

Technical Datasheet



D Series

SMART Low Range Differential Pressure Transmitter

Model: D34

Key Features

- ATEX - Flameproof & Intrinsically Safe
IECEX - Flameproof & Intrinsically Safe
- Compliant to NAMUR NE-43
- High accuracy $\pm 0.1\%$ (better accuracy upon request)
- Fully HART ® compatible
- Static pressure limit up to 1 bar
- 4-20mA, with digital communications
- Suitable for clean gasses
- Programmable range, zero shift, characteristic and damping ratio with local panel keys
- Linearisation of output signal on 20 point curve for specific application is available
- Write protection option through DKAP-03 communicator, 'D-Soft' program or software using library EDDL

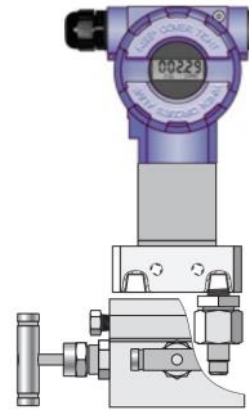
Series Overview

The D-Series pressure, differential pressure and temperature transmitters offer customers reliable 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:

- SMART Differential Pressure Transmitter
- SMART Pressure Transmitter
- SMART Temperature Transmitter



Product applications

The D Series SMART Differential Pressure Transmitter is suitable for a wide range of applications for measuring:

- Differential Pressure
- Flow

The choice of models available ensures that the Delta Mobrey Transmitter is suitable for use in:

- Air & Flue gasses
- Clean & dry gas
- Associated to Pitot tube for gas flow measurement

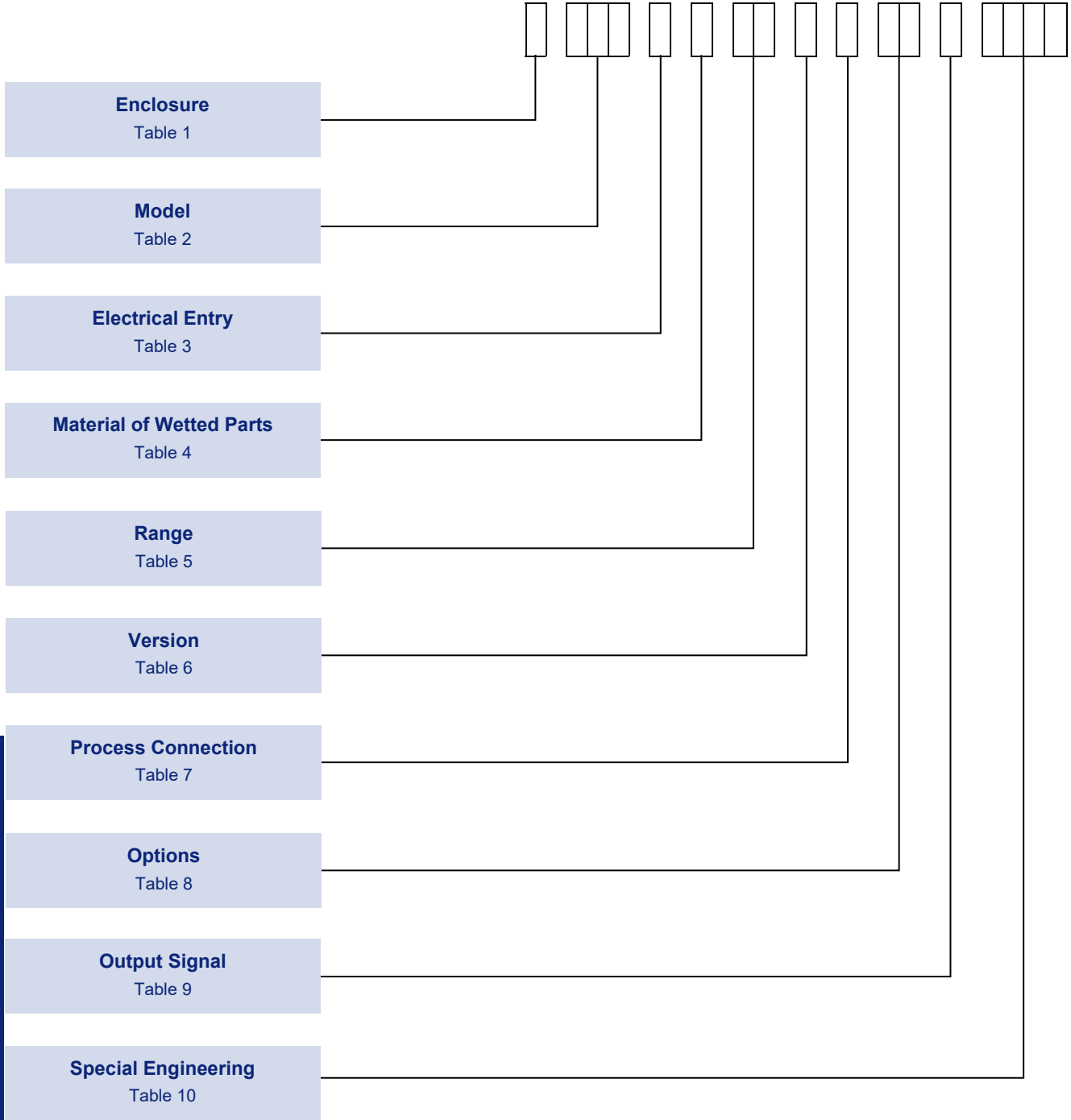
How can we help you?

