



# DLG 400 Series



- Fluid measurement
- Steam measurement
- Fluid density, level, volume and mass
- Steam density, volume and mass
- Tank completion and capacity
- Propane/butane concentration
- Alarms system



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**LPG SMART SYSTEM**

**DLG-400**

***IN PROCESS TO EXCELLENCE***

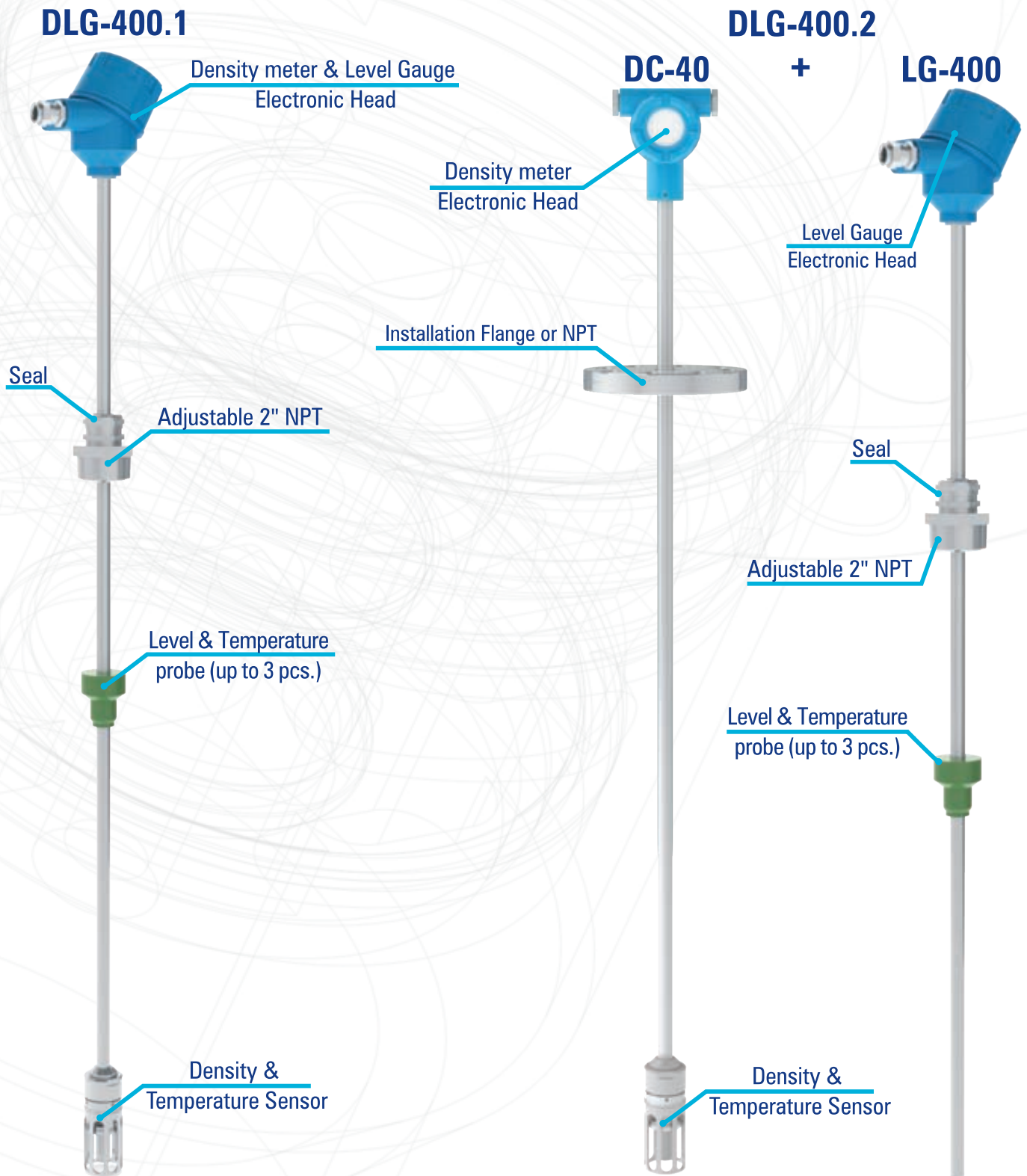
# DLG-400 OVERVIEW

**DLG 400** is designed to measure Density and Level in storage tanks. Two different technologies have been combined into Density and Level Gauge DLG-400 to provide highly accurate monitoring and control of both variables: density and level. Using the proven vibrating element technique, which is widely accepted as the most accurate method of continuous online density measurement.

