

ABB MEASUREMENT & ANALYTICS | DATA SHEET | DS/AZ25-EN REV. H

# Endura AZ25 oxygen analyzer

## Combustion gas analysis



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## Measurement made easy

Superior technology and quality from the world leader in oxygen measurement

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### Dependable

- Measurement of O<sub>2</sub> in a wide variety of processes
- Virtually instantaneous response
- Resistance to sulphurous reducing atmospheres

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### Versatile

- 600 to 1,250 mm (2 to 4 ft) lengths
- Choice of protective sheath materials
- Integral thermocouple for automatic temperature compensation
- High temperature operation up to 1,400 °C (2,552 °F)

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### Low cost-of-ownership

- In situ measurement
- No sampling system required
- Automatic calibration functionality as standard
- Optional automatic calibration hardware

## 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 1,000 mL/min [1 to 2 ft<sup>3</sup>/h]) 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 (1,112 °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 1,250 °C (2,282 °F).
  - Limited resistance to corrosive chemicals and mechanical and thermal stress.
- Recrystallized alumina
  - Suitable for applications with temperatures up to 1,400 °C (2,552 °F).
  - Resistant to corrosive chemicals and severe mechanical and thermal stress.
- Incoloy 800
  - Suitable for applications with temperatures up to 850 °C (1,562 °F) when mounted horizontally and up to 1,000 °C (1,832 °F) when mounted vertically.
  - Limited resistance to corrosive chemicals but resistant to mechanical and thermal stress.



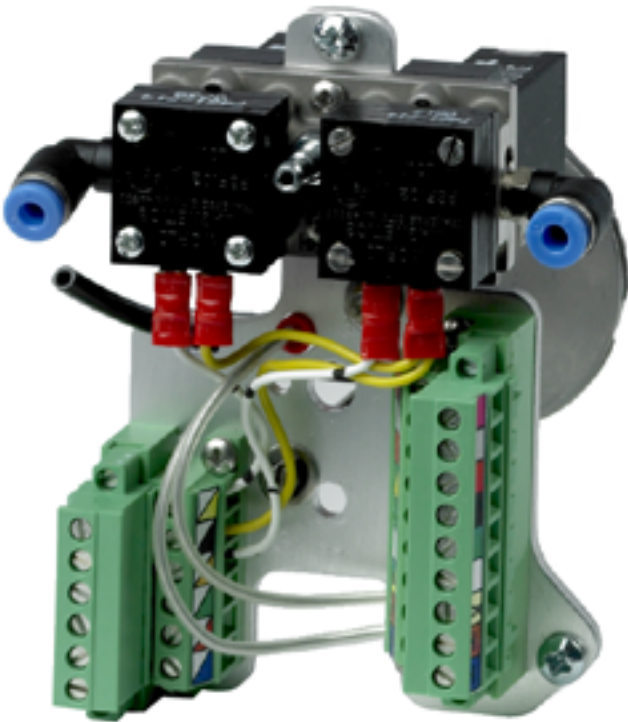
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## Unique integrated automatic calibration

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.



## 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.

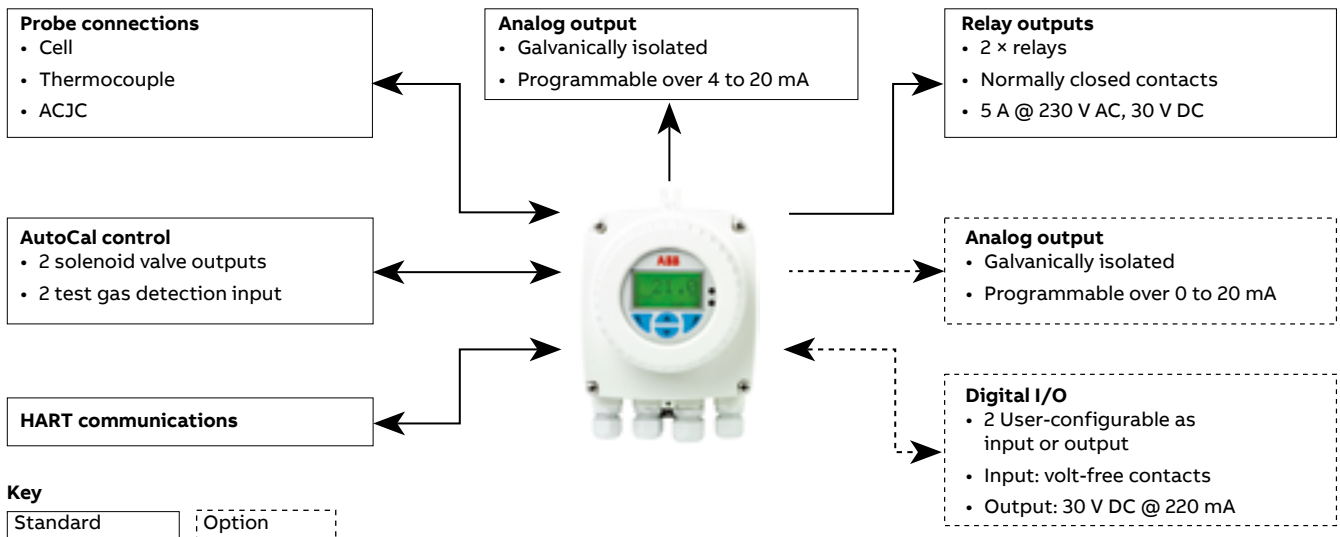
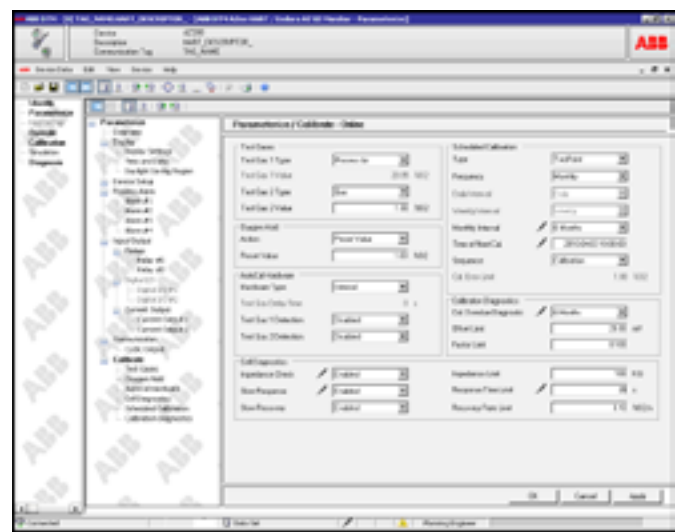
Advanced diagnostics, in accordance with NAMUR NE107, classify alarms and warnings as 'Maintenance Required', 'Check Function', 'Failure' and 'Out-of-Specification'. Cell performance is monitored by the transmitter; indicators such as cell impedance, rate-of-response to test gasses and changes in calibration 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.

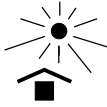
The IrDA standard infrared communication port can also be used with the DTM to upload and download device configurations. In addition, it enables data logged values and diagnostics to be viewed on a hyper-terminal interface or a PC. The device's firmware can also be upgraded using this port.