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

+44 (0) 1252 729140

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.




D-Series
D34 Low range, SMART Differential Pressure Transmitter

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 Flameproof & Intrinsically Safe models .

TABLE 1 

ENCLOSURES TYPES	Code
WEATHERPROOF ENCLOSURE	
General Purpose Aluminum housing, IP66, with display.	W
For Aggressive Atmosphere 316 Stainless steel housing, IP66, with display.	A
FLAMEPROOF ENCLOSURES	
Aluminum housing, IP66, with display. (Ex d) // 1/2GD -	H
316 Stainless steel housing, IP66, with display. (Ex d) // 1/2GD - I M2	R
Aluminum housing, IP66, with display. (Ex d) // G	2
316 Stainless steel housing, IP66, with display. (Ex d) // G - I M2	3
INTRINSICALLY SAFE ENCLOSURES	
Aluminum housing, IP66, with display. (Ex ia) // 1/2G	5
316 Stainless steel housing, IP66 with display. (Ex ia) // 1/2G - I M1	4
Aluminum housing, IP66, with display. (Ex ia/Da) // 1/2GD	7
316 Stainless steel housing, IP66 with display. (Ex ia/Da) // 1/2GD - I M1	6
INTRINSICALLY SAFE & FLAMEPROOF ENCLOSURES	
Aluminum housing, IP66, with display. (Ex ia / Ex d according to the installation) // 1/2GD	8
316 Stainless steel housing, IP66 with display. (Ex ia / Ex d according to the installation) // 1/2GD - I M2/M1	9

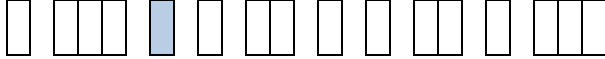
Model

TABLE 2 

	Code
D34 SMART Low Range Differential Pressure Transmitter For applications up to 100 mbar. Static pressure up to 1 bar. Refer Table 5.	D34

Electrical Entry


NOTE: Code 1
Available on Enclosure code W, A, 5 & 4 as standard.

TABLE 3 

	Code
M20x1.5 thread	0
Packing gland M20x1.5	1
Electrical connection with thread 1/2NPT Female	2

Material of Wetted Parts

NOTE: Codes A, C & D
Only applicable with process connection code P & Q.

