 m (164 ft.)														4			
75 m (246 ft.)														5			
Reserved																	
Reserved														0			
Reserved														0			
Language																	
English															E		

None

5 m (16 ft.)

10 m (33 ft.)

25 m (82 ft.)

50 m (164 ft.)

75 m (246 ft.)

Reserved

Reserved

Reserved

Language

English

Acknowledgements

Endura AZ25 oxygen analyzer

Combustion gas analysis

Notes

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