## System location requirements

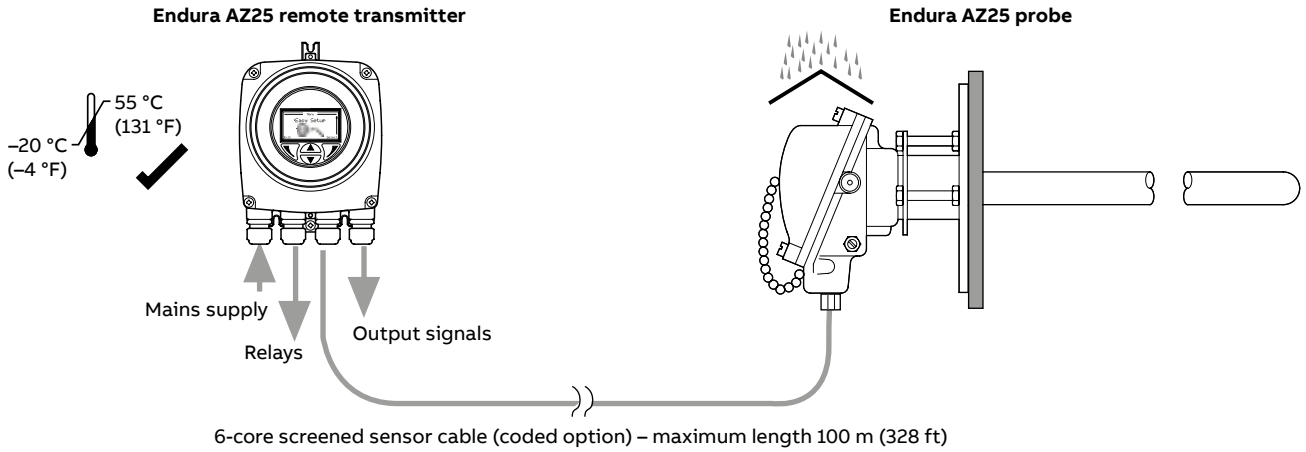
### Endura AZ25 system without AutoCal

IP66 (NEMA 4) ✓



100 °C (212 °F) ✓  
-20 °C (-4 °F) ✓

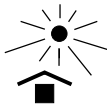
1,400 °C (2,552 °F) ✓  
600 °C (1,112 °F) ✓



\*Maximum temperature is sheath-dependant – see 'Sheath material options' on page 3.

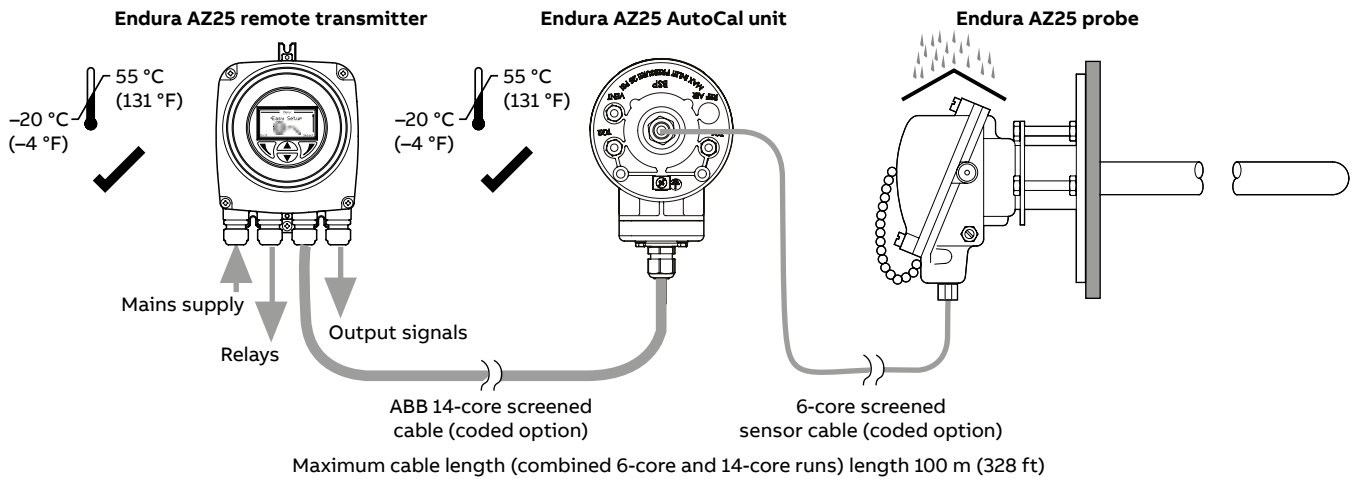
### Endura AZ25 system with AutoCal

IP66 (NEMA 4) ✓



100 °C (212 °F) ✓  
-20 °C (-4 °F) ✓

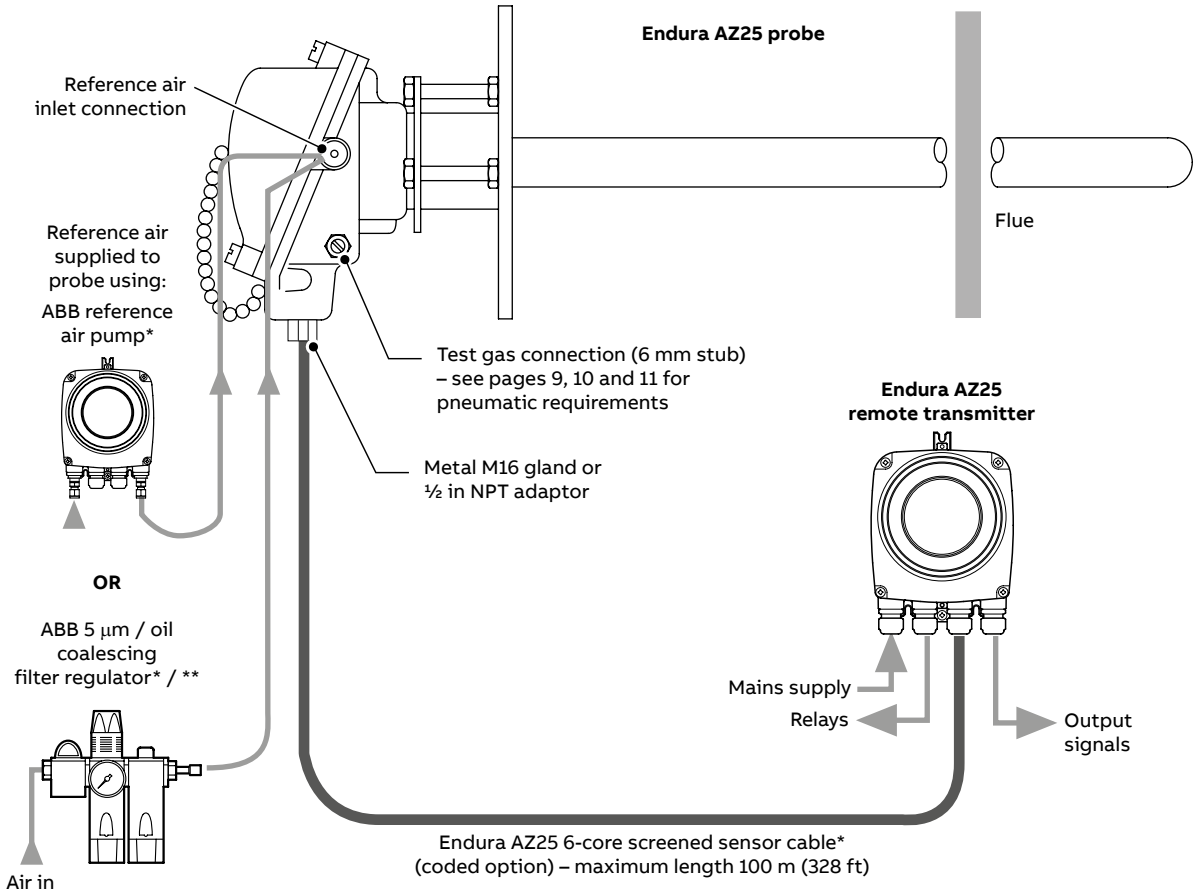
1,400 °C (2,552 °F) ✓  
600 °C (1,112 °F) ✓



\*Maximum temperature is sheath-dependant – see 'Sheath material options' on page 3.