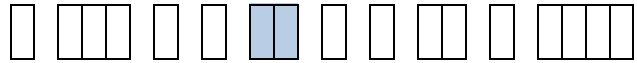
TABLE 4 

	Code
Stainless Steel 304 process connection	N
Adapter in brass for 6mm OD elastic pipe	Y

D-Series
D34 Low range, SMART Differential Pressure Transmitter

Range

TABLE 5

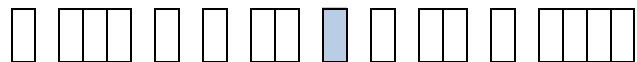


Code	Nominal measuring range (FSO)		Minimum set range		Rangeability	Overpressure limit/ Static pressure limit
A0	-100...100 mbar	(-10...10 kPa)	20 mbar	(2 kPa)	10:1	1 bar / 1 bar
A1	-25...25 mbar	(-2.5...2.5 kPa)	5 mbar	(500 Pa)	10:1	1 bar / 1 bar
B1	-7...7 mbar	(-700...700 Pa)	1 mbar	(100 Pa)	14:1	350 mbar / 350 mbar
B2	0...25 mbar	(0...2500Pa)	1 mbar	(0.1 kPa)	25:1	1 bar / 350 mbar
B3	-2.5...2.5 mbar	(-250...250Pa)	0.2 mbar	(20 kPa)	25:1	350 mbar / 350 mbar

Version

Combination of more than one option is available.

TABLE 6



	Code
Applies when no option is required	0
Surge arrester for Ex ia version	1
Protection class IP67	6

Process Connection

TABLE 7



	Code
Process connection with impulse line for 6mm OD elastic pipe	O
1/4" NPT Female on the cover flanges. Cover flanges material SS304 Allows mounting with valve manifold.	C

Options

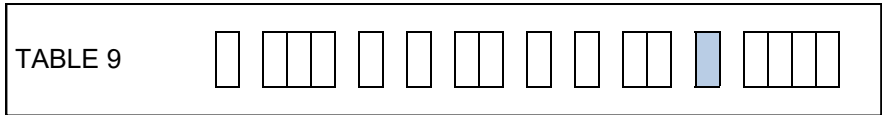
Combination of more than one option is available.

TABLE 8



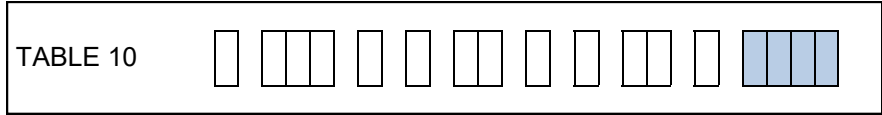
	Code
Applies when no option is required	00
Mounting bracket for 2" pipe (type AL), stainless steel	10
Stainless Steel rating label riveted to the housing	20
Stainless Steel Tag plate mounted on wire	30
Mounting bracket for 2" pipe (type AL) zinc steel	40
Stainless Steel rating label riveted to the housing, Stainless Steel Tag plate mounted on wire	A0
Connector to weld impulse pipes Ø12 and Ø14 mm, material 15HM (only version with C-type process connection)	C0

Output Signal



	Code
4 to 20mA	0

Special Engineering



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

	Code
Please consult Delta Mobrey sales engineering for special requirements	TBA

Technical Data

Metrological parameters

Accuracy:

- Range B2 $\leq \pm 0.075\%$ of the calibrated range
- Range B3 $\leq \pm 0.25\%$ of the calibrated range
- Range B1 $\leq \pm 0.1\%$ of the calibrated range
- Range A1 $\leq \pm 0.1\%$ of the calibrated range
- Range A0 $\leq \pm 0.075\%$ of the calibrated range

Thermal error
for all ranges $\leq \pm 0.1\%$ (FSO) / 10°C
max. $\pm 0.4\%$ (FSO) in the whole compensation range

Thermal compensation range -10...70°C

Zero shift error for static pressure
Zeroing the transmitter in conditions of static pressure can eliminate this error.

Ambient temperature: -25...85°C
Operating temperature: -25...85°C

Electrical parameters

Power supply: 10...55 VDC / Exia: 10...5...30 VDC

Output signal 4...20 mA + Hart, two wire transmission

Load resistance (for standard version) $R [\Omega] \leq \frac{U_{sup} [V] - 10V}{0.0225A}$

