

Technical Datasheet



D Series

Analogue Compact Differential Pressure Transmitter

Model: D32

Key Features

- Accuracy $\pm 0.25\%$.
- 4-20mA output signal.
- Static pressure limit up to 413 bar.
- ATEX & IECEx certification—Ex ia & Ex d
- Gold plated diaphragm option.
- Hastelloy C276 wetted parts option.



Series Overview

- The D-Series pressure, differential pressure and temperature transmitters offer customers cost-effective and accurate solutions to their individual process requirements.
- Available with a wide range of process connections and easily configurable via the D-Soft software, the D-Series can be used for a variety of applications when pressure, differential pressure, temperature, level or flow measurements are needed.

Other products in the series include:

- D22 Analogue Compact Pressure Transmitter



Product applications

The D32 D-Series is suitable for a wide range of applications for measuring:

- Differential Pressure
- Level
- Flow

The choice of models available ensures that the D32 D-Series is suitable for use in:

- Corrosive atmospheres
- Resistant to chemical attack

How can we help you?

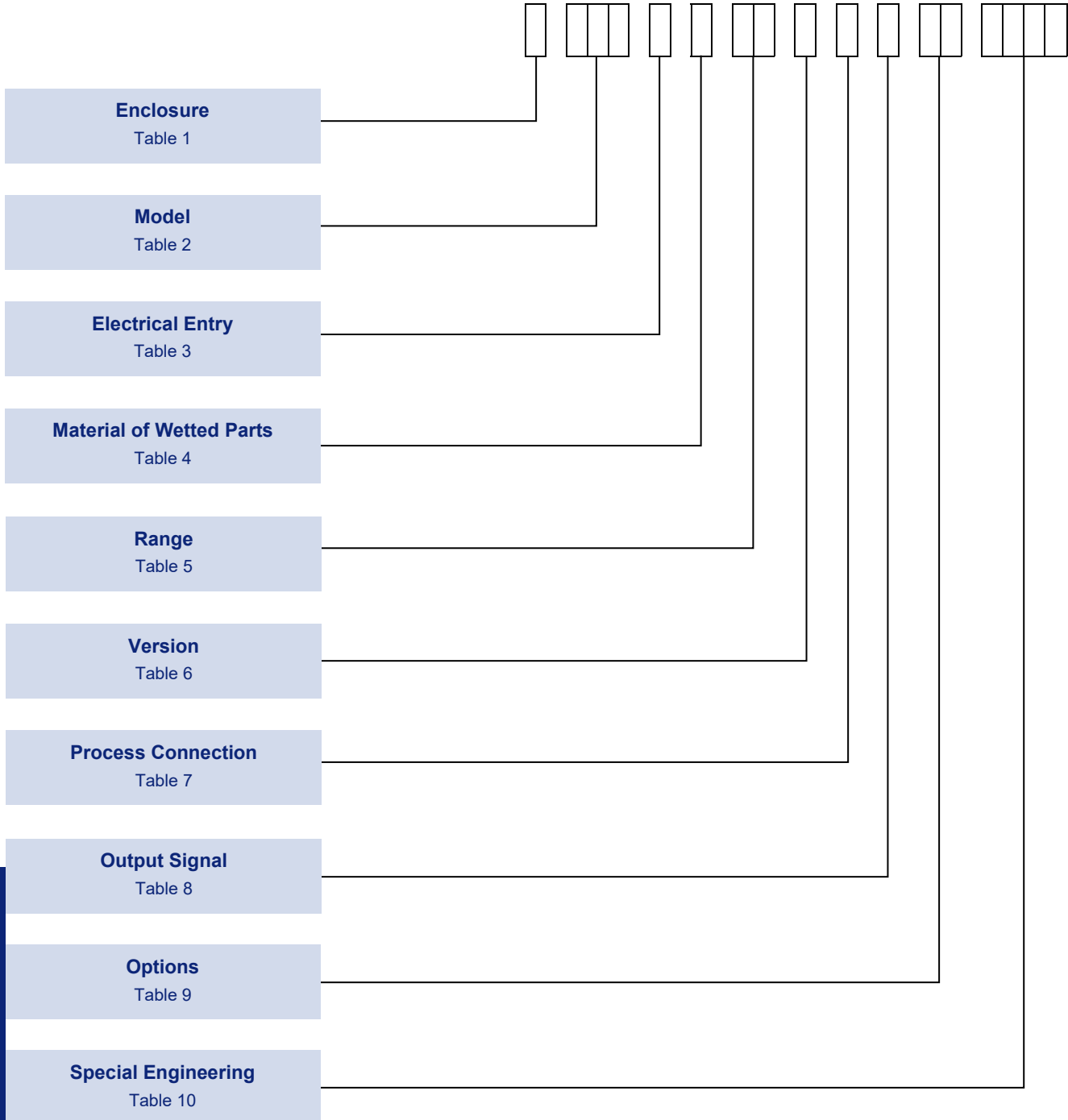
Delta Mobrey's offers fast, efficient and knowledgeable support when and where you need it. Please visit our web site at www.delta-mobrey.com to find your local support centre or call us on:

