

Technical Datasheet



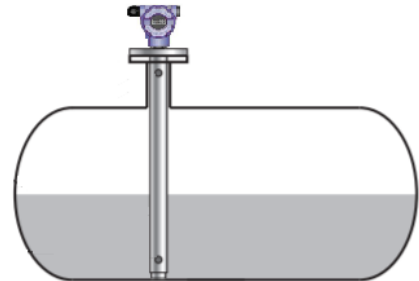
D Series

SMART Level probe for pressurised tanks

Model: D45

Key Features

- ATEX - Flameproof and Intrinsically Safe
IECEX - Flameproof and Intrinsically Safe
- High accuracy $\pm 0.16\%$
- Fully HART @ compatible
- 4-20mA analogue with digital communications
- Fully welded sensor guarantees tightness of oil systems for long term usage
- Programmable range, zero shift, characteristic and damping ratio with local panel keys



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 Ultrasonic Level transmitters
- SMART Pressure Transmitter
- SMART Temperature Transmitter



Product applications

The D Series SMART Level Probe is a Differential Pressure transmitter suitable for measuring level in a pressurised tank:

- Stainless Steel wetted parts
- Compact construction

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

- Corrosive atmospheres
- Resistant to chemical attack

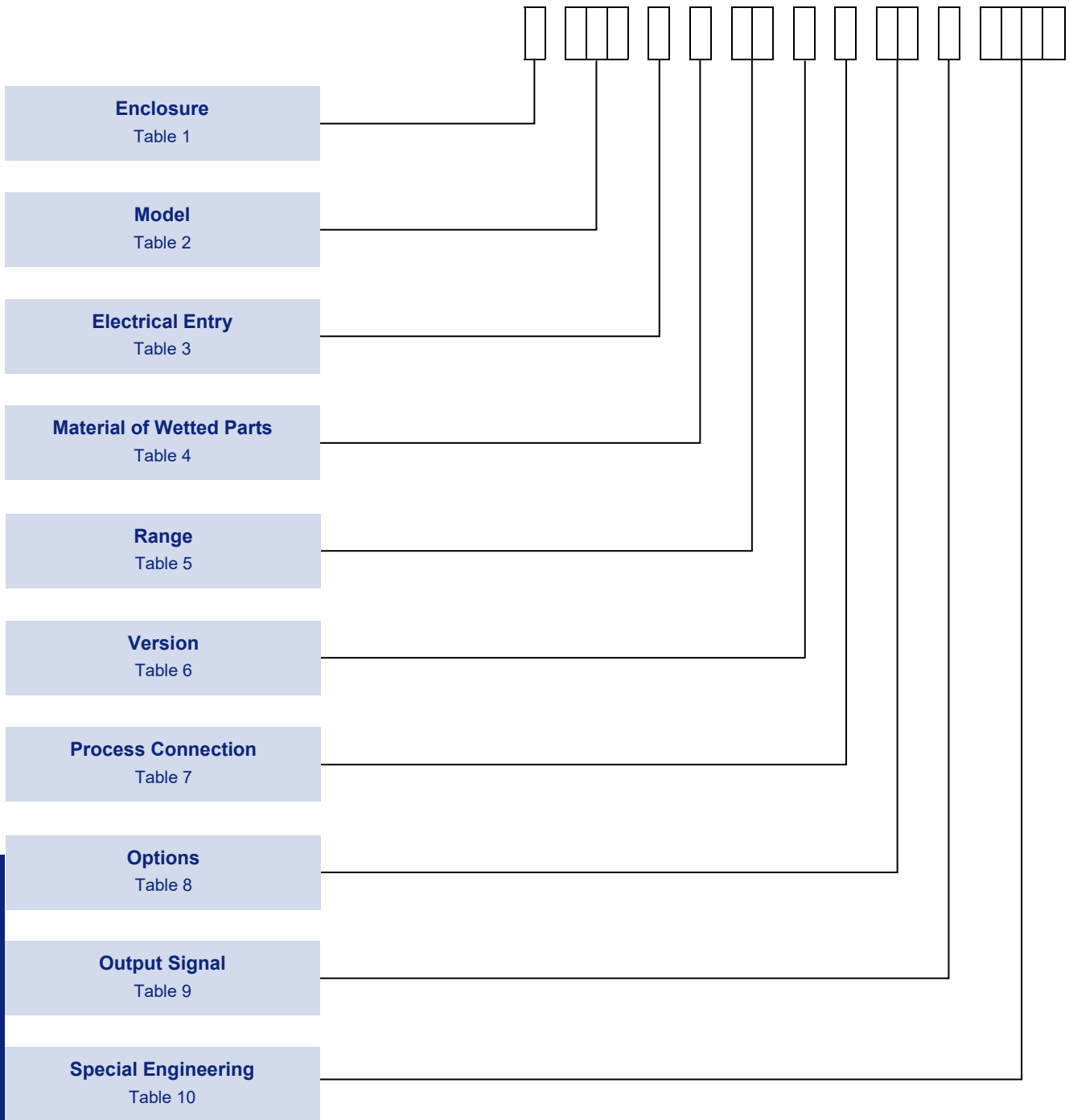
How can we help you?