## System options

### Endura AZ25 system without AutoCal

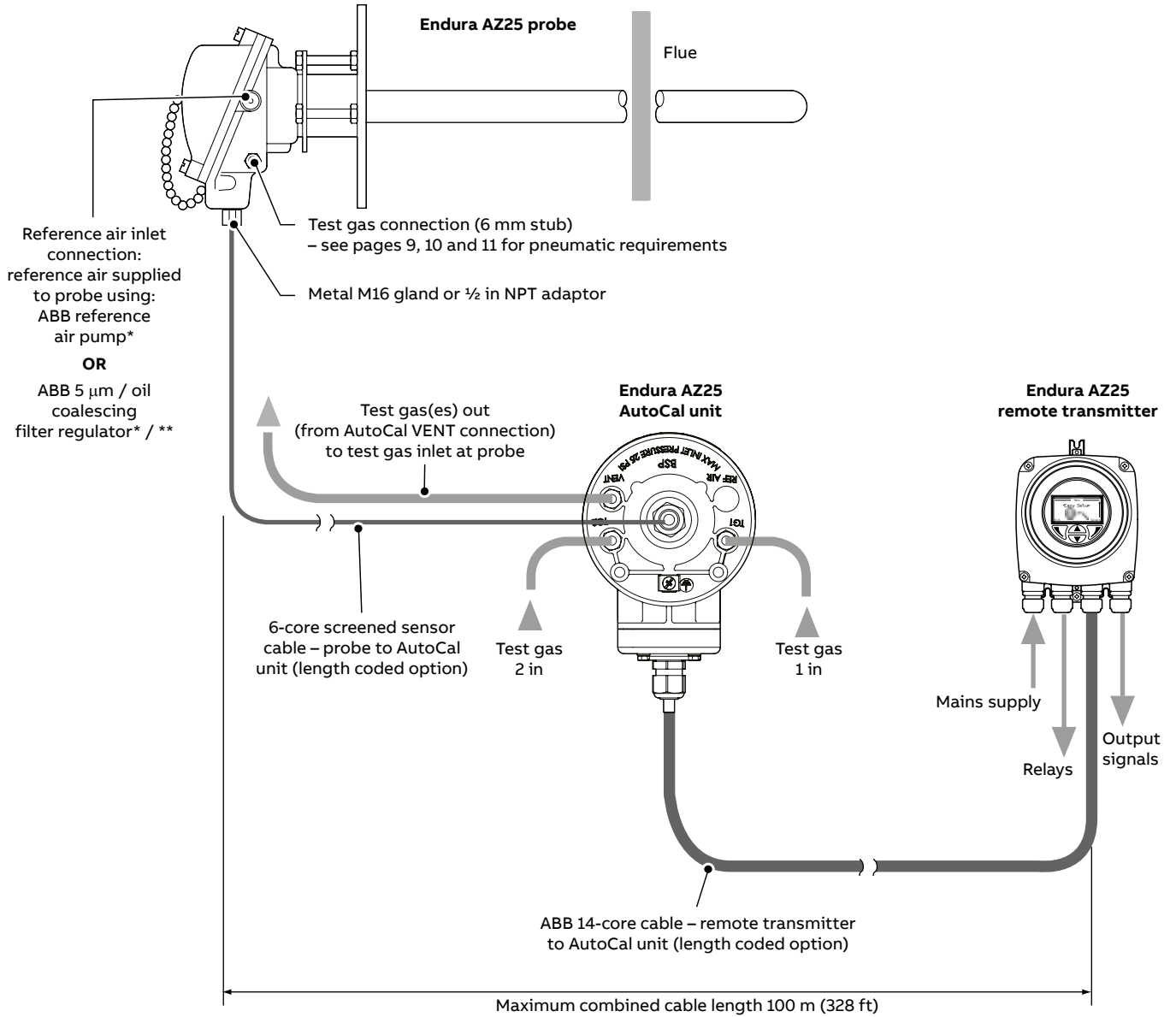


\*Refer to page 25 for ABB part numbers

\*\*Clean dry instrument air free from hydrocarbons

## ...System options

### Endura AZ25 system with AutoCal



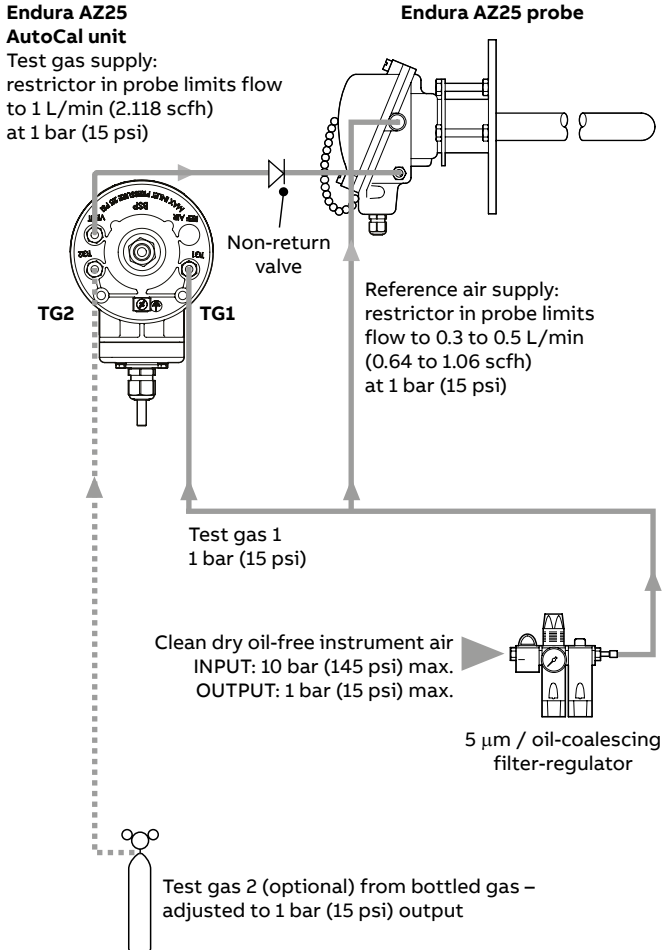
\*Refer to page 23 for ABB part numbers

\*\*Clean dry instrument air free from hydrocarbons

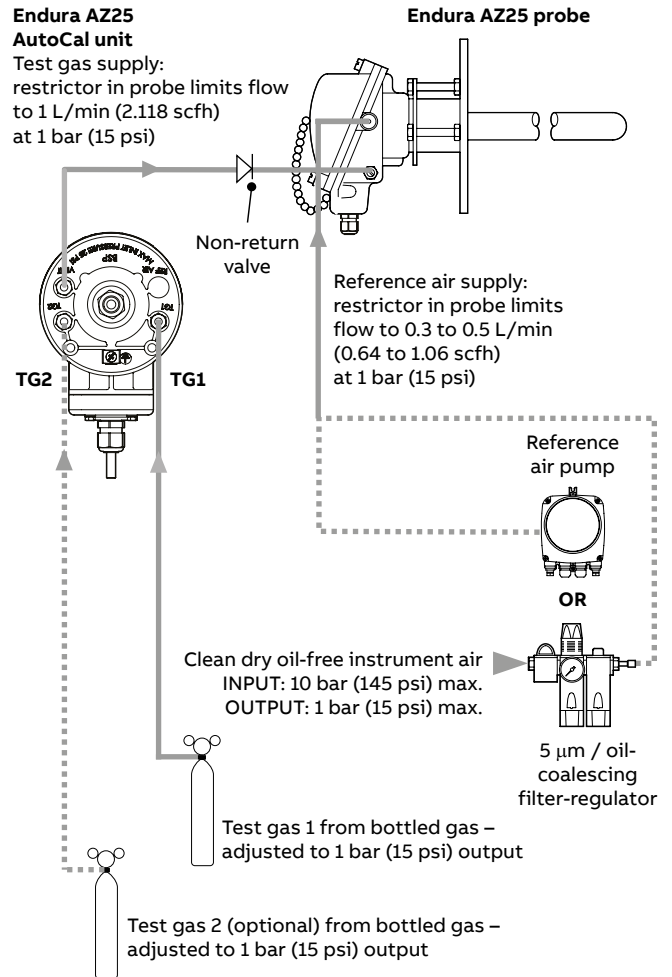


## Test gas and reference air supply configurations – AutoCal systems with restrictors

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