+44 (0) 1252 729140

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How to order

Transmitters can be configured by selecting codes representing the desired features from the tables that follow. The chart below, describes how the model code is built up. For assistance in configuring a transmitter that best suits your needs, please contact your local sales office.



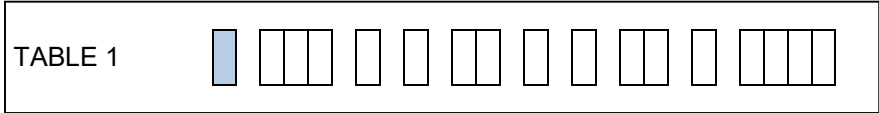
NOTE: Only the most common options are shown in this datasheet. Should you require a feature that is not shown, please contact your local sales office for further details.

NOTE: The non-standard option code is shown by "X" in the part number. Should you require any clarification on this codes please contact your local sales office.

Enclosure

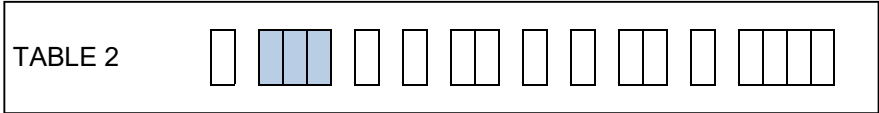
Refer to 'Approvals' section for details about the certification on Intrinsically Safe and flameproof models .

Aluminium enclosure with programmable local display is available, please contact local sales for more details.



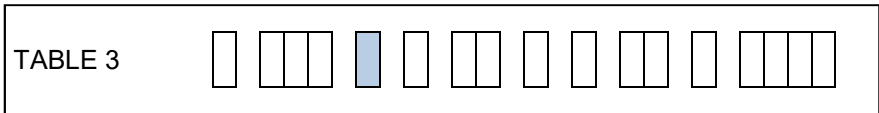
ENCLOSURES TYPES	Code
WEATHERPROOF ENCLOSURE	
304 Stainless steel housing, IP65.	B
304 Stainless steel housing, IP66.	G
316 Stainless steel housing, IP66.	K
304 Stainless steel housing, IP67.	M
INTRINSICALLY SAFE ENCLOSURES (ZONE 0)	
304 Stainless steel housing, IP65. (Ex ia)	C
304 Stainless steel housing, IP66. (Ex ia)	J
316 Stainless steel housing, IP66. (Ex ia)	L
304 Stainless steel housing, IP67. (Ex ia)	N
FLAMEPROOF ENCLOSURES (ZONE 1)	
316l Stainless steel housing. IP68 (Ex d)	Z

Model



	Code
D32 Analogue Compact Differential Pressure Transmitter For applications up to 25 bar. Overpressure limit up to 413 bar. Refer Table 5.	D32

Electrical Entry



NOTE: Code 1
Available on Enclosure code G,K,J & L only.

NOTE: Code 3
Available on Enclosure code B & C only.

NOTE: Code 4 & 5
Available on Enclosure code M & N only.

	Code
PZ type connection, packing gland M20x1.5	1
PD type connection, DIN43650 Connector	3
PM12 type connection, thread M12x1 & connector with cable 3m length	4
PK type connection, cable 3m length	5

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Material of Wetted Parts


NOTE 1:

All wetted parts in Hastelloy available on request with process connection code P & Q only.

NOTE: Codes E,F & G


Wetted parts with gasket only refers to process connection code C, M & N. NBR (for oxygen service) & PTFE gasket also available upon request.