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

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.

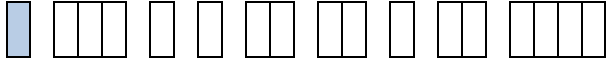


NOTE: Only the most common options are shown in this datasheet. Should you require a feature that is not shown, please contact your local sales office for further details.

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.

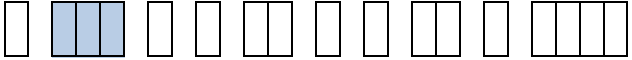
Enclosure

Refer to 'Approvals' section for details about the certification on 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 (ZONE 1)	
Aluminum housing, IP66, with display. (Ex d)	H
316 Stainless steel housing, IP66, with display. (Ex d)	R
INTRINSICALLY SAFE ENCLOSURES (ZONE 0)	
Aluminum housing, IP66, with display. (Ex ia)	5
316 Stainless steel housing, IP66 with display. (Ex ia)	4

Model

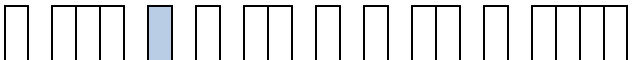
TABLE 2 

	Code
SMART Level Probe for pressurised tanks For applications standar up to 16 bar (above, onn request). Refer Table 5.	D45

Electrical Entry

NOTE: Code 0
Available on Enclosure code H & R as standard.

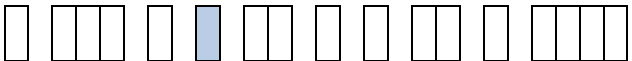
NOTE: Code 1
Available on Enclosure code W, A, 5 & 4 as standard.

TABLE 3 

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

Material of Wetted Parts

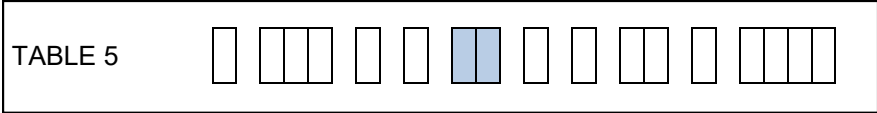
NOTE 1:
Material of wetted parts are available in Stainless Steel and Aluminium.
It will be defined in the last 4 digit of the part, the Special Engineering code.

TABLE 4 

	Code
Not applicable. (SEE NOTE 1)	X

D-Series
Model: D45

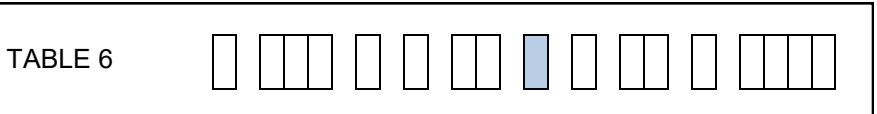
Range



Code	Nominal measuring range (FSO)		Minimum set range	Accuracy for nominal measuring range
XX	0...6000 mmH ₂ O	(0...60 kPa)	600 mm H ₂ O	± 0.16%
XX	0...1600 mmH ₂ O	(0...16 kPa)	160 mm H ₂ O	± 0.2%

NOTE:
 Measuring range is XX because it is specified in the last 4 digit of the part number, as part of the full configuration of the instrument together with the length of the protection tube

Version

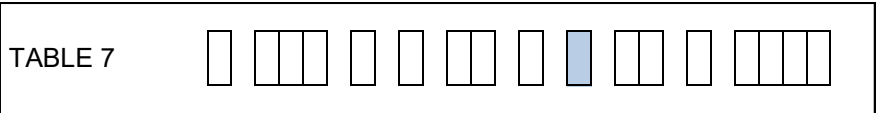


Combination of more than one option is available.