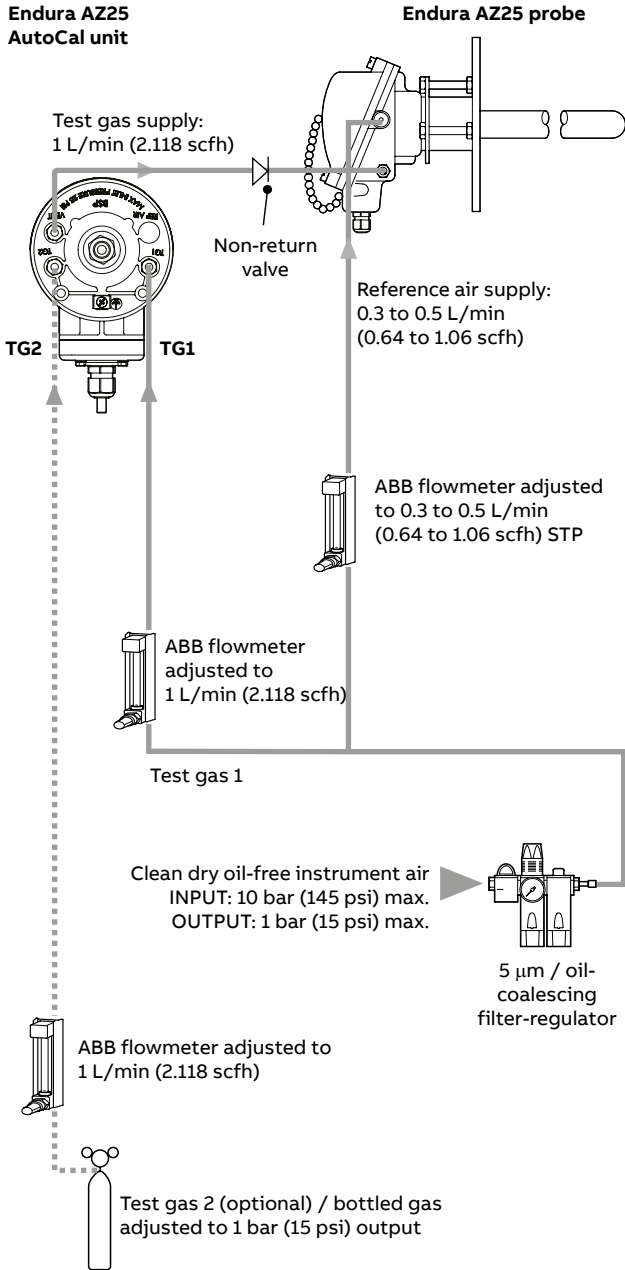


System using 2 bottled test gases

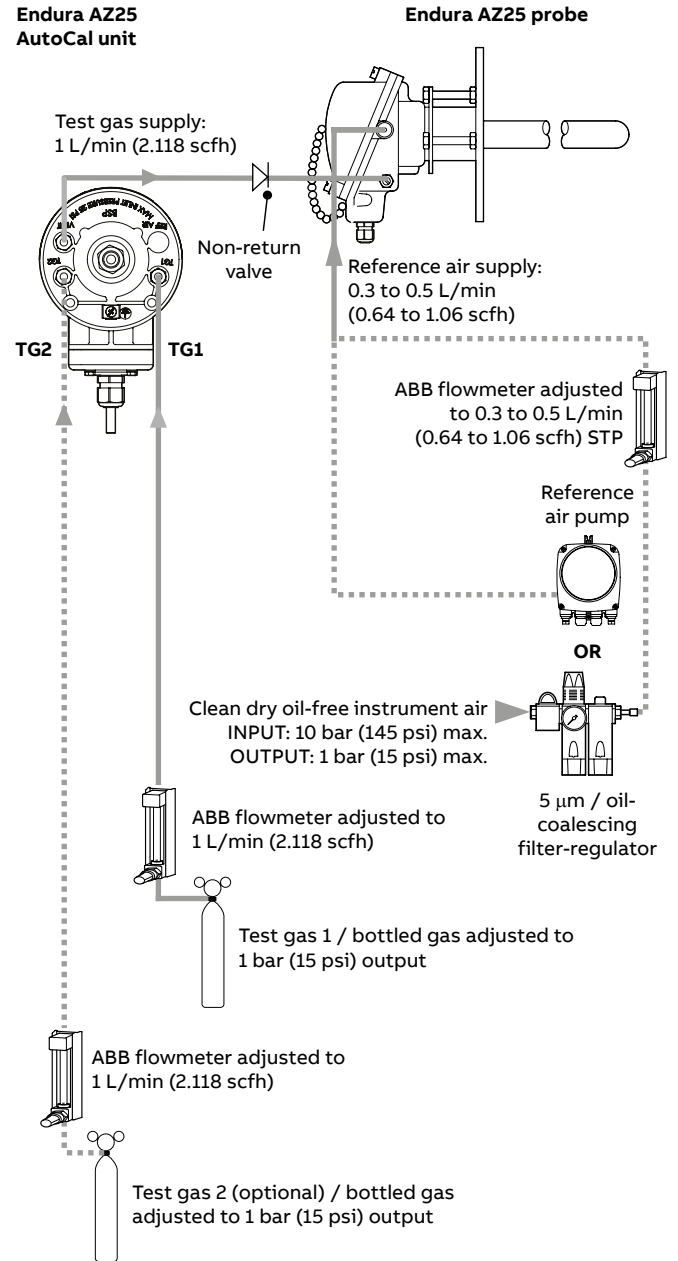


## ...Test gas and reference air supply configurations – AutoCal systems without restrictors

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



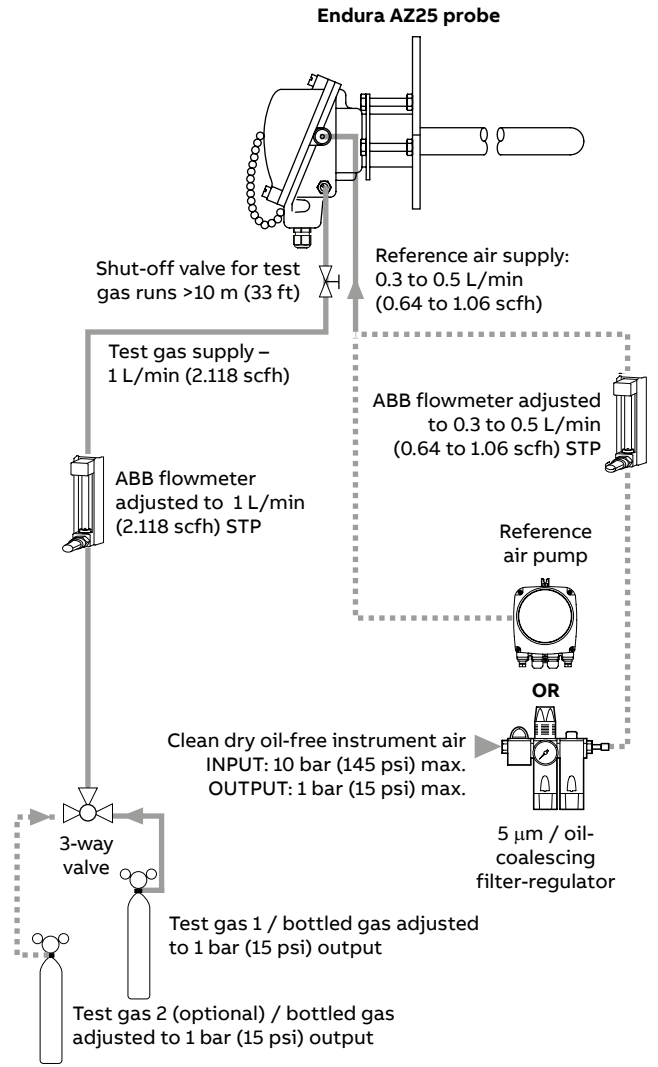
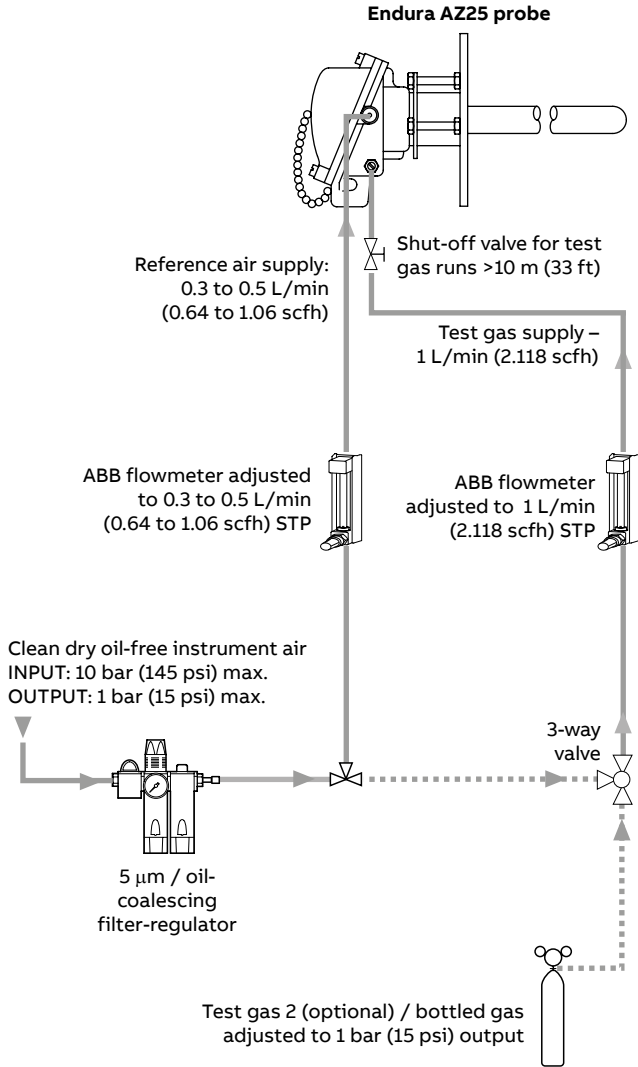
System using 2 bottled test gases



## 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

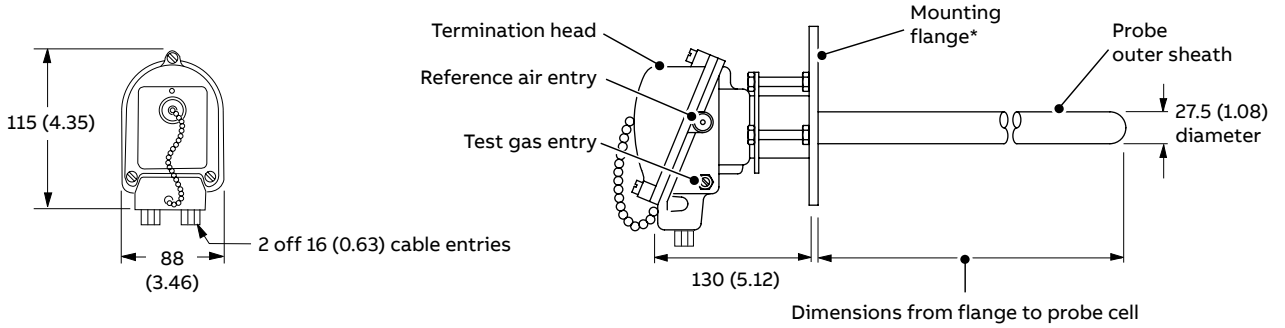
System using 2 bottled test gases



## Overall dimensions

### Probe

Dimensions in mm (in)