Refer Table 7 for Process Connection

TABLE 4 

	Code
Stainless Steel 316L diaphragm and process connection	A
Gold plated diaphragm and Stainless Steel 316L process connection	C
Hastelloy C276 diaphragm and Stainless Steel 316L process connection (See Note 1)	D
Stainless Steel 316L diaphragm. Other wetted parts in stainless steel 316L. FPM Viton gasket.	E
Hastelloy C276 diaphragm. Other wetted parts in stainless steel 316L. FPM Viton gasket.	F
Gold plated diaphragm. Other wetted parts in stainless steel 316L. FPM Viton gasket.	G

Range

TABLE 5 

Code	Nominal measuring range (FSO)	
	D0	0...0.25 bar
D1	0...1 bar	(0...100 kPa)
D2	0...2.5 bar	(0...250 kPa)
D5	0...0.4 bar	(0...40 kPa)
D6	0...0.6 bar	(0...60 kPa)
D7	0...1.6 bar	(0...160 kPa)
D8	0...4 bar	(0...400 kPa)
D9	0...6 bar	(0...600 kPa)
E0	0...16 bar	(0...1.6 MPa)
E1	0...25 bar	(0...2.5 MPa)

NOTE: Any measuring range 0...16 mbar to 0...25 bar.

	Measuring range				
	25 mbar	100 mbar	1 bar	2 bar	25 bar
Overpressure Limit Static Pressure Limit (repeated, without hysteresis)	250 bar (option 413 bar) (40 bar for process connection code P & Q)				
Accuracy	0,4%	0,4%	0,25%		
Long term stability	0,6% / year	0,2% / year	0,1% / year		
Thermal error	Typically 0,5% / 10°C Max 0,6% / 10°C	Typically 0,3% / 10°C Max 0,4% / 10°C	Typically 0,3% / 10°C Max 0,4% / 10°C		
Zero shift error for static pressure*	0,1% / 10 bar				

* Zeroing the transmitter in conditions of static pressure can eliminate this error.

Version

Combinations of more than one option is available.

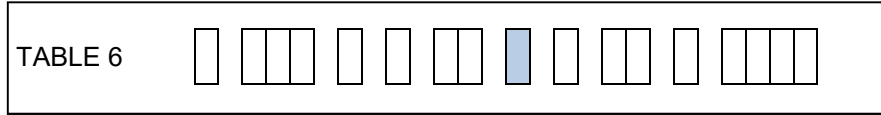
NOTE: Code 4

Available with process connection P, Q, C & M.

NOTE: Code B

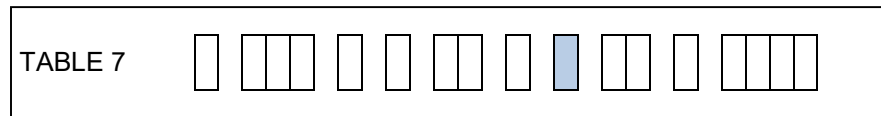
Only available with Output Signal code O.

Refer Table 9 for Output Signal



	Code
Applies when no option is required.	0
For oxygen service (sensor filled with Fluorolube fluid)	4
Response time <30ms	B

Process Connection

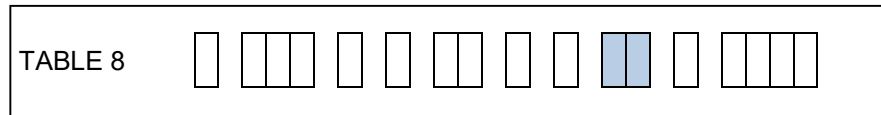


	Code
M20x1.5 (male)	P
1/4" NPT Female	Q
1/4" NPT Female on the cover flanges. Cover flanges material SS316L. Allows mounting with valve manifold.	C
C type process connection rotated 90°	M
1/2" NPT Female via adaptor on the cover flanges for C type process connection. Material SS316L.	N

Options

Combination of more than one option is available.

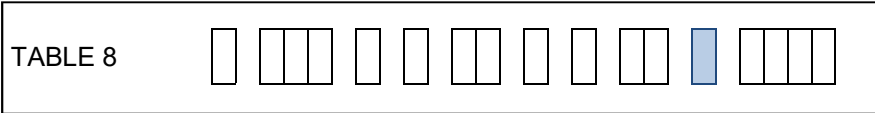
(i.e. Code 35 - combination of code 30 & 50.)



