

# DIP1x0 and DFV1x0 Series Level Gauge Sensor

Liquip offers a range of level sensor (Diptronic) assemblies for measuring the compartment contents on road tankers. Power to the level sensor and readout of the compartment contents is provided by the Liquip CPU models: DFV103, DFV101 or DFV101S CPU monitor.

Level sensor assemblies provide an accurate measure of compartment contents in real time and eliminate the need for manual dipsticks resulting in improved operator safety as the need to climb on top of tanks to check compartment levels is removed. Release of harmful VOCs is also reduced as opening of compartment access fittings is no longer required.



DFV130 assembly shown

## Key Features

- Radar transmitters ensures high tech and accurate measuring of tanker contents.
- Measurement and eye-level display of all compartment contents in litres.
- No need for operators to climb on top of tanks to measure hazardous substances.
- Length and range of the sensors can be made to suit height of the compartment on order.
- +/- 1mm accuracy.
- Can suit walkway or hatch mount applications.
- No Moving Parts and one-time calibration.

## Operation

The level sensor is mounted to the walkway or manhole cover on top of the tank with the shaft and tube extending to the bottom of the tank, in most cases. The tube is held in place at the bottom of the tank by means of a weld in tube steady, also supplied by Liquip. Power to the sensor and readout of the levels are provided by Liquip's DFV series CPUs.

## Dismantle

Remove 4 off M5 hex screw to open the cover and access PCB assembly and sensor. (Note: These screws are to be lead sealed after calibration).

## Adjustment

Refer to instruction manuals 7331 & 7326 for setup and calibration of the system with DIP2xx CPUs.

Refer to instruction manuals 7403 for setup and calibration of the system with DFV1xx CPUs.

## Ordering Information

Please see below configurations and example part number

### Approved Temperature Rating

**DIP\*** = Use DIP130-12 for temperature range -20°C to +55°C

**DFV** = Uses DFV130-12 for temperature range -10°C to +55°C (note: DFV offered as standard)

### Hatch vs Walkway Mount

**130** = Walkway Mount  
**150** = Hatch Mount

### Number of Compartments

**1** = 1 comp                      **5** = 5 comp  
**2** = 2 comp                      **6** = 6 comp  
**3** = 3 comp                      **7** = 7 comp  
**4** = 4 comp

T-DFV130-6-DFV101




### CPU Configuration

**Blank** = No CPU included  
**DFV103** = Level Gauge Only CPU  
**DFV101** = Register and Level Gauge CPU  
**DFV101S** = Swift variant CPU

\* For lower temperatures, consult Liquip.

**NOTE:** All Purchase Orders for level gauge sensor must be accompanied by a Length of sensor ordering sheet. Contact Liquip for a copy.