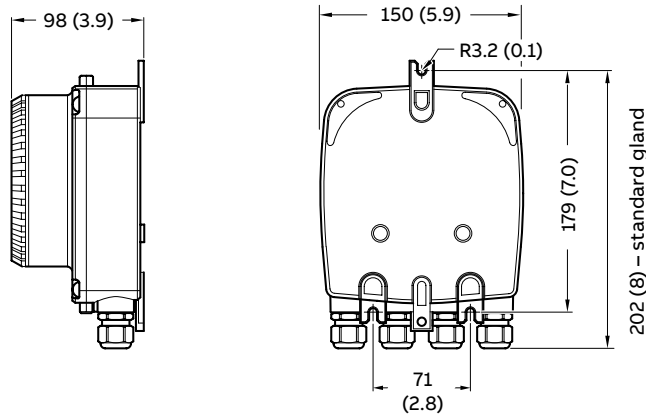


Probe length	Probe insertion length
500 mm (23.62 in)	556 mm (21.89 in)
700 mm (27.56 in)	701 mm (27.60 in)
800 mm (31.50 in)	801 mm (31.53 in)
900 mm (35.43 in)	901 mm (35.47 in)
1,000 mm (39.37 in)	956 mm (37.64 in)
1,250 mm (49.21 in)	1,251 mm (49.25 in)

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

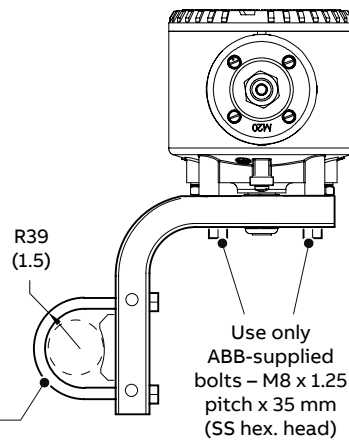
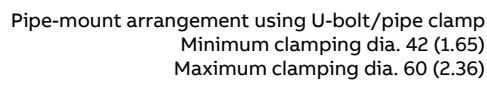
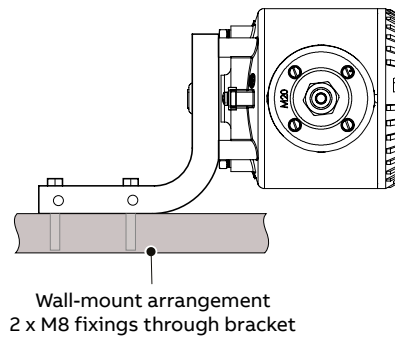
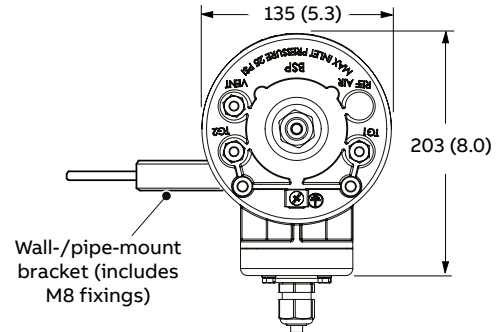
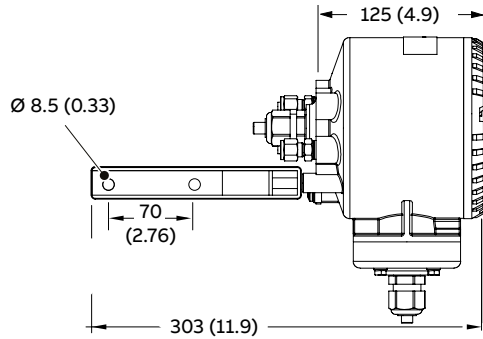
### Transmitter (standard gland shown)