Resistance required for communication min. 240 Ω

Additional electronic damping 0...30 s

Error due to supply voltage changes 0.002% (FSO) / V

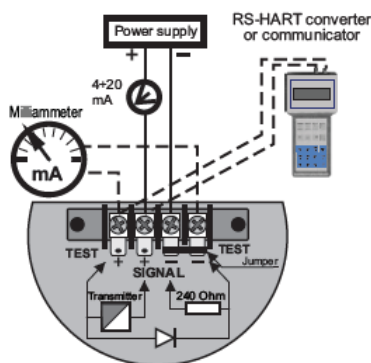
Wetted parts: Code C process connection: SS304
Code (6mmOD elastic pipe): Brass

Casing : Aluminium / 316SS

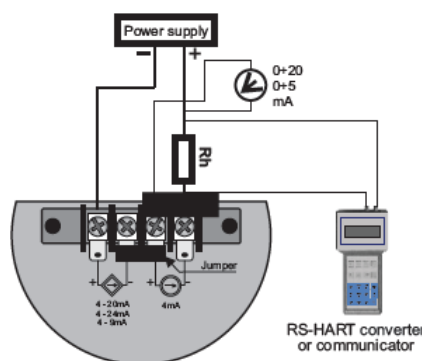
Material of window: polycarbonate glass, hardened glass (FSO) / V

Electrical diagrams

Electrical diagrams for transmitters with HART protocol



Version with output signal: 4-20mA



Version with output signal: 0-5mA or 0-20mA

Approvals

GLOBAL CERTIFICATION



IECEX Certified

INTRINSICALLY SAFE:
Certificate No.: IECEX FTZU 15.0027X
IEC 60079-0, IEC 60079-11

For Zone 0 models (**Enclosure code 5/4, refer Table 1**)

Ex ia IIC T4/T5 Ga/Gb
Ex ia IIB T4/T5 Ga/Gb (version with PTFE shielded cable)
Ex ia I Ma (version with enclosure in SS316)
Ex ia IIIC T105°C Da

FLAMEPROOF:

Certificate No.: IECEX KDB 19.0006X
IEC 60079-0, IEC 60079-1, IEC 60079-11, IEC 60079-26, IEC 60079-31

For Zone 1 models (**Enclosure code H/R, refer Table 1**)

Enclosure code R (refer Table 1)

Ex db ia I Mb
Ex ia/db IIC T6/T5 Ga/Gb
Ex ia/tb IIIC T105°C Da/Db
or
Ex db ia I Mb
Ex ia/db IIC T6/T5 Gb
Ex ia/tb IIIC T105°C Db
or
Ex ia I Ma
Ex ia IIC T5/T4 Ga/Gb
Ex ia IIIC T105°C Db

Enclosure H (refer Table 1)

Ex ia/db IIC T6/T5 Ga/Gb
Ex ia/tb IIIC T105°C Da/Db
or
Ex ia/db IIC T6/T5 Gb
Ex ia/tb IIIC T105°C Db
or
Ex ia IIC T5/T4 Ga/Gb
Ex ia IIIC T105°C Db

Approvals

EUROPEAN DIRECTIVES



ATEX Directive 2014/34/EU

INTRINSICALLY SAFE:

Certificate No.: FTZU 19 ATEX 0111X
EN 60079-0 + A11, EN 60079-11, EN 50303

For Zone 0 models (**Enclosure code 5/4, refer Table 1**)

II 1/2G Ex ia IIC T4/T5 Ga/Gb
II 1/2G Ex ia IIB T4/T5 Ga/Gb (version with PTFE shielded cable)
I M1 Ex ia I Ma (version with enclosure in SS316)
II 1D Ex ia IIIC T105°C Da

FLAMEPROOF:

Certificate No.: KDB 19ATEX0045X
EN IEC 60079-0, EN 60079-1, EN 60079-11, EN 60079-26, EN 60079-31, EN 50303

For Zone 1 models (**Enclosure code H/R, refer Table 1**)

Enclosure R (refer Table 1)

I M2 Ex db ia I Mb
II 1/2G Ex ia/db IIC T6/T5 Ga/Gb
II 1/2D Ex ia/tb IIIC T105°C Da/Db
or
I M2 Ex db ia I Mb
II 2G Ex ia/db IIC T6/T5 Gb
II 2D Ex ia/tb IIIC T105°C Db
or
I M1 Ex ia I Ma
II 1/2G Ex ia IIC T5/T4 Ga/Gb
II 1D Ex ia IIIC T105°C Db

