Technical **Datasheet**

DMS Series Vibrating Fork Level Switch

For Solids



Key **Features**

- Adjustable sensitivity
- BSP, NPT threaded connection or Flanged ANSI, EN,
- Side or top mounting
- Forks length up to 3000mm
- Robust aluminium housing
- IP67 ingress protection
- Plastic covered wetted parts option
- ATEX Ex-d Construction

Series Overview

The Vibrating Fork Level Switch, is a consolidated technology to measure the single point level switching function of solids.
This series of Level switches, completes the range of instruments for the controls of solids, together with the Vibrating Rod type, that are designed for granules starting from 0.05 kg/dm3 density.
The operating principle is similar. The forks are kept in vibration by the electronic circuits. As the medium reach and covers the forks, the forks will change the vibration, or stop. The damping of the vibration is detected by the electronics which switch the output relay after a configurable time delay. The fork will start to vibrate again, once the medium sets it free.

Forks can be manufactured with a plastic coating for use with aggressive mediums.

Other products

Other products we can offer:

- Vibrating Rod Level Switch
- Rotating Paddle Level Switch





Product **applications**

- Powders
- Pellets
- Granulates
- Grains
- Flour
- Fly ash
- Cement and Sand
- Coal, Slag
- Aggregate

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

Vibrating Fork Level Switch
Series: DMS

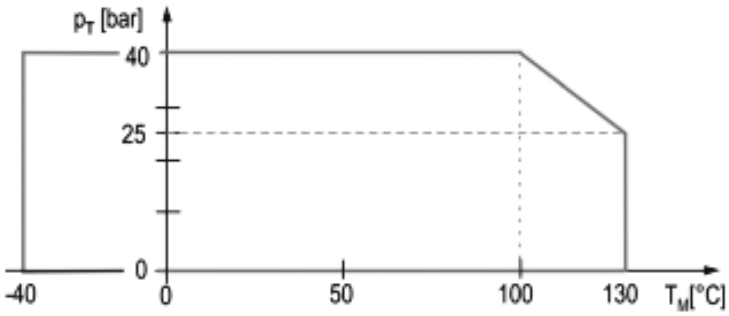
Vibrating Fork Level Switch	
Medium density	≥ 0.01 kg/dm3
Medium viscosity	≤ 10,000 mm2/s (cSt) (0.1 ft²/s)
Process Temperature	-40 °C … +130 °C (-40 °F … +266 °F) refer to temperature diagram below
Ambient Temperature	-40 °C … +70 °C (-40 °F … +158 °F)
Process Pressure	max. 40 bar (580 psi g) for 1.4571 , max 6 bar for PP flange version (see table below)
Process connection	Flanged connection. Please refer to the below pressure diagrams
Standard Fork length	Threaded BSP, NPT, Sanitary, ANSI/ISO flanges, Clamp/DIN
Type L	125mm
Type G	137mm ; 175 mm
Extended rod for type L & G	03...3000mm
Special insertion length	300 to 3000mm (7,87in-10ft)
Wetted parts materials	1.4571 (AISI316Ti) or ECTFE/PFA coating
Conduit connection	2 x M20x1.5 plastic cable glands for Ø6 – Ø12 mm or 2x1/2”NPTF entries
Internal wiring	Terminal blocks for max 2.5mm2 wires
Electrical protection	Class I
Response time	≤ 0.5 seconds when immersed ; 3s—L density when free
Power supply	20-255 Vac or 20-60 Vdc
Power consumption	< 3W
Output	1 or 2 SPDT relay, 8A at 250VAC / 250Vac 6A
Housing material	Aluminium paint coated or plastic (PBT)
Housing rating	IP67
Weight	1.3kg + 1.2kg/m extension (2.85lb + 0.8 lb/ft extension); 2.1Kg Exd version
State indication	Bi-colour LED Green/Red)
Programmable function	High / Low via internal switch

PRESSURE / TEMPERATURE DIAGRAMS

(all metallic wetted parts)