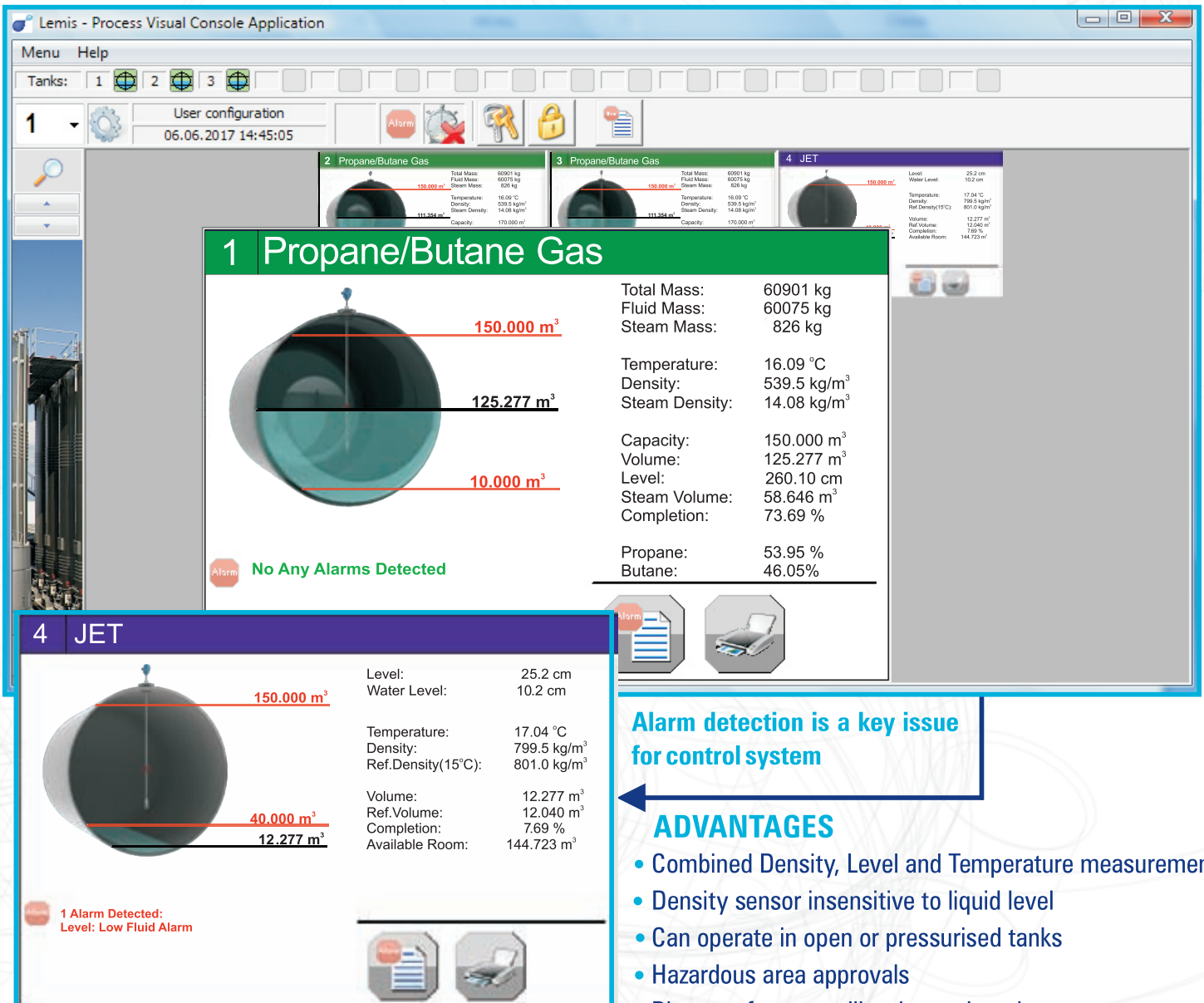
It is a complete fuel management system, which is designed to offer the ability to measure simultaneously and continuously both critical variables of the process liquid in a single instrument saving costs of installation and maintenance.