NOTE:
 Surge arrester is available as standard for Ex d version.

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

Process Connection

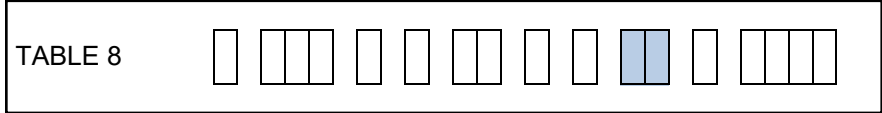


NOTE 1:
 Process connection will be defined in the last 4 digit of the part, the Special Engineering code

	Code
Process connection size and rating. (SEE NOTE 1)	X

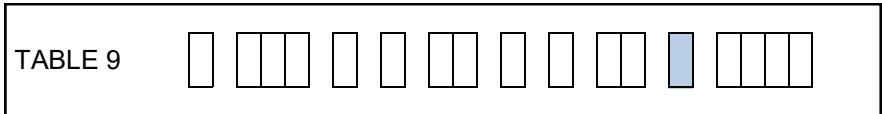
Options

Combination of more than one option is available.
(i.e. Code 23 - combination of code 20 & 30)



	Code
Applies when no option is required	00
Stainless Steel rating label riveted to the housing	20
Stainless Steel Tag plate mounted on wire	30
Stainless Steel plate riveted to the housing. Stainless Steel tag plate mounted on wire.	A0

Output Signal



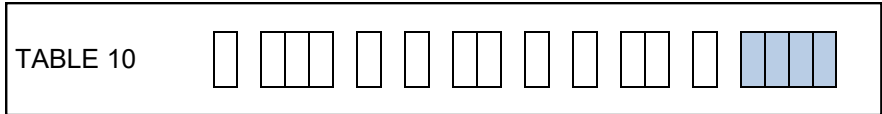
	Code
4 to 20mA	O

Special Engineering

Last 4 digits of model code identify the construction as below. Each single construction will require a specific part number, identifying the length of the protection tube.

Please specify the requirement of the application

1. Range and calibration required
2. Length of the protection tube.
3. Material of the wetted parts



	Code
Please consult Delta sales engineering for special requirements	TBA

Application & Construction

The level measurement is carried out using a differential pressure transmitter, enabling the compensation for static pressure or vacuum in the tank. The value processed is just the hydrostatic pressure of the medium measured at the level of the lower diaphragm connected to "H" side of the instrument. This pressure is the sum of the hydrostatic pressure of the liquid and the vapour pressure phases of the medium. In most practical applications the density of the vapour phase of the medium is negligibly small and therefore the measured hydrostatic pressure relates only to the height of the liquid phase. For media where the density of the vapour phase is significant (e.g. propane), the level measured can be treated as the theoretical level of the liquid level obtained by adding the actual liquid phase to the condensed vapour phase..

Configuration

The settings of the following metrological parameters can be changed:

- The units of pressure in which the range is configured.
- Start and end points of the range, time constant,
- Inverted characteristics (output signal 20 to 4 mA)

Communication

The transmitter is configured and calibrated using a DKAP-03 communicator, some other communications (HART) or a PC using and HART/USB converted and D-Soft configuration software.

The data interchange with the transmitters enables the users the transmitter identification, as well as reading of the currently measured differential pressure value, output current and percent of range width.

Technical Data

Metrological parameters

Range of medium density	up to 1.1g/cm ³ Standard constr.) . over 1.1g/cm ³ Special constr.)
Error due to ambient temperature changes	< ±0,4% of basic range for temperatures of -25...+80°C
Error due to supply voltage changes	< ±0,002% of basic range / V
Zero shift error for static pressure	0,08% / 10 bar for lower range 0,1% / 10 bar for range no. 2

Electrical Parameters

As given in the datasheet of D31 SMART Differential Pressure Transmitter.

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

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