Medium Pressure (Pt)

Medium Temperature (Tm)

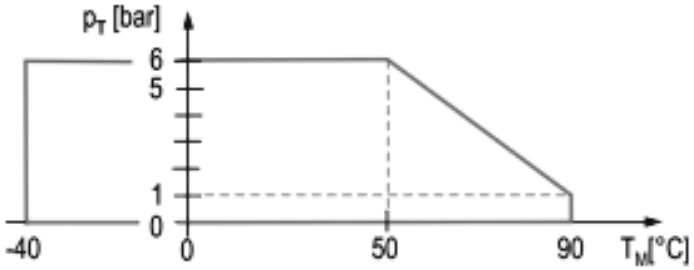


PRESSURE / TEMPERATURE DIAGRAMS

(PP flange version)

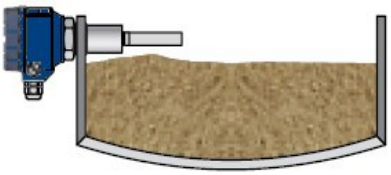
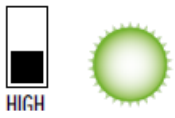
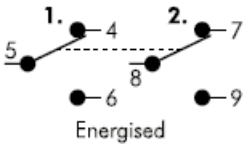
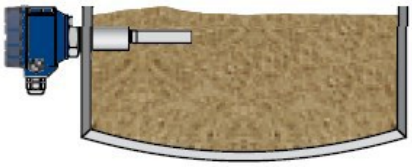
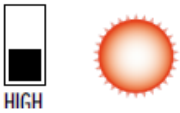
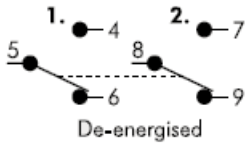
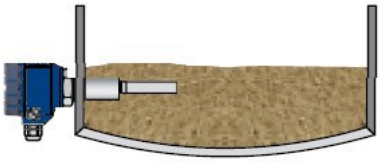
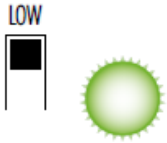
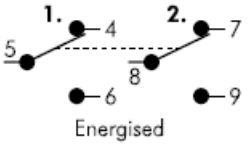
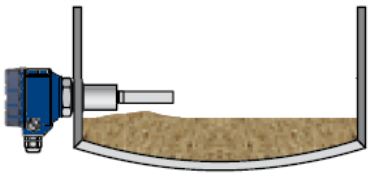
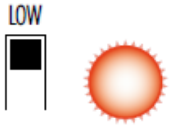
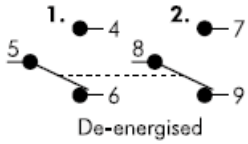
Medium Pressure (Pt)

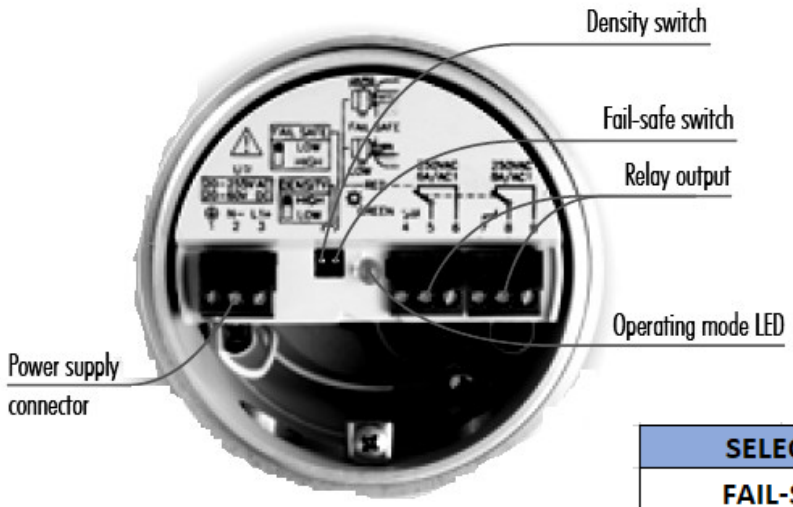
Medium Temperature (Tm)