Dimensions in mm (in)



**AutoCal unit (with wall/pipe-mounting bracket)**

Dimensions in mm (in)



## ...Overall dimensions

### 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.

Table 1 4-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)

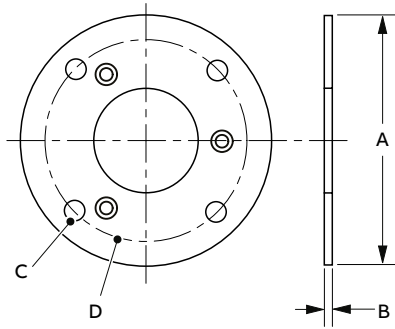


Table 2 ABB 6-hole probe flanges

Flange type	A	B	C (Ø)	D (PCD)
ABB standard	101 (3.97)	6 (0.24)	7.3 (0.29)	80 (3.15)

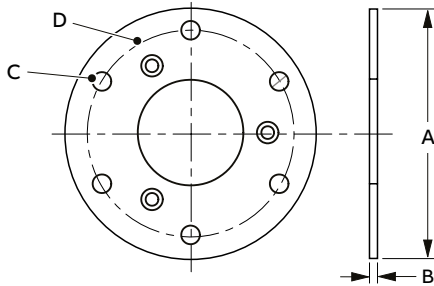


Table 3 8-hole probe flanges

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)

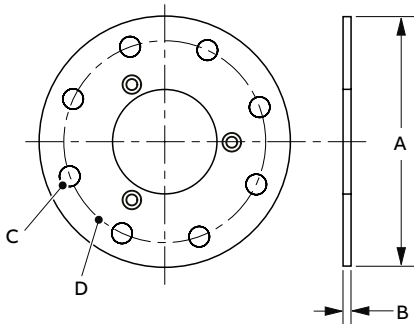


Table 4 ABB flange mounting plate

Mounting plate	A	B	C	D
ABB standard	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

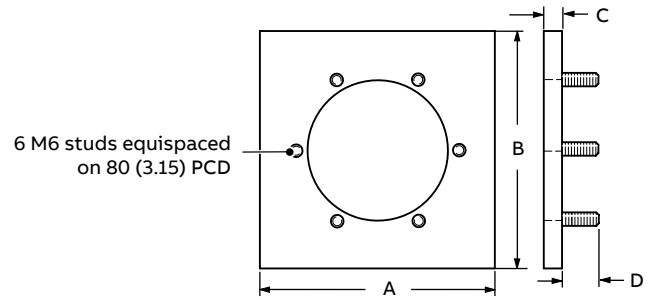


ABB standard flange mounting plate – part no. AZ200 796

Table 5 ABB blank (heritage) flange

Blank flange	A	B	C
ZGP2 heritage	125 (4.92)	5 (0.2)	Fixing holes (location / quantity) drilled by customer

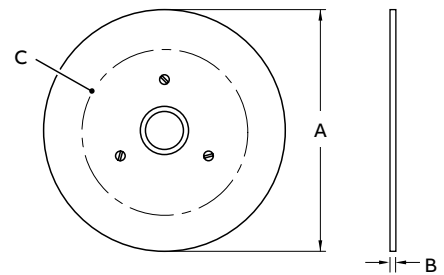


ABB standard flange mounting plate – part no. AZ200 796

Table 6 NPT / 1 in BSP mounting flange

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

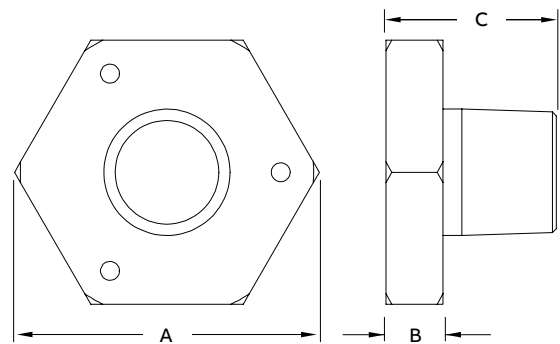


ABB standard flange mounting plate – part no. AZ200 796

## 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)	1,031 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)
1,000 mm (39.37 in)	1,086 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)
1,250 mm (49.21 in)	1,381 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)	1,031 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)
1,000 mm (39.37 in)	1,086 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)
1,250 mm (49.21 in)	1,381 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)	1,031 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)
1,000 mm (39.37 in)	1,086 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)
1,250 mm (49.21 in)	1,381 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)

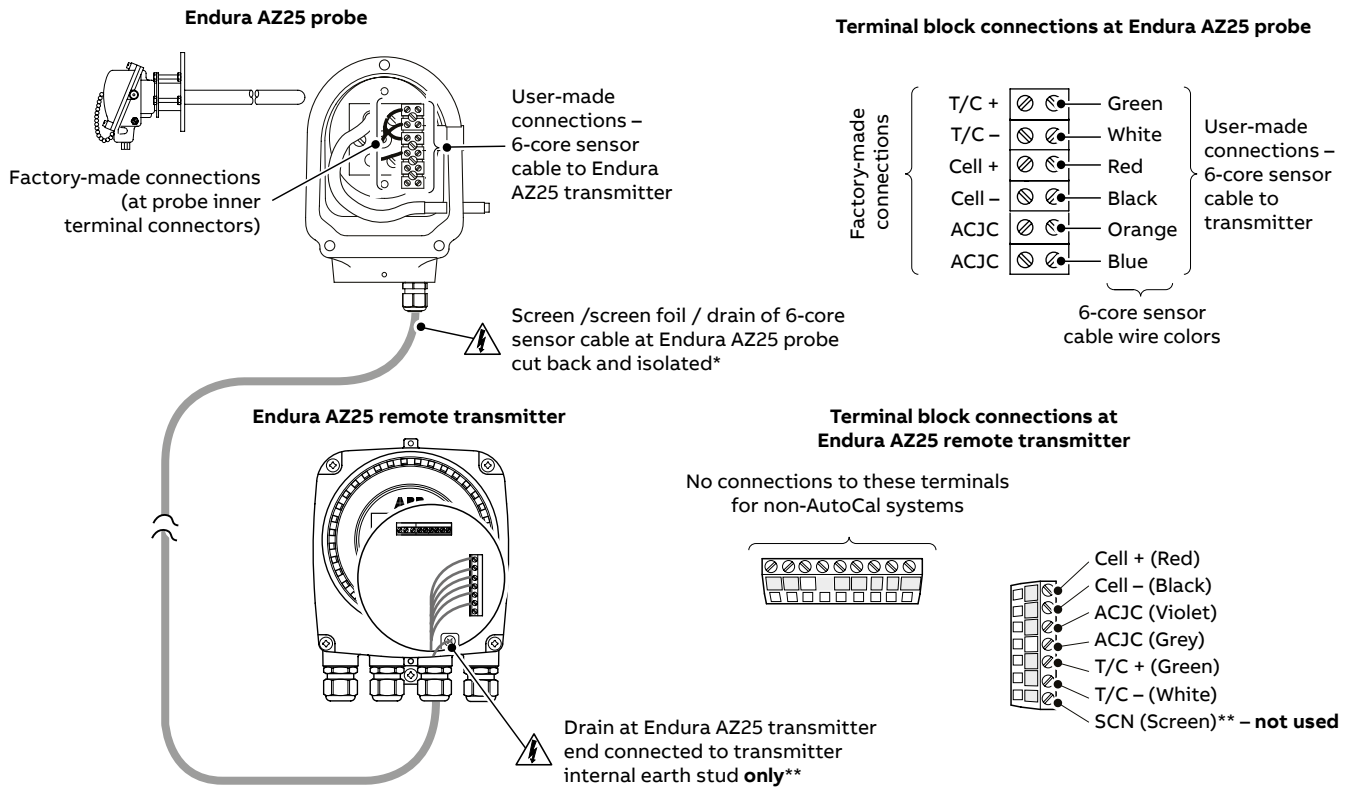
### Cable – AutoCal cable/probe (sensor) cable