## Technical Information

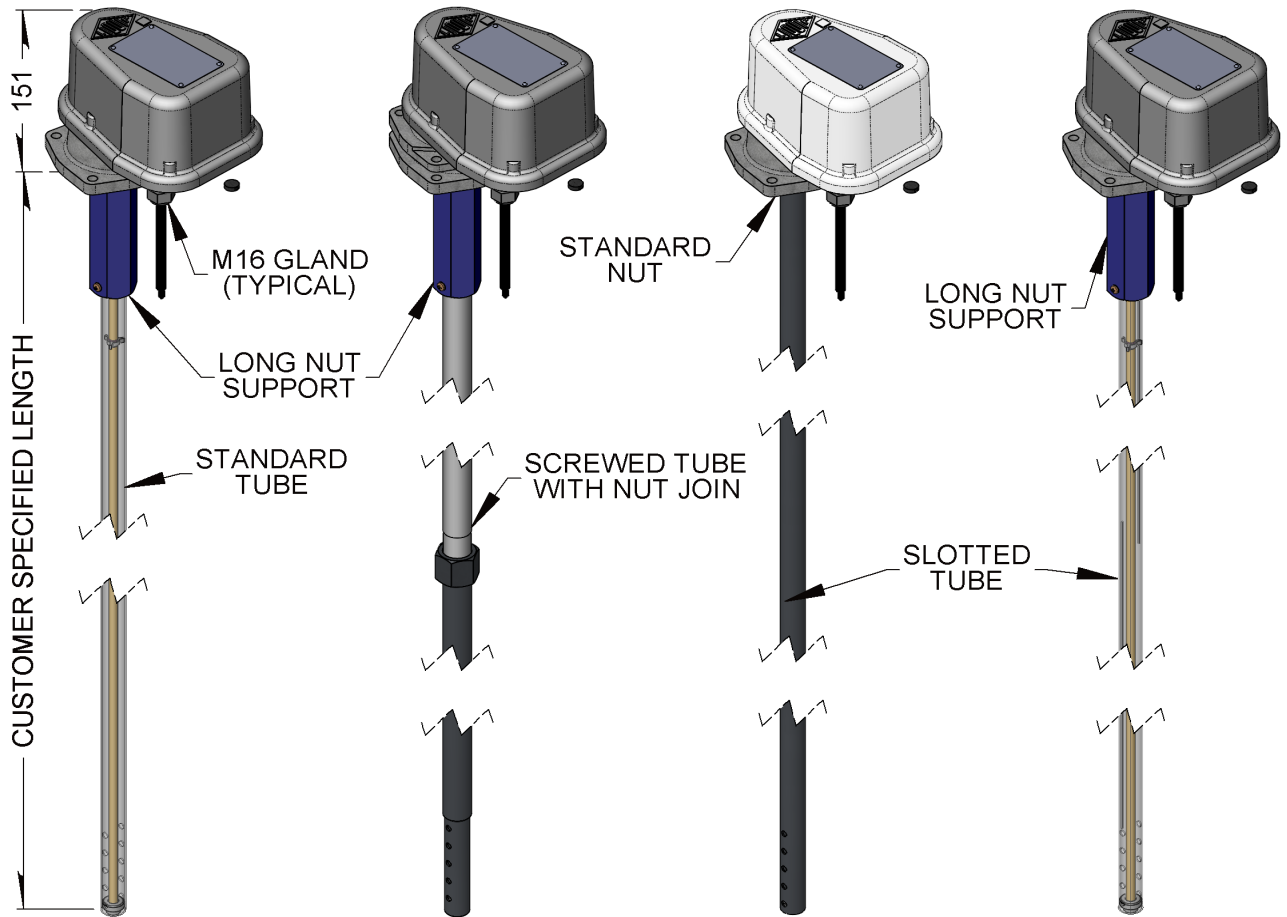
<b>Materials</b>	Aluminium cover and base Potted electronics Stainless steel tube and shaft Glass filled Teflon bushes		
<b>Mounting</b>	4 off M8 or 5/16" screws to either walkway or manhole cover. Note: Assembly part name will determine walkway or manhole mounting configuration		
<b>Weight</b>	Dependent on stick length		
<b>Electrical Parameters</b>	As per corresponding safety approvals (contact Liquip for additional information)		
<b>Operating Temperature</b>	As per corresponding safety approvals (contact Liquip for additional information)		
<b>IP Rating</b>	IP66		
<b>Diptronic System Accuracy</b>	+/- 1mm		
<b>Safety Approvals</b>	<p><b>IECEX Approval</b></p> <p>IECEX TSA 21.0007X Marking: Ex ia IIA T4 Ga -20°C ≤ Ta ≤ 60°C</p>	<p><b>ATEX Approval</b></p> <p>Sira 02ATEX2322X Marking:  2813  II 1 G EEx ia IIA T4 Tamb = -20°C to +55°C</p>	<p><b>FM Approval</b></p> <p>FM20US0100X (USA), FM20CA0047X (CANADA) Marking: Intrinsically Safe Sécurité Intrinsèque Ex ia  Class I, Division 1, Group D, T4 Ta = -25°C to +60°C IP66 Install per Control Drawing P59074 Entity Parameters: Vmax = 28.6V, Imax = 140mA, Pi = 1W Ci = 5.5nF, Li = 9.4uH</p>
<b>Length and Range</b>	Determined by the height of the compartment: 0.6 - 2.5m Other sizes - contact Liquip		
<b>Maximum height of the housing above the walkway</b>	147mm		
<b>Type of liquid to be detected</b>	All petroleum products (Other Liquids - contact Liquip)		
<b>Australian NMI Approved</b>	Yes		
<b>Repeatability</b>	0.05% or better over range		

## LEVEL GAUGE ACCESSORIES AND SPARES

Item	Description
DIP130-12	PCB ASSEMBLY DIPTRONIC HEAD (Use DIP130-12 for temperature range -20°C to +55°C)
DFV130-12	PCB ASSEMBLY DIPTRONIC HEAD (Use DFV130-12 for temperature range -10°C to +55°C (note: DFV offered as standard)
DFV103	Level Gauging CPU for use in zone 1 hazardous locations.
DFV101	Combined register & level gauging CPU for use in zone 1 hazardous locations
DFV150-MOUNTZ	DFV150 level gauge mount kit.
DFV150M-MOUNTZ	DFV150 level gauge mount kit (Metric).
DFV130-MOUNTZ	DFV130 level gauge mount kit.
DIP310-1	Single Al Mounting Pad - weld in for Diptronic/Level Gauge Sensors.
DIP300	Bottom steady Al for Diptronic/Level Gauge Sensors.
4130	Printer Slip Epson TM-U295.
DIP200-11Z	Kit DIP Connect HOOD/Female.
DIP200-12Z	Kit DIP Connect SUR-MNT/Male.
DIP200-13Z	Kit DIP Connect SUR-MNT/Male.
DIP200-14Z	Kit DIP Connect Hood/Male.