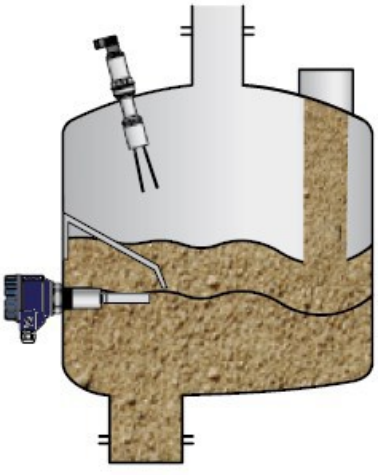


Vibrating Fork Level Switch
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ACTION SETTING

MODE	FORK	SWITCING	SWITCH & LED	RELAY OUTPUT
High Level	free			
	Immersed			
Low Level	Free			
	Immersed			





POSSIBLE INSTALLATION

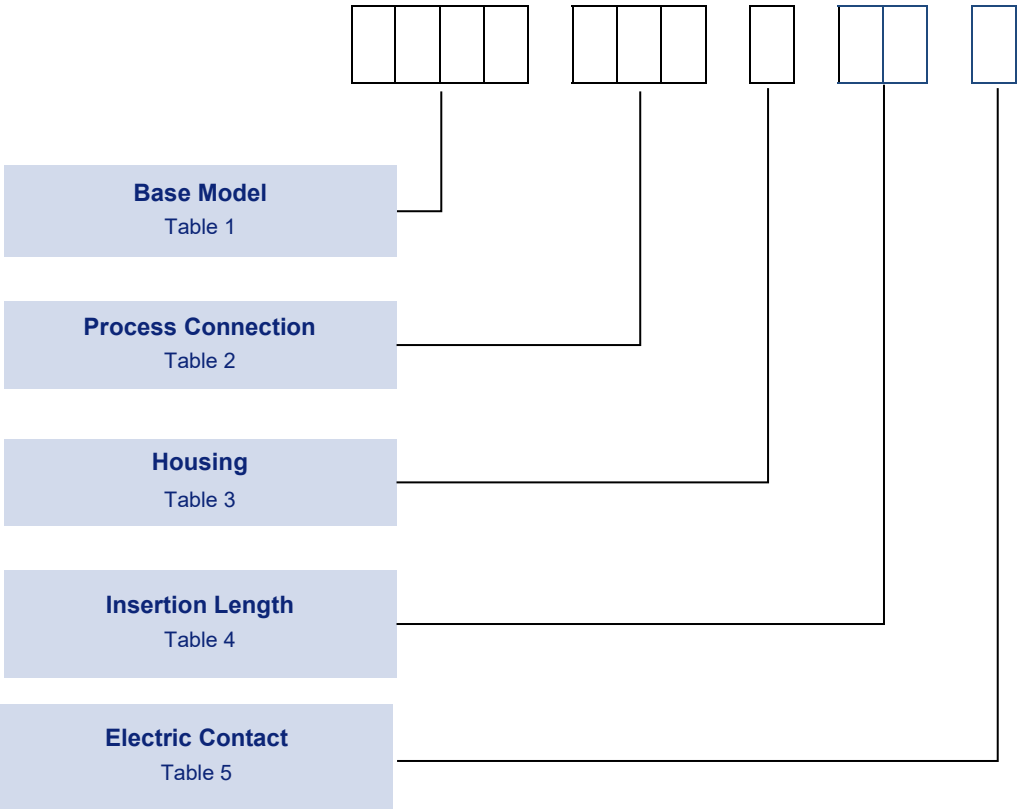
SELECTING OPERATING MODE			
FAIL-SAFE		DENSITY	
HIGH	FAIL-SAFE alarm is indicated with de-energized Relay or open State of the output	HIGH	Medium Density >0.5 kg/dm3
LOW		LOW	Medium Density <0.5 kg/dm3

Vibrating Fork Level Switch
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How to order

Vibrating Level Switches can be configured by selecting the codes representing the desired features from the tables that follow.