	Code
Applies when no option is required	00
Stainless Steel tag plate mounted on wire	30
Mounting bracket for 2" pipe (only version with C-type process connection), zinc steel	50
Mounting bracket for 2" pipe (only version with C-type process connection), stainless steel	60
Mounting bracket for 1" pipe (only version with process connection Code P & Q), stainless steel	70
Connector to weld impulse pipes Ø12 and Ø14 mm, material 15HM (only version with C-type process connection)	C0
Connector to weld impulse pipes Ø12 and Ø14 mm, material 15HM(SO) or SS316(S) (only version with process connection Code P & Q)	D0

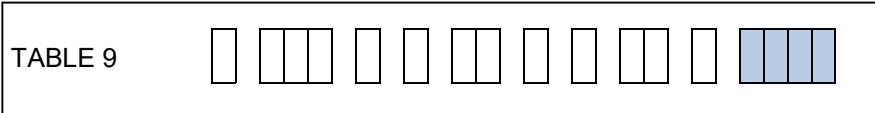
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Model: D32

Output Signal



	Code
4 to 20mA / power supply 8-36VDC (Ex 9-28VDC)	O
0 to 10VDC / power supply 13-30VDC	C

Special Engineering



Last 4 digits of model code only used when special engineering is required.

	Code
Please consult Delta sales engineering for special requirements	TBA

Construction

The D32 Differential Pressure Transmitters are suitable for measuring differential pressure of gases, vapours and liquids. The active sensing element is a piezoresistive silicon sensor separated from the medium by a diaphragm and by a specifically selected type of manometric liquid. The special design of the active sensing element ensures withstanding the pressure surges and overloads of up to 320bar. The electronics is placed in a casing with ingress protection rating of IP65, IP67, depending on the type of electrical connection applied.

Calibration

Potentiometers can be used to shift the zero position and the range by up to ±10%, without altering the settings.

Installation

The transmitter with P type process connection is not heavy, so it can be installed directly onto the impulse line without an additional mounting bracket. For fitting in any desired position we recommend a universal Delta mounting bracket for 2" pipe (AL mounting bracket). The version with C type process connections can be fitted directly to a 3 or 5 valve manifold. We recommend factory-mounted transmitters with VM type valve manifold. A transmitter without a valve manifold can be fitted in any position on a 2" pipe or on a wall using the C-2" mounting bracket.

When the special process connections are required for the measurement of specific media levels in closed tanks (e.g. in the sugar and chemical industries) the transmitter is fitted with a Delta diaphragm seal. The differential pressure transmitter with diaphragm seals are described in detail in the further part of the catalogue.

Technical Data

Electrical parameters

Output signal 4...20 mA, two wire transmission
0...10 V, three wire transmission

Power supply:

Output 4...20 Ma: 8...36 VDC (Ex 9...28VDC)
Version B: 10,5...36 VDC (Ex 12...28 VDC)

Output 0...10 V: 13...30 VDC

Error due to supply voltage changes 0.005% (FSO) / V 0.85

Load resistance $R[\Omega] \leq \frac{(U_{sup}[V]-8V)}{0,02A}$
(for current output)

Load resistance $R \geq 20K\Omega$
(for supply output)

Materials

Wetted parts: Code P,Q process connection: SS316L
Code P(H),Q(H) process connection: SS316L or Hastelloy C276
C-type process connection: SS316L

Diaphragms: SS316L , Hastelloy C 276, Au

Casing : 304ss
Option : 316ss

Operating conditions

Hysteresis, repeatability: 0,05%

Thermal compensation range: 0...70°C

Operating temperature range (ambient temp.): -25...80°C

Medium temperature range: -25...120°C (direct measurement)
Over 120°C - measurement with use
an impulse line or diaphragm seals

CAUTION: The medium must not be allowed to freeze in the impulse line or close to the process connection of the transmitter.

Approvals

EUROPEAN DIRECTIVES



ATEX Directive 2014/34/EU

INTRINSICALLY SAFE:

Certificate No.: FTZU 18 ATEX 0143X
EN 60079-0, EN 60079-11, EN 50303

For Zone 0 models (**Refer Table 1 for Enclosure code**)

M1 Ex ia I Ma
II 1/2G Ex ia IIC T4/T5/T6 Ga/Gb
II 1D Ex ia IIIC T110°C Da
II 1/2G Ex ia IIC T4 Ga/Gb (for transmitter with connection ALW, ALM)

FLAMEPROOF:

Certificate No : KDB 19 ATEX 0030X
EN 60079-0, EN 60079-1, EN 60079-31

For Zone 1 models (**refer Table 1 for Enclosures code**)

II 2G Ex db IIC T6/T5/T4 Gb
II 2D Ex tb IIIC T85°C /T100°C/T120°C Db



GLOBAL CERTIFICATION

IECEX Certified

INTRINSICALLY SAFE:

