

devil®



LIQUID DENSITY & VISCOSITY METER

The innovative DEVIL® technology continuously measures fundamental properties of liquids: density, viscosity and temperature. With a compact design and approval for use in hazardous areas, DEVIL® is ideal for OEM applications or for large scale deployments in industrial and field environments. DEVIL® is a fully integrated package of sensor and electronics.

The Mesoscale® design relies on precision machining of stainless steel for application flexibility along with flexible communications to integrate measured values easily with data systems. The modular low volume fluidic interface allows DEVIL® to be installed in flow-through, tank and sanitary applications.

DEVIL® REAL-TIME OUTPUTS



DENSITY



VISCOSITY



TEMPERATURE

- ▶ DEVIL® can embed derived measurements such as :
 - ▶ Kinematic viscosity
 - ▶ Specific gravity
 - ▶ Temperature compensated density...

DEVIL® BENEFITS



EASY TO INTEGRATE
COMPACT (< 10 cm)



DURABLE
WETTED PARTS IN 316L STAINLESS STEEL



COST EFFECTIVE



SAFETY IN HAZARDOUS AREAS
ATEX / IECEx CERTIFIED (ZONE 0)

TYPICAL APPLICATIONS



FUEL & LPG MANAGEMENT
QUALITY, IDENTIFICATION AND INVENTORY



ENHANCED FLOW METERING
VOLUME TO MASS CONVERSION



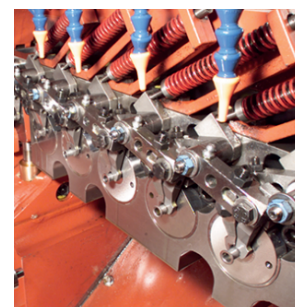
PROCESS AUTOMATION
CHEMICAL PLANTS



OIL PRODUCTION
LUBRICANTS QUALITY CONTROL





OIL CONDITION
ROTATING & COLD FORMING MACHINES



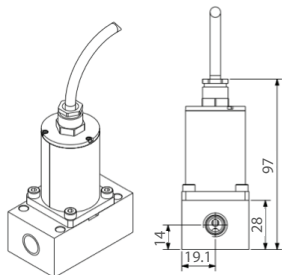


LIQUID DENSITY & VISCOSITY METER

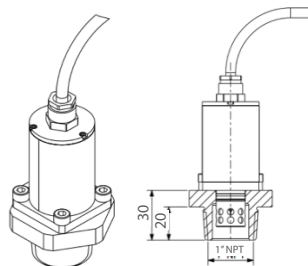
PERFORMANCES

		DEVIL 10D	DEVIL 10	DEVIL 100
Density - kg/m³	Range	450...650 (LPG) 650...1150	650...1150	650...1150
	Accuracy	+/- 4.75 +/- 3 (enhanced)	+/- 4.75	< 10cP +/- 4.75 > 10cP +/- 8
	Repeatability	1.5	1.5	1.5
Dynamic viscosity - cP	Range	0.3...10	0.3...10	1...100
	Accuracy		+/- 0.2	< 40cP +/- 2 > 40cP +/- 5% read
	Repeatability		0.05	< 10cP 0.2 > 10cP 2% read
Temperature - °C	Range	-20...65 0...85	-20...65	0...85
	Accuracy	0.5	0.5	0.5
	Repeatability	0.1	0.1	0.1
Operating conditions	Temperature	-40...+105°C (-40...95°C in Ex areas)		
	Pressure	0...25 bar (burst 100 bar)		
	Flow velocity	< 0.5m/s recommended		
Communication protocols	ModBus RTU (RS485) // 4-20mA // 0..10V (on demand)			
Power supply & pinout	12 ... 24 VDC, 0.6W 8 pins circular connector, M12 or cable gland			
Response time / Rate	5 sec (without averaging) // 1 data/s			
Certifications	CE, EMC (EN61326-1:2013, Namur NE21:2011)		 	
	ATEX II 1G Ex ia IIC T4		IECEx Ex ia IIC T4 Ga	

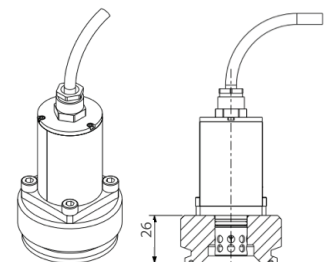
MECHANICAL INTEGRATION



flowthrough baseplate, with fittings from 1/8 to 1/2"



1" threaded NPT adapter



sanitary tri-clamp adapters 1.5"


Dimensions in mm.

▶ approximate total weight 500gr

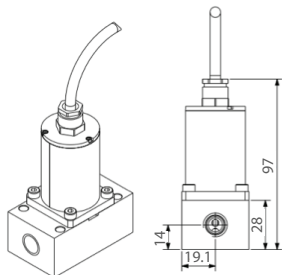


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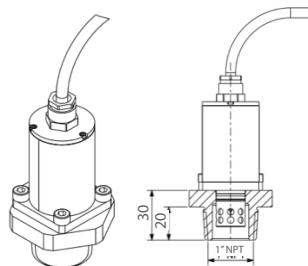
PERFORMANCES

		DEVIL 300
Density - kg/m ³	Range	650...1150
	Accuracy	< 100 cSt +/- 8 > 100 cSt +/- 10
	Repeatability	1.5
Kinematic viscosity - cSt	Range	30...300
	Accuracy	< 60 cSt +/- 3 > 60 cSt +/- 5% read
	Repeatability	2% read
Temperature - °C	Range	10...60
	Accuracy	0.5
	Repeatability	0.1
Operating conditions	Temperature	-40...+105°C
	Pressure	0...25 bar (burst 100 bar)
	Flow velocity	< 0.5m/s recommended
Comm protocols & rate	ModBus RTU (RS485) // 4-20mA	
Power supply & pinout	12 ... 24 VDC, 0.6W	8 pins circular connector, M12 or cable gland
Response time / Rate	5 sec (without averaging) // 1 data/s	
Certifications	CE, EMC (EN61326-1:2013, Namur NE21:2011) 	

MECHANICAL INTEGRATION



flowthrough baseplate, with fittings 1/4" or 1/2"



1" threaded NPT adapter

Dimensions in mm.

▶ approximate total weight 500gr