OMNICOMM

OMNICOMM FUEL-LEVEL SENSORS

FUELLING YOUR BUSINESS

For every business that operates a fleet of vehicles – be they trucks, locomotives or ships – having a handle on fuel costs is critical. Fuel is literally the driving force across every mile, and in many regions accounts for the single biggest slice of operational expenditure. Finding ways to cut fuel costs is a priority

FUEL MONITORING MATTERS

Telemetry and **capacitive fuel-level sensors** lie at the heart of effective fuel management, empowering fleet operators to monitor fuel consumption, mileage in km per litre and precise fuel levels at any time. Capacitive sensors are highly accurate and reliable, with a long work-life, and require no technical maintenance. Standard fuel sensors in trucks, for example, simply aren't consistent or accurate enough.

OMNICOMM'S FUEL-LEVEL SENSORS: QUALITY, RELIABILITY AND ACCURACY

OMNICOMM is a global fuel and fleet management solutions provider and manufacturer of high-precision capacitive fuel-level sensors. We invented the digital data transmission protocol that has become the de facto **industry standard** in capacitive fuel-level sensors globally. Our products are used in 110 countries and **over 1-million** vehicles are equipped with our capacitive fuel-level sensors – sensors that are often emulated by competitors.

POWERFUL BENEFITS

The fuel sensors in OMNICOMM's fuel sensor line deliver a wide range of benefits:

- Extreme accuracy of up to **99.5%**
- In-house developed fuel analysis technology **FUELSCAN®** to ensure measurement accuracy
- Highest possible ingress protection rating **IP69K**, allowing high-pressure hot-water washes
- Consistently high **reliability**, even in extreme temperatures
- Tamper-proof body for extended reliability and durability
- **Suitable for most fuel tanks** (minimum sensor length 150mm, default sizes 700-6000 mm, can be shorten to fit the exact tank size)
- No false alarms with unique data filtering algorithm
- Wide application area – our sensors can be fitted to tanks on vehicles of virtually any description, on land and on sea and across multiple industries
- Built-in 2500V (7000V for OMNICOMM LLS-Ex 5) galvanic isolation for powerlines and communication interfaces to ensure safety in the event of short term increases in voltage
- Consistently **high quality** with mere 0.009% warranty claims*
- Extended product lifetime and **5 years warranty**
- **Fully certified** across the board: E-mark, CE, FCC, ATEX
- Compatible with third-party vehicle trackers

* for OMNICOMM LLS 30160

// Vehicle and business efficiency are the main reasons companies invest in telemetry solutions – with the desire to achieve fuel savings the main driver

OMNICOMM FUELSCAN® TECHNOLOGY

FUELSCAN® is a unique in-house fuel analysis technology developed by OMNICOMM that enables OMNICOMM fuel-level sensors to deliver unprecedented accuracy of 99.5% in all conditions.

Factors such as oil manufacturing methods and additives used in gasoline production cause differences in the physical characteristics of fuel, which becomes an issue when fuelling at different stations or switching from winter to summer fuel. Capacitive sensors use a specific characteristic (permittivity) to calculate fuel levels that can differ significantly from the permittivity of the fuel used during calibration – causing errors in fuel-level calculations of up to 30%.

FUELSCAN® compares the physical characteristics of filled fuel with the characteristics of the fuel used for calibration to introduce a correction coefficient that automatically adjusts sensor readings to deliver accurate measurements.

OMNICOMM LLS 5

OMNICOMM LLS 5

Using OMNICOMM's unique FUELSCAN® technology, OMNICOMM **LLS 5** guarantees unprecedented **accuracy of 99.5%** in all conditions despite changes in fuel characteristics and does not require servicing for re-calibration, reducing costly vehicle downtime. OMNICOMM LLS 5 is twice as accurate as regular capacitive fuel-level sensors, setting a new industry standard. It provides precise fuel accounting for fleet owners and builds customer loyalty for installation partners who can confidently deliver on promises of accuracy.