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



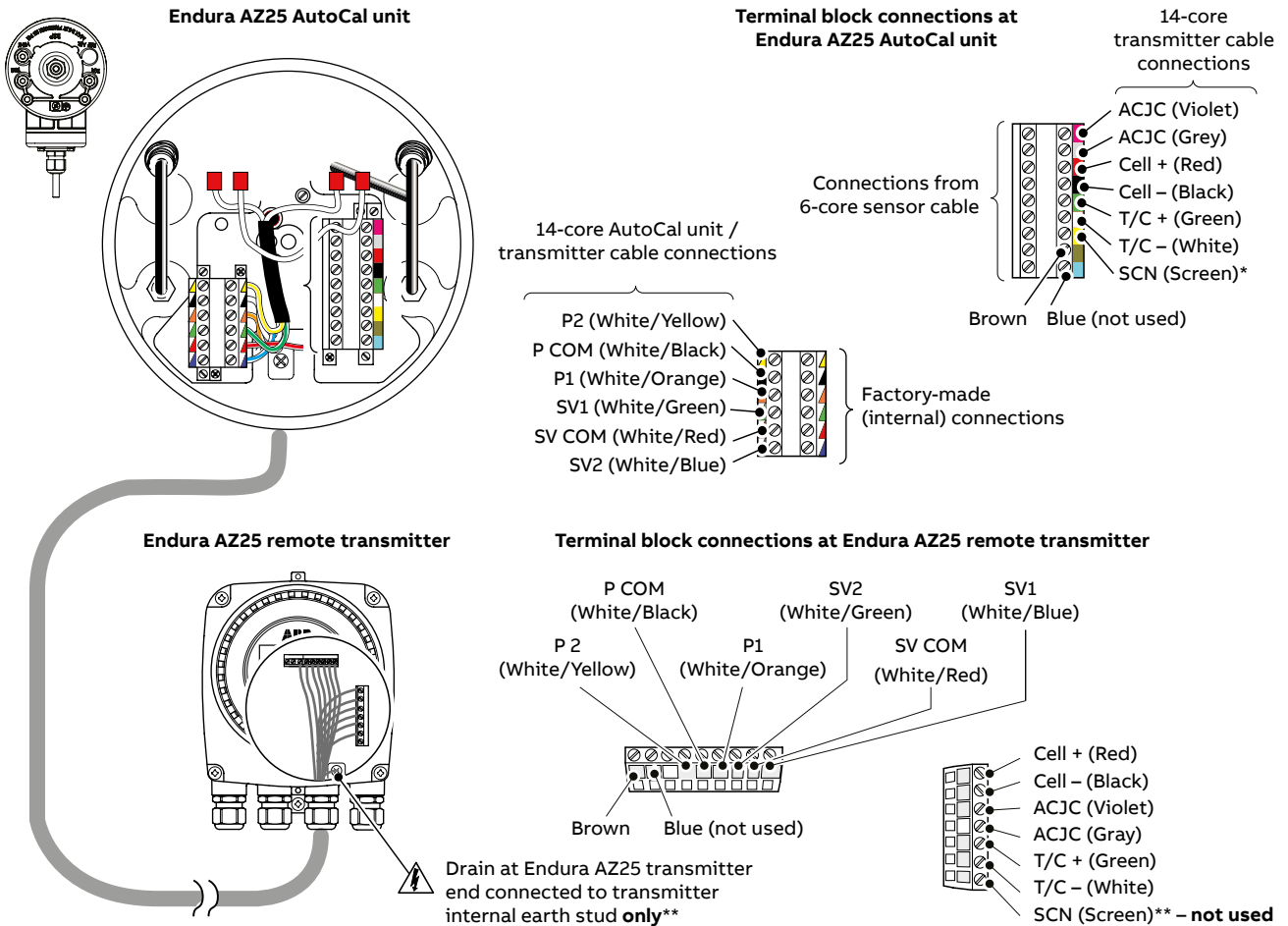
\*Cut back and isolate the screen, screen foil and drain at the probe head – **do not connect it to the probe**

\*\*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**



**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
Gray	Gray	ACJC	Gray
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)