The table 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.



Application & Construction

The Vibrating Fork level switch is applicable for solids with a minimum 0.01 kg/dm3 density.
Depending on the type of solids to be measured, 2 different type of forks are available:
Type L for powder or small granules or type **G** with welded forks for large granules.
This instrument can be mounted in any position, but ideally it is recommended to mount the device vertically (at the top) of the vessel, to detect light, free flowing solids. It can be also mounted on the side of the container but it is suggested to select a position where the forks are easily freed from the medium or protected from the deposit of solids.
The position of the forks is clearly marked on the hexagon for mounting.

An internal switch allows an easy configuration of the instrument depending upon the application required: detecting the level of process or the density or the process.

The instrument has a standard immersion probe but several different lengths are available, according to the installation requirement.
An led indicates the status of the instrument, if the device is in alarm condition or not.

Base Model

TABLE 1

Description	Code
Vibrating Fork Level Switch for powder/light solids	**DMSL**
Vibrating Fork Level Switch for granular	**DMSB**
Vibrating Fork Level Switch for powder/light solids ATEX	**DMSG**
Vibrating Fork Level Switch for granular ATEX	**DMSU**

Process Connection

TABLE 2

Description	Type	Code
1“ BSP mounting	DMSL/ DMSG	**FPB**
1“ NPT mounting	DMSL / DMSG	**FNB**
1- $^{1}/_{2}$ “ BSP	DMSB / DMSU	**NPB**
1- $^{1}/_{2}$ “ NPT	DMSB / DMSU	**NNB**
NON-STD FLANGE FROM DN40 in St. Steel	DMSL/B/G/U	**XXB**
FLANGED DN50 PN40 / 25 in St. Steel	DMSL/B/G/U	**KKF**
FLANGED 2” ANSI 600RF in St. Steel	DMSL/B/G/U	**KCF**
FLANGED JIS 40K 50A in St. Steel	DMSL/B/G/U	**HJF**
FLANGED DN50 PN16 in PP	DMSL/B/G/U	**KKP**
FLANGED 2” ANSI 150RF in PP	DMSL/B/G/U	**KCP**
FLANGED JIS 10K 50A in PP	DMSL/B/G/U	**HJP**

Housing

TABLE 3

Note 1: The enclosure is associated to the configuration of the forks .

Description		Code
Aluminium Alloy housing, IP67 power coated, waterproof	DMSL / DMSG	**C**
Aluminium Alloy housing, IP67, powder coated ATEX Flameproof	DMSG / DMSU	**H**
Plastic, PBT fiberglass reinforced	DMSL / DMSG	**W**

Insertion Length

TABLE 4

Note 1: Shortest forks 69mm and 125mm are available only for Stainless Steel, standard polished forks. Type D.

Any other construction start from 200mm length.

Description	Type	Code
Standard long length 125mm SS material	DMSL/G	**01**
Standard long length 300mm	DMSL/G	**02**
Customized length 0.3…..3000 mm	DMSL/G	**XX**
Standard long length 137mm SS material	DMSB/U	**01**
Standard long length 175mm	DMSB/U	**02**
Standard long length 300mm	DMSB/U	**03**
Customized length 0.4…..3000 mm	DMSB/U	**XX**

Electric Contact

TABLE 5

Note 1: Vibrating Fork Level Switches, offer the typical range of output signals as normally required for field applications.