## Density principle of operation

For density measurement the operating principle of DLG-400 is resonant method (vibration element). It is based on the changing of frequency characteristics of the sensitive unit and resistance of the built-in temperature sensor in dependence of characteristics of the measured liquid. The oscillation period of the sensitive unit mainly depends on density and temperature of the measured liquid.



# SOFTWARE



Alarm detection is a key issue for control system

## ADVANTAGES

- Combined Density, Level and Temperature measurements
- Density sensor insensitive to liquid level
- Can operate in open or pressurised tanks
- Hazardous area approvals
- Rigorous factory calibration and testing
- Data monitoring at industrial touch screen panel
- Complete automation software package

## APPLICATIONS

- Terminals
- Filling stations
- Barges
- Tanker trucks
- Underground and aboveground storage tanks
- Refinery

- Receiving of level, density and temperature values from Terminal Box via cable
- Calculating of product/steam volume and mass; tank completion
- Calculating of propane/butane concentration
- Calculating of temperature-compensated density values
- Calculating of relative/referred density of product on the base of built-in tables
- ALARM system
- Various formats for data reading
- Storage of the measured and calculated values in the database tables
- Conversion of the database tables to EXCEL format and printing the results
- Up to 16 tanks monitoring (another tanks quantity is optional)



# Specifications

## Measuring range:

Density	0.475... 0.700 g/cm <sup>3</sup> (475... 700 kg/m <sup>3</sup> )
Level	up to 4000 mm
Temperature	-40... +60 (-40...+140°F)

## Accuracy:

Density	±0.0003 or ±0.0005 g/cm <sup>3</sup> (±0.3 or ±0.5 kg/m <sup>3</sup> )
Level	±1 mm (±1/16")
Temperature	±0.1°C (±0.2°F) or ±0.2°C (±0.4°F)

## Repeatability:

Density	±0.0001 g/cm <sup>3</sup> (±0.1 kg/m <sup>3</sup> )
Level	±1 mm (±1/16")
Temperature	±0.1°C (±0.2°F)

## Resolution:

Density	0.0001 g/cm <sup>3</sup> (0.1 kg/m <sup>3</sup> )
Level	± 0.3 mm (±0.001")
Temperature	±0.05°C (±0.1°F)

Supported measuring units	Real Density: g/cm <sup>3</sup> , kg/m <sup>3</sup> , lb/gal, lb/ft <sup>3</sup> ; API; SG Referred Density: at 15°C, 20°C, 60°F; API60; SG60 Tables ASTM D 1250 Temperature in °C or °F
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Temperature compensation	Automatic
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Process Connections	ANSI Flanges or NPT
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Ambient temperature	-40... +60°C (-40... +140°F)
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Weather rating	IP68 for sensor and IP 65 for other parts
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## Materials:

Sensor	Stainless steel SS 316 L; NiSpan C; Hastelloy C22; Teflon
Other Wetted Parts	Stainless steel SS316 L or Hastelloy C22
Electronics Housing	Aluminum, blue epoxy finish

Electrical Connections	Screw terminals; Cable entry: 2 x 3/4" NPT
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Power supply	6-14 VDC 40 mA (60 mA pick)
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## Output:

Sensor	Line density and temperature digital signals
Analog	Up to 3x isolated 4-20 mA, HART, configurable
Digital	Standard: RS485, Modbus; TCP/IP user choice of signals and protocols

Factory calibration	Calibration certificates supplied as standard
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## Hazardous environment Approvals

ATEX	II 1/2G Ex ia IIB T4 Ga/Gb
IEC	Ex ia IIB T4 Ga/Gb

**For more information please visit [www.lemis-usa.com](http://www.lemis-usa.com)**



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