



## APPLICATION NOTE

## LIQUEFIED PETROLEUM GAS (LPG)

### Devil® sensor for LPG industry

LPG, mainly consists of propane and butane, has the advantages of clean burning with lower emissions in comparison with petrol and diesel, and can be transported as a liquid at moderate pressure.

LPG is now increasingly used as a vehicle fuel or as an alternative for domestic and commercial heating.

### Enhanced LPG delivery quality control

LPG deliveries are usually performed through volumetric flow meters, insensitive to composition changes, and thus source of uncertainties.

Add a volume to mass conversion through inline density measurement to enhance accuracy and quality control during unloading and offloading operations.

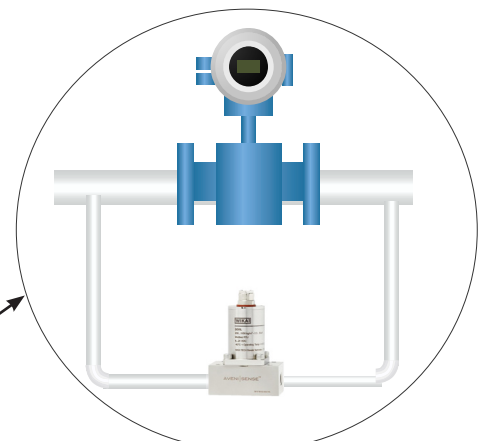


Figure 1 : Devil® coupling with flow meter to deliver mass

### Added value and customer benefits

- ✓ High quality monitoring
- ✓ Compact design
- ✓ High acquisition frequency
- ✓ Robust design
- ✓ Cost effective solution

*accurate measure in LPG density range*

*small sample volume & sensor size (<10cm)*

*1 sec*

*wetted parts in SS316L, no moving parts*



# APPLICATION NOTE

# LIQUEFIED PETROLEUM GAS (LPG)

## Devil® sensor for LPG mass inventory

Use the Devil sensor for real time monitoring in order to calculate the total LPG storage mass in tanks and improve the safety of your installation.

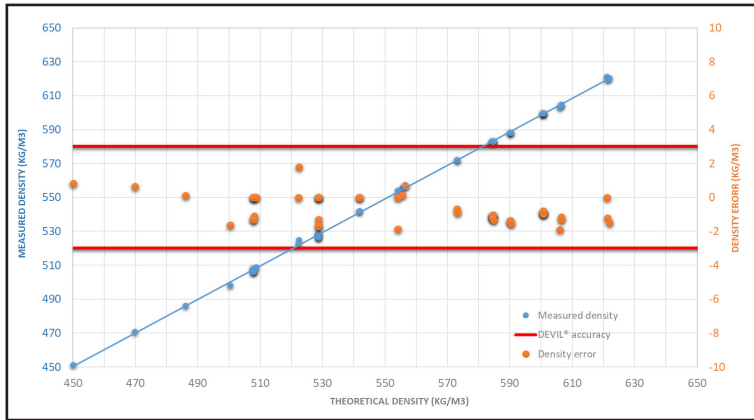


Figure 3: Devil® performances in LPG

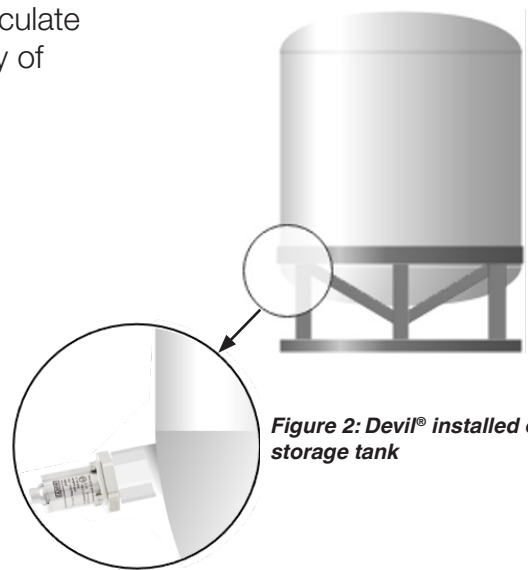


Figure 2: Devil® installed on storage tank

## Features

<b>Calibration range</b>	Density	450 ... 650 kg/m <sup>3</sup>
	Temperature	-20 ... 65°C (-4 ... 150°F)
<b>Accuracy</b>	Density	+/- 3 kg/m <sup>3</sup>
	Temperature	+/- 0.5°C (+/-0.36°F)
<b>Repeatability</b>	Density	1 kg/m <sup>3</sup>
	Temperature	0.1°C
<b>Operating limits</b>	Temperature	-40 ... 85°C (-40 ... 185°F)
	Working pressure	up to 25 bar (350 psi)
	Flow velocity	up to 0.5 m/s
<b>Response time</b>	up to 3 sec.	
<b>Output</b>	RS485 Modbus 4-20 mA	
<b>Ex certifications</b>	ATEX II 1G Ex ia IIC T4 Ga IECEX Ex ia IIC T4 Ga FM Class1 Div1 (end 2022)	
<b>EMC</b>	EN61326-1:2013	
<b>Protection</b>	IP65	
<b>Wetted material</b>	SS316L Viton or Kalrez o-ring	

Find more information about Devil® sensor on [www.avenisense.com](http://www.avenisense.com)