Enclosure H (refer Table 1)

II 1/2G Ex ia/db IIC T6/T5 Ga/Gb
II 1/2D Ex ia/tb IIIC T105°C Da/Db
or
II 2G Ex ia/db IIC T6/T5 Gb
II 2D Ex ia/tb IIIC T105°C Db
or
II 1/2G Ex ia IIC T5/T4 Ga/Gb
II 1D Ex ia IIIC TT105°C Db

Installation

The instrument can be supplied with a universal Delta mounting bracket for 2" pipe (Refer Table 8). The base economical version is supplied with impulse line for 6mm OD elastic pipe in Brass. The process connections code C has 1/4" NPT-F connection and can be fitted directly to a 3- or 5 valve manifold. We recommend factory-mounted transmitters with VM type valve manifold.

The instrument should be installed in a vertical position, in such a way that any condensed liquid, flew off from the device. To prevent dust from entering the measuring cells, the impulse line should be attached with care, with particular attention paid to the tightness of the connections between the impulse line and the transmitter.

Where there is a significant difference in height between the place where the instrument is installed, and the place where the pressure process is taken, the temperature of the impulse line may affect the measurement. Connecting a compensating pipe close to the impulse line, can minimise this effect.

Construction

The SMART Differential Pressure Transmitters are suitable for measuring differential pressure of gases. The active sensing element is a piezoresistive silicon sensor. This instrument is suitable for the measurement of differential pressures in furnaces, chimney draughts and air ducts. The root extraction option, enables the instrument to be used in gas flow measurement, in combination with our flow orifices and Pitot tubes in low pressure applications. The casing is made of cast aluminum alloy with epoxy coating or 316 stainless steel with degree of protection IP66/67. The design of the casing enables the use of a local display, rotation of the display,

The communication standard for data interchange with the transmitter is the Hart protocol.

Communication with the transmitter is carried out with:

- A DKAP-03 communicator
- Other Hart type communicators(*)
- A PC using a HART/USB/Bluetooth converter and D-Soft configuration software

(*) .eddl file available at www.delta-mobrey.com

The data interchange with the transmitter enables the users to:

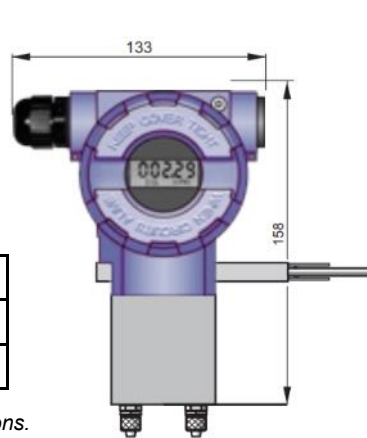
- Identify the transmitter
- Configure the output parameters:
 - Measurement units and the values of the start points and end points at the measurement range
 - Damping time constant
 - Conversion characteristic (inversion, user's non-linear characteristic)
- Read the currently measured pressure value of the output
- The current and the percentage output control level
- Force an output current with a set value
- Calibrate the transmitter in relation to a model pressure

Dimensions

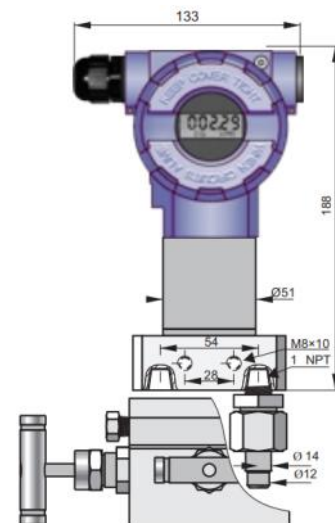
WEIGHT

Model	Weight
D34 / Connection C	3.6 kg
D34 / Connection C	1.7 kg

Weight may varies with different process connections.



Basic economic version with Process connection with impulse line for 6mm OD elastic pipe



Process connection type C, with or without valve manifold

In the interest of development and improvement Delta Mobrey Ltd, reserves the right to amend, without notice, details contained in this publication. No legal liability will be accepted by Delta Mobrey Ltd for any errors, omissions or amendments.

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