HOW IT WORKS: EASY INSTALLATION

OMNICOMM's sensors and configuration software are designed for easy set-up and calibration by technicians even in field conditions using the mobile calibration unit. Requiring just the starter kit and a laptop running the OMNICOMM Configurator, the technician prepares the tank, cuts (if required) and calibrates the fuel sensor, mounts the sensor and then calibrates the fuel tank. The sensors are then connected to the OMNICOMM or third-party terminal, ready to start logging and monitoring fuel data. The whole process is straightforward and should take no more than between one and four hours. If necessary, OMNICOMM provides training, guidance and support every step of the way.

OMNICOMM LLS-Ex 5

OMNICOMM LLS-Ex 5

OMNICOMM **LLS-Ex 5** is the **explosion-proof** version of OMNICOMM LLS 5. Like OMNICOMM LLS 5, this sensor uses OMNICOMM's FUELSCAN® technology and guarantees 99.5% fuel-level measurement accuracy regardless of the conditions and changes in fuel characteristics that can be experienced when fuelling at different stations, switching from winter to summer fuel and switching from diesel to gasoline in stationary tanks. It is specially designed for equipment used in potentially hazardous areas, with additional explosion protection, and can be installed in tanks up to 6 meters in height.

OMNICOMM LLS 4

OMNICOMM LLS 4

OMNICOMM **LLS 4** provides accuracy of 99.2%. It is **extremely tough** with increased all-round protection, including against electrostatic, electromagnetic and conducted interference. The sensor head is specially designed to improve shock resistance while its compact size facilitates installation even in units with limited space over the fuel tank. The cable connection slot with over-moulding is ultra-resistant to humidity, providing protection even when subjected to high-pressure washes.

OMNICOMM LLS-AF 4

OMNICOMM LLS-AF 4

OMNICOMM **LLS-AF 4** is intended to be used with the cheapest terminals that don't yet support connection of OMNICOMM LLS 4 digital sensor over RS232/RS485 interfaces. OMNICOMM LLS-AF 4 has **analog and frequency-modulated outputs** protected by galvanic insulation and working independently throughout the range of power supply voltage. A special 'Tough Road Conditions mode' provides extra smoothing with several levels of filtration algorithms for consistent high performance in extreme road conditions. The cable connection slot with over-moulding is ultra-resistant to humidity.

SPECIFICATIONS

PARAMETER	LLS 5	LLS-Ex 5	LLS 4	LLS-AF 4
Size, mm	700, 1000, 1500, 2000, 2500, 3000	700, 1000, 1500, 2000, 2500, 3000,4000, 5000, 6000	700, 1000, 1500, 2000, 2500, 3000	700, 1000, 1500
Error in measurement, %	± 0.5	± 0.5	± 1.0	± 1.0
Output	RS-232, RS-485	RS-232, RS-485	RS-232, RS-485	Analog / Frequency
Programmable baud rate, bit/s	1200, 2400, 4800, 9600, 19 200, 38 400, 57 600,115200	1200, 2400, 4800, 9600, 19 200, 38 400, 57 600,115200	2400, 4800, 9600, 19200, 38400, 57600, 115200	19200
Power supply voltage, V, VDC	7…75	7… 60*	7…80	7…45
Current consumption, max, mA	40	60	40	80
Power consumption, max, W	0.4	0.4	0.4	0.6…0.9
Ingress protection rating	IP69k	IP69k	IP69k	IP69k
Dielectric strength of galvanic isolation, min, V	2500	7000	1500	250
OPERATING CONDITIONS:				
Operating temperature, C	-60 … +85	-60 … +85	-60 … +85	- 40 … +80
Relative humidity at 25 ºC, %	5 … 95	5 … 95	5 … 95	5 … 95
Air pressure, kPa	84 … 107	84 … 107	84 … 107	84 … 107
Maximum allowed humidity level, %	100	100	100	100
Resolution, bit	12	12	12	12
Output range of readings corresponding to the maximum value of measured level	1…4095	1…4095	1…4095	5…20V/100…2000Hz
Output range of readings corresponding to the minimum value of measured level	0…4094	0…4094	0…1023	0…15V/30…1900Hz
Temperature measuring range, C	- 40 … + 80	- 40 … + 80	- 40 … + 80	- 40 … + 80
Measurement frequency, s	1	1	1	1
Interval of automatic data output, s	1 … 255	1 … 255	1 … 255	Continuous
Operation mode	Continuous	Continuous	Continuous	Continuous
Average service life, years	12	12	8	8

* through BIS-Mx

OMNICOMM

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