Certificate No.: IECEX FTZU 18.0023X
IEC 60079-0, IEC 60079-11

For Zone 0 models (**Refer Table 1 for Enclosure code**)

Ex ia I Ma
Ex ia IIC T4/T5/T6 Ga/Gb
Ex ia IIIC T110°C Da
Ex ia IIC T4 Ga/Gb (for transmitter with connection ALW, ALM)

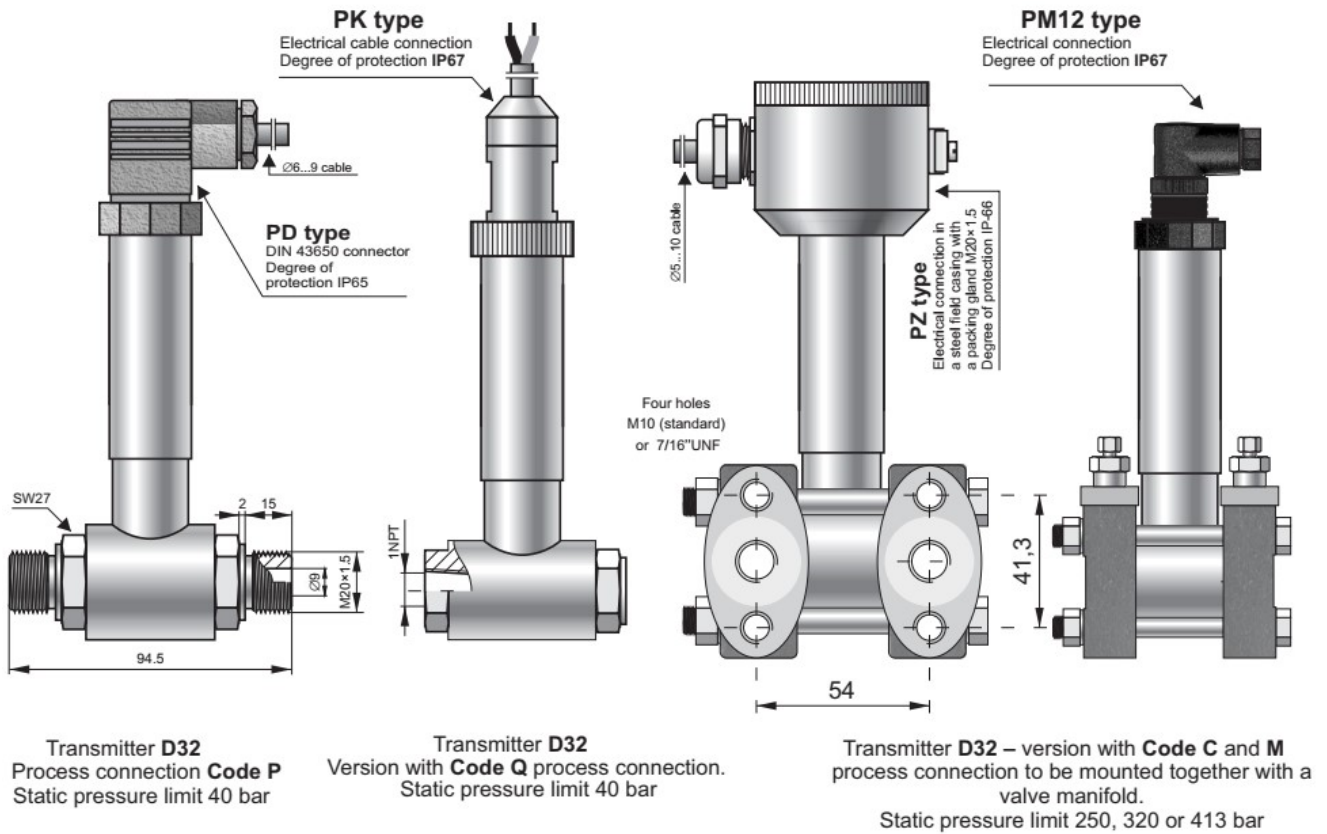
FLAMEPROOF:

Certificate No.: IECEX KDB 19.0005X
IEC 60079-0, IEC 60079-1, IEC 60079-31

For Zone 1 models (**Refer Table 1 for Enclosure code**)

Ex db IIC T6/T5/T4 Gb
Ex tb IIIC T85°C/T100°C/T120°C Db

Dimension



WEIGHT

Model	Process Connection	Weight
D32	P, Q	0.72 kg
	C, M	2.18 kg

Weight may varies depending on model variant.

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FM00720

D-Series
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