Description	Type	Code
1 SPDT relay 250Vac 8A	DMSL / DMSB	**0**
2 SPDT relay: 1x250Vac 8A; 1x250Vac 6A	DMSL / DMSB	**1**
1 SPDT relay 250Vac 8A / Exd	DMSG/ DMSU	**2**

Approvals

EUROPEAN DIRECTIVES

Electromagnetic Compatibility Directive (EMC) 2014/30/EU
Compliant to EMC directive

Low Voltage Directive (LVD) 2014/35/EU
Compliant to LVD directive

Pressure Equipment Directive (PED) 2014/68/EU:
This product is outside the scope of the PED directive

FLAMEPROOF:

Certificate No.: BKI24ATEX0019
EN IEC 60079-0, EN 60079-1, EN 60079-11, EN 60079-26

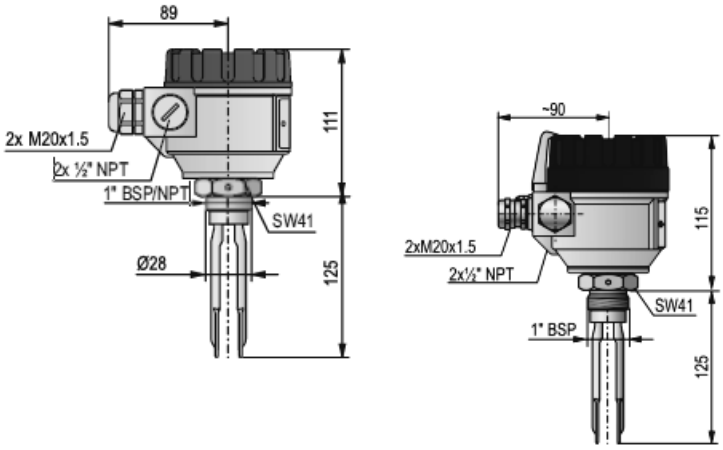
Enclosure code G/U (refer Table 1) For Zone 20/21
II 1/2D Ex td/tc IIIC T140°C Da/Db
Tamb –40°C …+70°C

Special Engineering

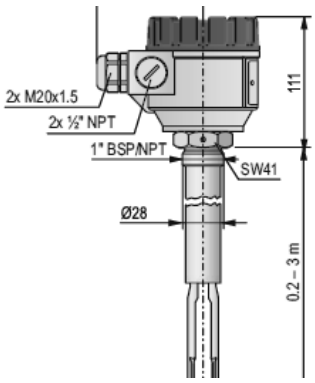
None listed options or special constructions can also be designed to meet specific requirements of an application.
Please contact us for further information, on the details below.

Dimensional Drawings

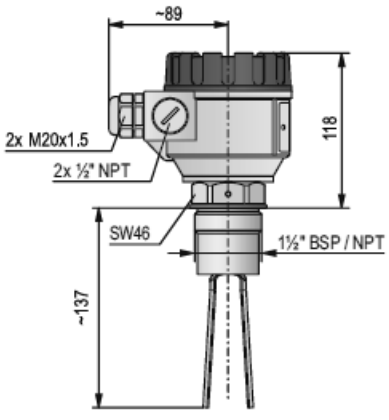
Light solid version fork type "L" with standard lengths 125mm in weatherproof and Ex version



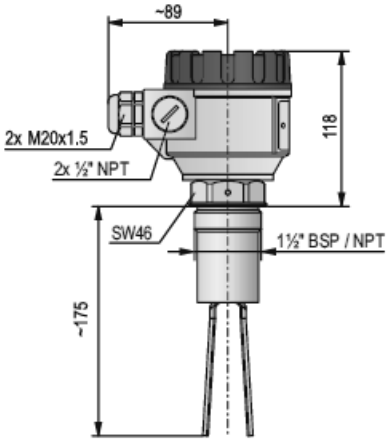
Light solid version fork type "L" with extension 200 to 300mm



Light solid version fork type "B" with standard lengths 125mm



Light solid version fork type "B" with extension 200 to 300mm



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Delta Mobrey Limited
Hudson House, Albany Park Camberley Surrey, GU16 7PL, UK.
T+44 (0)1252 729140 **F**+44 (0)1252 729168 **E** sales@delta-mobrey.com **W** www.delta-mobrey.com

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