

# Technical Datasheet



## Ultrasonic Transmitters

### Liquid Level & Flow Measurement

Series: DMSP900

#### Key Features

- Non-contacting measurement with no moving parts
- Continuous measurement of Level, Contents, or Open Channel Flow
- Simple to install and configure via Delta Mobrey's DMCU900 HART® controller or other HART master
- Loop powered 4-20mA and HART® output
- Configure to ignore disturbing object false echo
- Factory sealed IP68
- Rugged PVDF construction ideal for applications on exposed sites

#### Series Overview

The DMSP900SH for level, contents and open channel flow) uses ultrasonic technology.

Ultrasonic pulses are transmitted to and reflected from the liquid surface. The transmitter measures the 'time-of-flight' and determines the distance to the surface. By configuring the distance to the bottom of a vessel, the transmitter can then calculate the liquid level and contents (volume) for linear or non-linear vessels (domed, spherical, etc). For open channel flow, the transmitter can relate level to flow rate for a wide variety of flumes and weirs.

An internal temperature sensor compensates for temperature affects. The level, contents or flow measurement is transmitted through the 4–20 mA and HART output. If used with the DMCU900 HART® controller, this simplifies configuration and has local display and relays for alarms or pump control.

#### Other products

Other products we can offer :

- Ultrasonic level transmitters with display
- Control unit for configuration, display and pump control
- Submersible type level transmitters



#### Product applications

- Level or contents measurement in storage tanks
- Level measurement and pump control for wet wells and pumping stations
- Pump control for feeder tanks
- High or low level alarms in storage tanks
- Small or thin wall tanks
- Bund level measurement
- Open channel flow
- Chemical or Hydrocarbon storage tanks
- Differential measurement by two transmitters for blocked filter detection

#### How can we help you?

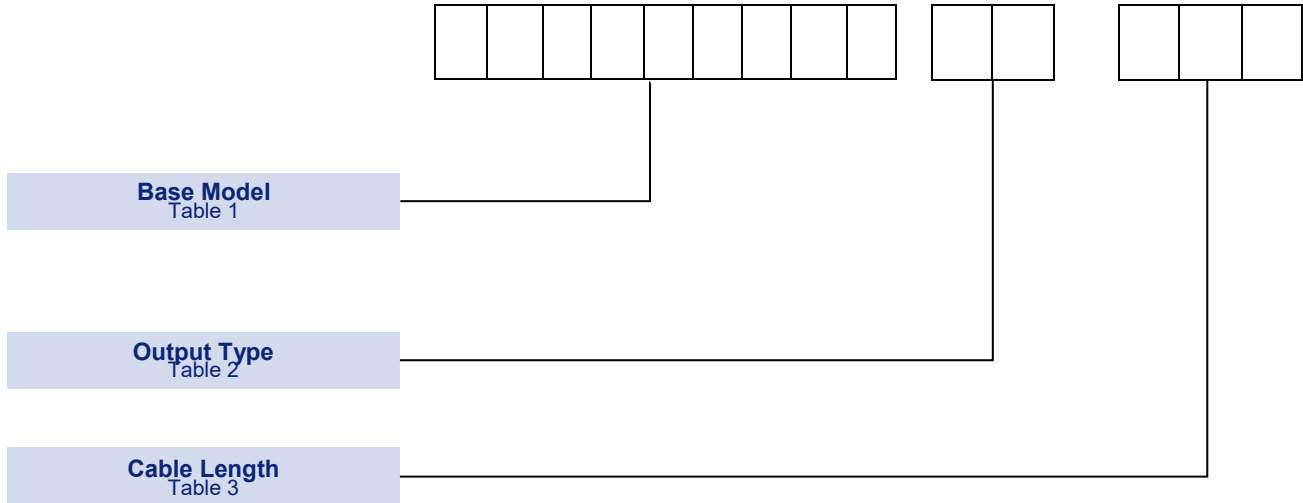
Delta Mobrey offers fast, efficient and knowledgeable support when and where you need it. Please visit our web site at [www.delta-mobrey.com](http://www.delta-mobrey.com) to find your local support centre or call us on:

**+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.



## Models

Standard sensor.  
Range up to 6m

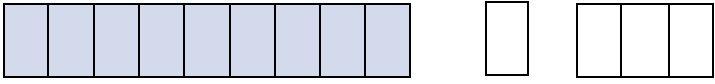
Standard sensor.  
Range up to 6m

Large sensor.  
Range up to 10m


Large sensor.  
Range up to 15m

Ideal for Open Channel Flow


Ideal for Open Channel Flow

	TABLE 1	
		
	<b>Ideal for Level and Contents</b>	<b>Code</b>
	<b>Range 0.25 to 6 mt. Process connections 1" BSP upper, 2" BSP lower</b> PVDF, with weather protection IP68, cable length as required (see table 3).	<b>DMSP900SH</b>
	<b>Range 0.25 to 6 mt. Process connections 1" BSP upper, 2" NPT lower</b> PVDF, with weather protection IP68, cable length as required (see table 3).	<b>DMSP901SH</b>
	<b>Range 0.35 to 10 mt. Process connections 1" BSP upper.</b> PVDF body with weather protection IP68, cable length as required (see table 3).	<b>DMSP902SH</b>
	<b>Range 0.45 to 15 mt. Process connections 1" BSP upper.</b> PVDF body with weather protection IP68, cable length as required (see table 3).	<b>DMSP903SH</b>
	<b>Ideal for open Channel Flow</b>	<b>Code</b>
	<b>Range 0.25 to 6 mt. Process connections 1" BSP upper, 2" BSP lower.</b> PVDF, with weather protection IP68, cable length as required (see table 3).	<b>DMSP900FH</b>
	<b>Range 0.25 to 6 mt. Process connections 1" BSP upper, 2" NPT lower.</b> PVDF, with weather protection IP68, cable length as required (see table 3).	<b>DMSP901FH</b>

## Certification

	TABLE 2	
		
	<b>Description</b>	<b>Code</b>
	No Ex approval.	<b>N</b>
	ATEX Intrinsically Safe certification: Ex II 1 G Ex ia IIB T6...T5 Ga	<b>A</b>
	FM/CSA Intrinsically Safe certification (in progress):	<b>U</b>

## Cable Length

	TABLE 3	
		
	<b>Description</b>	<b>Code</b>
	2 x 0.5 mm <sup>2</sup> shielded cable, Ø7.5 mm: standard length 5m	<b>/5</b>
	2 x 0.5 mm <sup>2</sup> shielded cable, □7.5 mm: standard length 20m	<b>/20</b>
	2 x 0.5 mm <sup>2</sup> shielded cable, □7.5 mm: any length /XXm (maximum 30m)	<b>/--</b>

Liquid Level & Flow Measurement  
Model: DMSP900

## Special Engineering

For these instruments, we have many other options already designed and configured, for example:

- PP body
- Alternative cables, including low smoke or halogen free.

Other options can also be designed to meet specific requirements of an application. Please contact us for further information.

## Technical Specification

DMSP900		DMSP90x-SH	
DMSP900 ULTRASONIC LEVEL TRANSMITTERS	<b>Ambient temperature</b> For Ex models	-30 to 80°C (-22 to 176°F) -20 to 70°C (-4 to 158°F)	<b>Power Supply</b>
	<b>Process temperature</b> For Ex models	-30 to 90°C (-22 to 194°F) -20 to 80°C (-4 to 176°F)	<b>LED indication</b>
	<b>Operating Pressure</b>	0.3 TO 3 Bar (4.3 TO 43.5 psi)	<b>IP rating</b>
	<b>RANGES</b>	DMSP900SH/FH = 0.25 to 6m DMSP901SH/FH = 0.25 to 6m DMSP902SH = 0.35 to 10m DMSP903SH = 0.45 to 15m Beam angle: 5°	<b>Electric protection</b>
	<b>Accuracy</b>	+/- (0.2% of distance + 0.05% of range)	<b>Cable</b>
	<b>Resolution (acc. to range)</b>	<2 m: 1 mm, 2 to 5 m: 2 mm 5 to 10 m: 5 mm, >10m: 10mm	<b>Process connections</b> (refer dimensional drawings on p4)
			<b>Programming</b>
			<b>Weight (with 3m of Cable)</b>

## Approvals

### EUROPEAN DIRECTIVES



**Low voltage Directive (LVD) 2014/35/EU.**

Compliant to LVD

**Pressure Equipment Directive (PED) 2014/68/EU:**

This product is outside the scope of the PED directive

# Dimensions

GENERAL DIMENSIONS		
DSMP900** & DMSP901** Range up to 6m	DMSP902SH Range up to 10m	DMSP903SH Range up to 15m

INSTALLATION NOZZLE REQUIREMENTS											
DMSP900 series											
	<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>L (mm)</th> <th>D<sub>min</sub> (mm)</th> </tr> </thead> <tbody> <tr> <td>150</td> <td>60</td> </tr> <tr> <td>200</td> <td>66</td> </tr> <tr> <td>250</td> <td>65</td> </tr> <tr> <td>300</td> <td>75</td> </tr> </tbody> </table>	L (mm)	D <sub>min</sub> (mm)	150	60	200	66	250	65	300	75
L (mm)	D <sub>min</sub> (mm)										
150	60										
200	66										
250	65										
300	75										

An installation bracket is available on request.

Liquid Level & Flow Measurement  
Model: DMSP900

*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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ISO9001  
FM00720