# DIP120, 130 & 150 DATASHEET

## DIP120

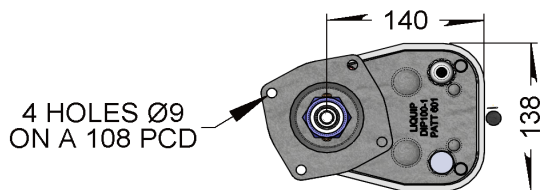


**DIP120-2 STICK**  
FOR STORAGE TANKS  
UP TO 5.8m

**DIP120-6 STICK**  
FOR STORAGE TANKS  
UP TO 24m

**DIP120-11 STICK**  
INTERFACE DETECTION  
FOR ROAD TANKERS

**DIP120-17 STICK**  
INTERFACE DETECTION  
FOR STORAGE TANKS



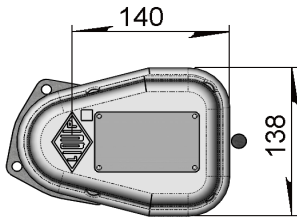
**UNDERSIDE VIEW**  
TYPICAL

METERS - VALVES - VENTS - MANHOLES - HOSEREELS - OVERFILL PROTECTION - LOADING ARMS - ELECTRONIC DIPSTICKS

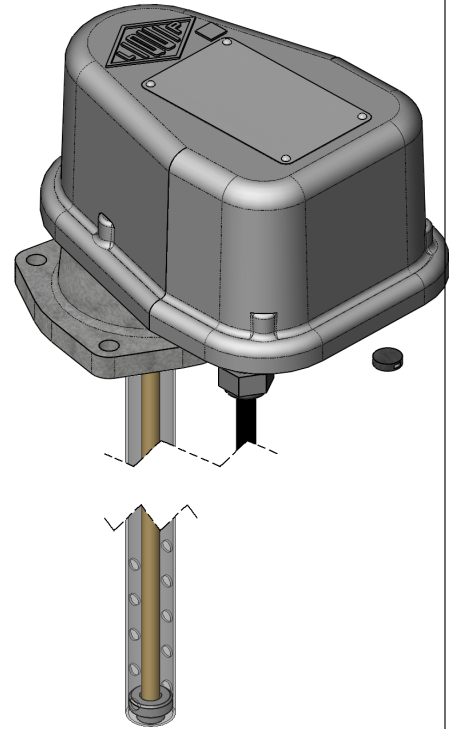
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# DIP120, 130 & 150 DATASHEET

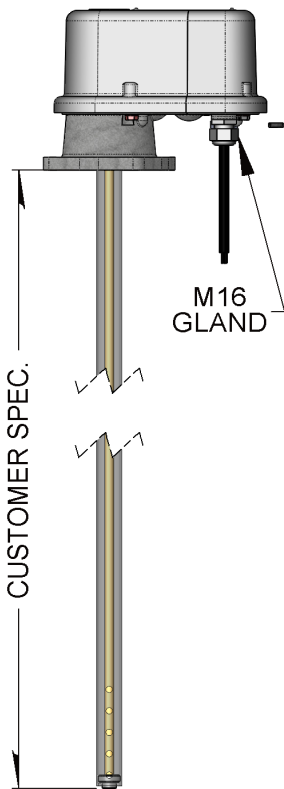
## DIP130 & DIP150



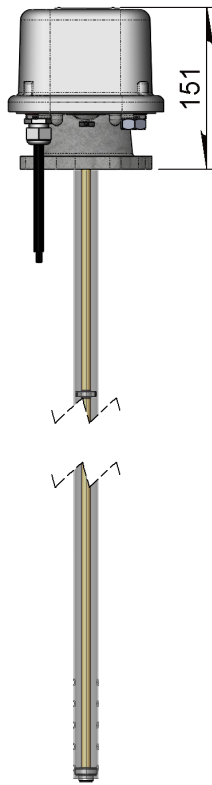
TOP VIEW



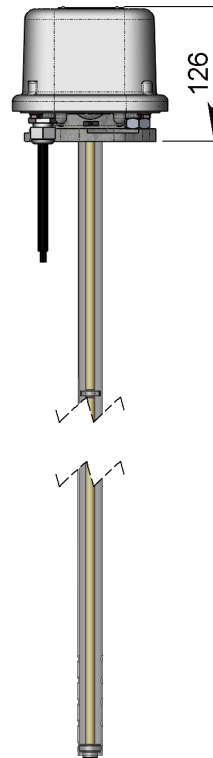
ISOMETRIC VIEW



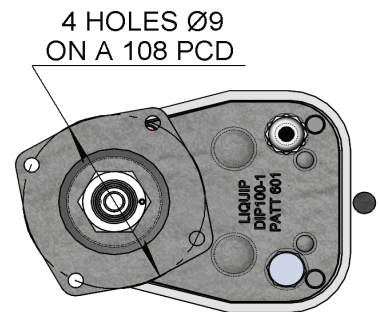
SIDE VIEW  
DIP130



FRONT VIEW  
DIP130



FRONT VIEW  
DIP150



BOTTOM VIEW

METERS - VALVES - VENTS - MANHOLES - HOSEREELS - OVERFILL PROTECTION - LOADING ARMS - ELECTRONIC DIPSTICKS

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