Exalon Delft
tank gauging solutions

Product Sheet

UTG-306 Universal Tank Gateway

- Scanning up to a maximum of 10 level gauges per UTG-306
- Easy integration with PLC or SCADA host applications by means of Modbus RTU interface
- Scalable capacity with multiple UTG-306 modules deployed in a single node
- Local or remote service by extending with UCI-108 Universal Communication Interface
- BPM fieldbus message monitoring and diagnostics
- Easy commissioning
- Compact dimensions
- DIN-rail mounted
- Based on Exalon Delft extensive communication know-how

Fit for purpose, ready to use

The UTG-306 serves as a versatile tank gateway tailored for small tank farms, facilitating the scanning of parameters from Honeywell-Enraf level gauges. Positioned as the purpose-built interface in site control room, it seamlessly connects field instruments to the robust Bi-Phase Mark (BPM) fieldbus and interfaces with the Inventory Management System (IMS), Supervisory Control And Data Acquisition Software (SCADA) or Programmable Logic Controller (PLC) host application via the RTU Modbus protocol. Scanning of gauge level data, encompassing level, temperature, pressure, and density, takes place, with the information stored in a local real-time database. The UTG-306 provides the host system with 24/7 access to instantly available, reliable, and accurate tank data.

For larger tank farm operations, multiple UTG-306 units can be deployed in parallel, enabling concurrent scanning. Combining multiple UTG-306 units into a single node extends the capacity for scanning level gauges on a single BPM fieldbus.

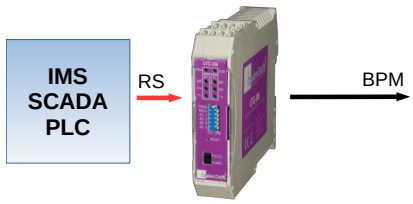
The UTG-306 BASE license supports a maximum of 5 level gauges. The PLUS license extends to a total of 10 level gauges.

The UTG-306 features one host port to the IMS or PLC application. Thanks to its modular design, integration with the UCI-108 is possible, allowing for the addition of a local or remote service port or even the creation of additional BPM fieldbuses. This modular approach enhances flexibility and scalability, making the UTG-306 an adaptable solution for diverse tank farm requirements.

Applications

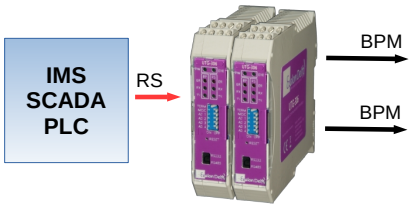
- Tank interface to Tank Inventory Management and Control Applications
- Alternative for existing Honeywell-Enraf CIU (880 Prime)

Configurations
Thanks to the modular and scalable design, it is possible to create a tailored and cost-effective solution. This also provides the flexibility to incrementally expand the tank farm in the future. See below for examples of the most commonly used solutions.



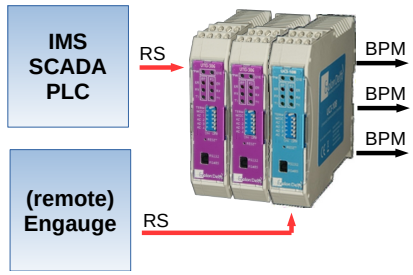
Single UTG-306 operation

In this configuration the UTG-306 is the only interface between the IMS, SCADA or PLC host application and the Honeywell-Enraf level gauges connected to the BPM fieldbus. A maximum of 10 level gauges can be supported by a single UTG-306. See below the expansion options.



Extend scanning capabilities

The system is easily expandable with additional level gauges by adding extra UTG-306 units. Each additional UTG-306 introduces an extra BPM fieldbus. When the UTG-306 is placed in a multi-node setup, it is even possible to utilize each other's BPM fieldbus. This enables scanning more than 10 level gauges on a single BPM fieldbus.



Extend with local or remote service capabilities

The system easily expands with an additional service port for e.g the Honeywell-Enraf Engauge service tool, by incorporating a UCI-108 Universal Communication Interface in a multi-node setup. This allows the UCI-108 to access the UTG-306 BPM fieldbus and vice versa. Furthermore, it introduces an additional BPM fieldbus for future expansions.

Specifications

Data scanning

Database	BASE: up to 5 tanks PLUS: up to 10 tanks
Scan strategy	Foreground and background scan
Available data	Gauge status Product level Average product, vapour, spot temperatures Pressure P1, P2, P3 Servo Average Density, Density spot measurements, Density levels Water level (probe, water interface)
Supported dimensions	The units are derived from each individual level gauge Level: m, ft, in Temperature: °C, °F Density: kg/m^3, lbs/ft^3 Pressure: Pa, kPa, bar
Supported gauge commands	Test Gauge, Lock Test, Block, Freeze, Unlock Product interface (I1), Water interface (I3), Density scan (TP)

Specifications

Mechanical

Dimensions	110 x 25 x 110 mm (h x w x d)
Weight	150 g

Environmental

Housing	DIN-rail mountable
DIN-rail	EN-IEC60715, mounting rail 35x7,5
Protection class	IP20
Operating temperature	-20 ºC ... +60 °C
Storage temperature	-40 ºC ... +85 °C
Relative humidity	20 to 95%

Applied safety standards

EMC standards	EU Directives

UTG-306 generic

Power supply	24 Vdc +/- 5%, max. 80 mA
Switches	Dip switches: terminal/operational, miscellaneous, node address Push button: reset
Intercommunication bus	RS485 (bus address selected by dip switch)
Number of UTG-306/UCI -108 in node	Max. 4; One UTG-306 can be extended with a combination of max. 3 UTG-306s/UCI-108s
Commissioning/Service	Via terminal mode by RS232 port (115k2 kbit) Available: Gateway configuration, statistics, BPM fieldbus analyser, GPU terminal
LED indicators	Power on/off Operational status BPM port: communication quality, RX, TX RS port: communication quality, RX, TX

BPM fieldbus communication

Serial connection	Galvanic isolated by transformer with ground shield Full galvanic isolation from ground, 1500Vac Lightning protection
Physical layer	Serial Bi-Phase Mark modulated, half duplex, on screw terminals
Protocol	Standard Enraf fieldbus GPU/Flexconn protocol
Baudrate	1200 / 2400 / 4800 Baud
Fieldbus wiring	Shielded twisted pair, Rmax 200Ω per line, Cmax=1 µF
Maximum cable length	10 km, depending on cable characteristics
Maximum number of field devices	15, depending on cable specifications and length
Signal level	max. 7 Vpp

RS232/RS485 communication

Serial connection	Galvanic isolated by opto isolation Full galvanic isolation, 1500 Vac
Physical layer	RS232C, 3 wire <15 m, on screw terminals RS485, 3 wire, 1000 m, on screw terminals
Protocol	**During operation:** • Host communication: Modbus RTU slave • Modbus data map: tank oriented • Modbus register types: single, double (Modbus max multiple read record of 64 bytes) **During commissioning:** • UTG-306 ASCII terminal protocol (in terminal mode)
Baudrate	1200 / 2400 / 4800 / 9600 / 19200 / 38400 / 57600 / 115200 Baud
Handshake	None

Maintenance

Maintenance is not needed throughout the lifetime of the product, except cleaning and inspection of the product

Installation

It is requested to read the installation manual before installation.
This installation manual is available with Exalon Delft.

Made in the Netherlands

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