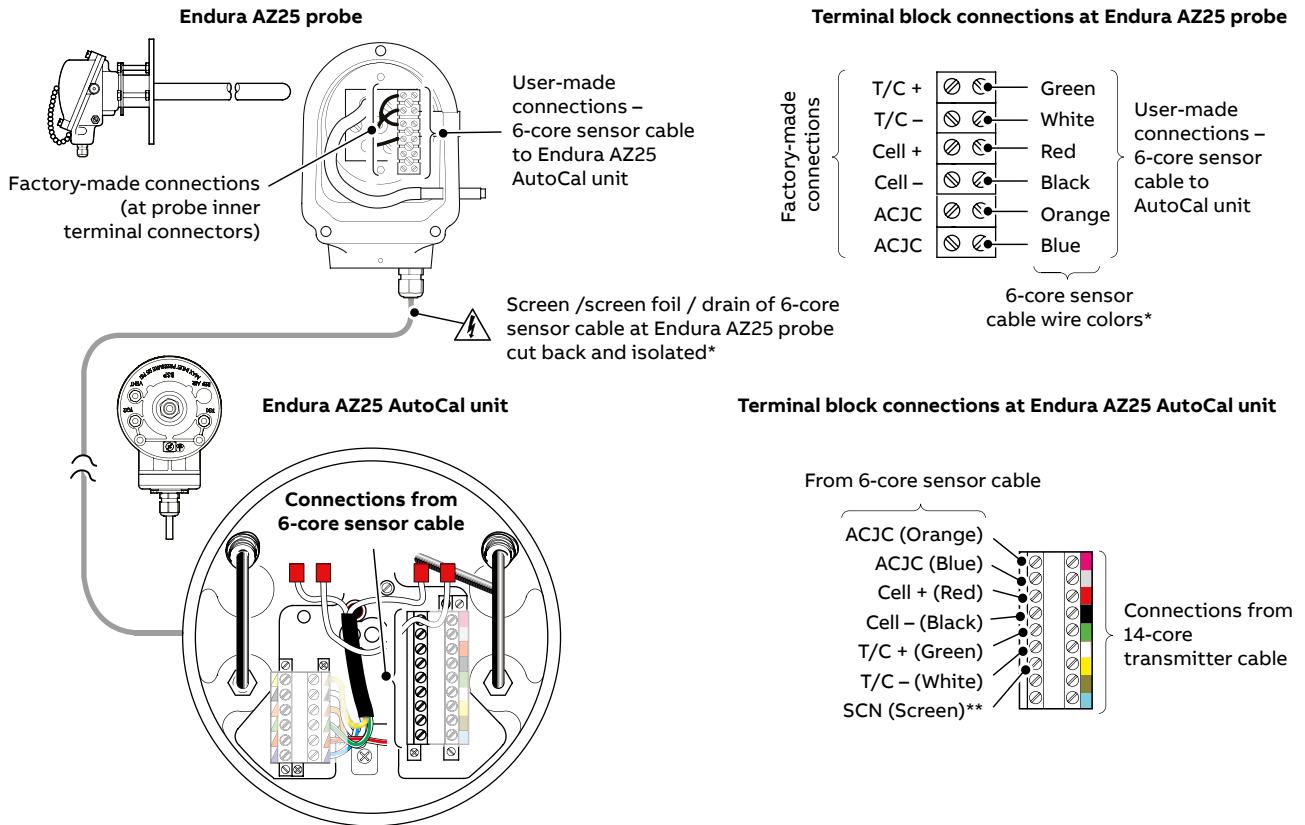


- ⚠️ \*Connect the 14-core cable drain to the AutoCal unit's outer SCN terminal **only**
- ⚠️ \*\*Connect the 14-core cable drain to the transmitter's internal earth stud **only** – **do not connect it to the transmitter's SCN terminal or the transmitter external earth**

## ...Electrical connections

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

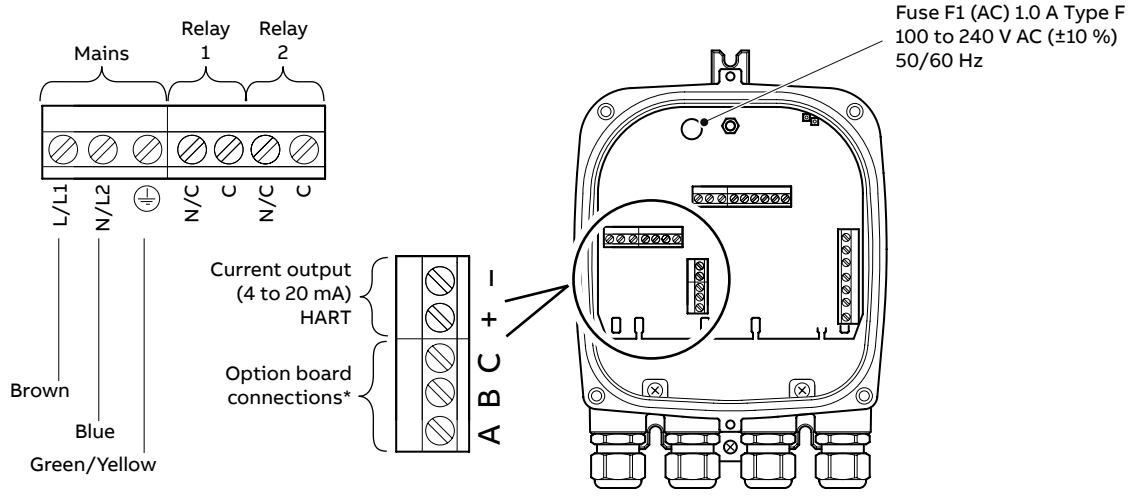
6-core screened sensor cable terminal connections at probe (outer terminal connections)	6-core screened sensor cable terminal connections at AutoCal unit inner terminal connections
TC+ (green wire)	TC+ (green wire)
TC- (white wire)	TC- (white wire)
Cell + (red wire)	Cell + (red wire)
Cell - (black wire)	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

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## System specification

### Measurement performance

#### Range:

0 to 25 % O<sub>2</sub>

#### Test gas response time

- Initial dead time 3 seconds
- T<sub>90</sub> < 10 seconds

#### System accuracy

< ±2.0 % of reading or 0.2 % O<sub>2</sub>, whichever is the greater (reference conditions)

#### Drift

- < ± 1 % maximum % O<sub>2</sub> 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 4)

### 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)
- 1,250 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 1,250 °C (1,112 to 2,282 °F)
- Incoloy 800:
  - 600 to 850 °C (1,112 to 1,562 °F)
- Probe mounted horizontally – Incoloy 800:
  - 600 to 1,000 °C (1,112 to 1,832 °F)
- Probe mounted vertically down – recrystallized alumina:
  - 600 to 1,400 °C (1,112 to 2,552 °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 % O<sub>2</sub> balance N<sub>2</sub> 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

## Transmitter specification

### Transmitter enclosures

#### Remote

- Wall, pipe or stand-mounted  
4 gland entries
- Optional ½ in NPT, M20

#### Integral

- Head-mounted
- 3 gland entries
- Optional ½ 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)

### 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

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

## 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 115 K 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


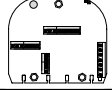
- Front panel controls
- Digital inputs
- HART commands
- User-defined schedule

### Calibration scheduler

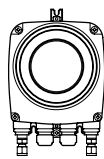
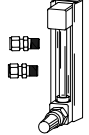
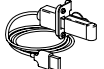

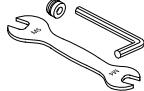
User-defined schedule enables automatic calibration frequency to be set from 1 day to 12 months

## Spares and accessories

### Transmitter spares

Part number	Description		
AZ200 750	AZ20 Transmitter cartridge		
AZ200 751			• Standard
AZ200 752			• Standard + Analog O/P
AZ200 758	Remote (type 4) Transmitter backplane		

### Accessories

Part number	Description		
AZ200 770	ABB reference air pump		
AZ200 771			• ¼ BSP (metric) 230 V AC 50/60 Hz
AZ200 772			• ¼ BSP (metric) 115 V AC 50/60 Hz
AZ200 773			• ¼ NPT (imperial) 230 V AC 50/60 Hz
AZ200 788	ABB flowmeter		
AZ200 789			• ¼ NPT
AZ200 785	USB to IrDA adaptor kit		
E35	Connection cables		
E37			• Type K
YBM 1178			• Type R • Signal cable
AZ200 798	Probe tool kit*		
AZ200 799			• NPT (AZ20) • BSP (AZ20)

\*Included with probe as standard

## Ordering information

	Tx					Probe											/STD	
	AZ25/	X	X	X	X	X	X	X	X	X	X	X	X	X	X	0		0
<b>Transmitter options</b>																		
None	0																	
Standard	1																	
Standard + 2 <sup>nd</sup> analog output	2																	
Standard + 2 digital inputs/outputs	3																	
<b>Transmitter entry type</b>																		
None (no transmitter required)	0																	
Metric (M20)	1																	
Imperial (NPT)	2																	
<b>Transmitter system type</b>																		
None (no transmitter required)					0													
Remote					2													
<b>Probe type</b>																		
None (no probe required)						0												
Standard						1												
<b>Probe entry type</b>																		
None (no probe required)								0										
Metric (M16)								1										
Imperial (½ in NPT)								2										
<b>Insertion length</b>																		
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									
<b>Protective sheath material</b>																		
None (no probe required)										0								
Aluminous porcelain, standard										1								
Incoloy 800 (1.4876)										2								
Recrystallised alumina										3								
<b>Thermocouple type</b>																		
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...





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## Acknowledgements

- HART is a registered trademark of the HART Communication Foundation.

Sales



Service



Software





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