

Countum Group

# MECI

Metering Solutions



## DES16

### Density measuring system

DES16 is a complete density measuring solution. This equipment is dedicated to custody transfer measuring systems for liquids. DES16 is a ready-to-use solution. Thanks to its compact design, it offers a cost effective solution for petroleum products.

Flow computers

Measuring systems

Remote Terminal Unit

Supervisory system

#### 1. An adaptable measuring system

- Compatible with most liquid petroleum products
- Frequency output for density calculation with customer-owned flow computer
- Possibility to replace traditional vibrating tube densitometers with DES16 because of identical measuring signals and calculation algorithms
- Compatible with most of existing field and panel flow computers

#### 2. A ready-made solution for your metering

- Built-in pressure and temperature sensors
- Outstanding price-performance ratio because of a reduced sampling flow rate (8 liters per minute) and a reduced size of the equipment
- Continuous monitoring of the sampling flow rate by flow controller in order to achieve the highest measurement reliability
- Pump for optimization of sampling flow rate upon request
- Sampler and field calibration equipment supplied as options


#### 3. A reliable accuracy

- Measuring accuracy better than 0.0001 g/cm<sup>3</sup>
- Temperature and pressure corrections for a density measurement totally independent of operating conditions

#### 4. A custody transfer approved densitometer

- Approved for low density medium such as LPG, butane, propane, propylene
- Approved for fuels, biofuels, alcohol, white and black products
- Approval for measuring systems on pipeline, measuring systems for the loading and unloading of ships' tanks, rail and road tankers, aircraft refuellers.
- Approval according to OIML R117-1 classes 0.3, 0.5 and 1.0 and to European Measuring Instruments Directive 2004-1

# Technical data - DES16 Density measuring system

	<b>Fonctions</b>	
<b>Applications</b>	Complete density metering solution dedicated to measuring system for liquids other than water	
<b>Functions</b>	Measurement of density by using an oscillating U-shaped-tube densitometer Correction of temperature and pressure effects on densitometer raw measurement Measurement of temperature and pressure for calculation of volume at base conditions with customer-owned flow computer	
	<b>Operating conditions</b>	
<b>Density</b>	400 to 3000 kg/m <sup>3</sup>	
<b>Liquid temperature</b>	-40°C to + 125°C	
<b>Pressure</b>	0 to 125 bar	
<b>Viscosity</b>	< 100 mPa.s	
	<b>Equipment</b>	
<b>Enclosure</b>	Case made of reinforced polyester, isolated with polyurethane foam, polypropylene liner and anti-static protection Length x width x depth : 710 x 490 x 390 mm - Weight : 30 kg	
<b>Frame</b>	Galvanized steel (option) Length x width x depth: 800 x 1500 x 700 mm - Weight : 30 kg	
<b>Wetted material</b>	Stainless steel (excluding options)	
<b>Hydraulic connections</b>	Process connections : pipe 12mm OD or flanges 1" 300 lbs RF, others upon request Internal connections: double ring fittings, screw fittings	
<b>Pump</b>	Positive displacement magnetic pump with by-pass and ATEX motor (option) Inlet pressure: 25 bar, 50 bar or 125 bar	
<b>Electric connection</b>	Cable-glands for shielded cable and wiring connection box	
	<b>Inputs / Outputs</b>	
	<b>Model DTV 16 F Ex or DTV 16 F I</b>	<b>Model DTV 16 T Ex</b>
<b>Densitometer</b>	1 built-in Pt100 probe 1 frequency output passive	1 4-20 mA For density or frequency or temperature 1 HART For all measured parameters 1 RS485 Modbus protocol For data transmission to flow computer or supervisory system
<b>Operating conditions measurements</b>	1 pressure transmitter (option) 1 temperature transmitter (option)	
<b>Flow rate monitoring</b>	1 flow controller with local display and 2 thresholds (open collectors IS - option)	
<b>Pump</b>	Control box with relays	
	<b>Installation</b>	
<b>ATEX</b>	CE type approval :  II(2)/2G	
<b>Temperature</b>	Ambient: -20 to + 55°C	Storage : -40 to + 70°C
<b>Relative humidity</b>	95% without condensation	
<b>Protection class</b>	IP 65	
<b>Power supply</b>	Measuring instruments : 24 Vdc Pump : 3 x 230 V, 60 Hz, three-phase	
<b>Custody transfer approval</b>	Integration of DES 16 into custody transfer measuring systems accuracy classes 0.3, 0.5 and 1.0 Densitometer conform to OIML R117-1 and MID 2004/22/CE evaluation certificate (pending) Pressure and/or temperature transmitter conform to evaluation certificates (option)	

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