



Gauge Emulator

The Gauge Emulator is an Intelligent protocol converter and data concentrator that emulates multiple gauges and integrates seamlessly into existing systems.

Learn more about our scalable, open solution suitable for depots, terminals, and refineries.



Launched in 2006



Trusted by customers



Systems in use across the world



Up 12 channels

Overview

The Gauge Emulator is an intelligent protocol converter and data concentrator that emulates multiple gauges and integrates seamlessly into existing systems. There are a number of reasons why a site may need to replace a tank gauging device. Previously, the site would have to replace like-for-like due to infrastructure constraints, but this is now no longer the case. The Gauge Emulator allows the seamless integration of vendor A's tank gauges into an existing infrastructure intended only for vendor B's equipment, eliminating 'vendor lock-in' and giving the freedom of choice back to the site.

Fieldbus Ports

As standard, the unit is supplied with two field ports, one acts as a host to the foreign device and the other replicates the field bus of the existing tank gauging system and emulates the behaviour of the other gauges. The field ports are plug-in units and available with a number of different electrical interfaces allowing connection to most of the major proprietary and open field bus technologies available within the tank gauging industry market

The flexibility of the design permits the device to be re-deployed once a loop is converted. The device can also serve as a host for multiple gauges, allowing a single gauge emulator to provide a interface during a rolling programme of tank refurbishment and gauge replacement.

A second field port can be included so that a redundant pair of host interfaces can be emulated, allowing gauges with a single host output to be deployed where additional resilience in the field cabling is required.

Data Access

The unit polls the foreign device continually for data maintaining an in-memory real-time database. It also services the field bus master for data on demand taking data from the real-time database as required. In addition, the system will translate any gauge commands supported by the host system and the foreign device.

Key Features



Redundancy

Redundant field interface ports can be fitted to give you the reassurance that a comms failure won't prevent your field data getting to the control room.



Cost Savings

Despite manufacturers' best attempts no single level gauge is suited to every application. If you find that radar no longer fits your needs as well as a servo gauge a gauge emulator can let you deploy one into your existing tank gauging system.



Improve site management

Make a rolling programme of refurbishment and renewal possible, the replacement of tank instruments can be achieved without disrupting the operation of other tanks on the same field bus. Plan your expenditure throughout the process, instead of a mass rollout of replacement gauges, with significant down time.



Safety

IS variants of the Gauge Emulator comply with ATEX and IECEx Zone 1 requirements. Produced in the UK from a manufacturer with over 15 years experience of in designing and manufacturing solutions for explosive atmospheres.



Ex Enclosure

Configuration

The Gauge Emulator can be installed with ease due to its 'plug & play' capability. A serial communications port is provided for configuration and diagnostic use. Where the host communications interface is Modbus, the device allows configuration remotely over the bus.

Key features

- Allows tank gauges to communicate effectively within any vendor's existing system.
- Easy 'plug & play' installation process. Ability to convert most vendor protocols. Concentrate data gathered from several connected gauges locally within one field device.
- Releases any obligation to use only one supplier.
- MHT can offer bespoke gauge emulation, customising a Gauge Emulator to fit unique vendor protocols (subject to quotation).
- ATEX and IECEx Hazardous Area Zone 1 certified.

Compatible Gauge Manufacturers

- Endress+Hauser
- Honeywell Enraf
- Whessoe
- 'Saab' Emerson/Rosemount
- Motherwell
- Other protocols may be available subject to development. Contact sales@mht-technology to enquire.

Typical application: renewal programme

You want to replace your old unsupported gauges with new gauges from a different vendor, but you can't afford to put all the tanks on one loop out of service for the time it takes to install perhaps 10 or 12 level gauges and temperature probes. Perhaps you want to avoid a large upfront capital expense. Installing a Gauge Emulator allows the gauges to be replaced one-by-one allowing you to plan the renewal programme to fit around your operations, allowing your site to continue to earn its keep while you simultaneously improve it, and the Gauge Emulator pays for itself.

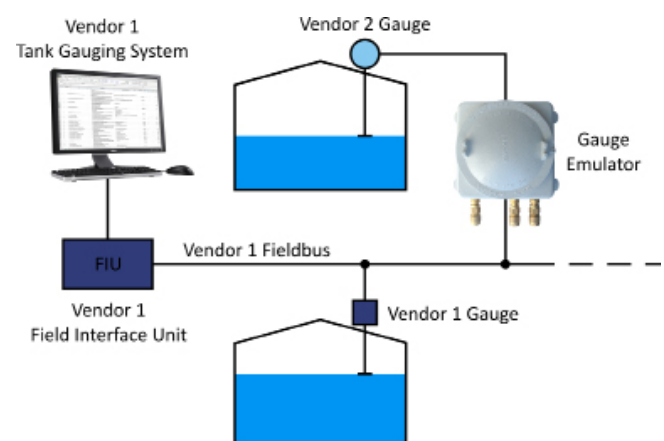
Typical application: gauge replacement

Consider the situation whereby certain gauges, supplied by vendor 1, were not performing to expectations. The ideal solution may be to replace these devices with alternate products from vendor 2, even though they are unlikely to be compatible. Using a Gauge Emulator eliminates vendor incompatibility, allowing the seamless introduction of different devices into the existing system.

Redundant Fieldbus systems

In applications where dual redundant fieldbus ports are required, some leading gauge manufacturers only provide a single field bus output. The Gauge Emulator can be used to solve this problem, by using a host port to poll the gauge and two client ports to service requests from the redundant fieldbus.

Example System Architecture

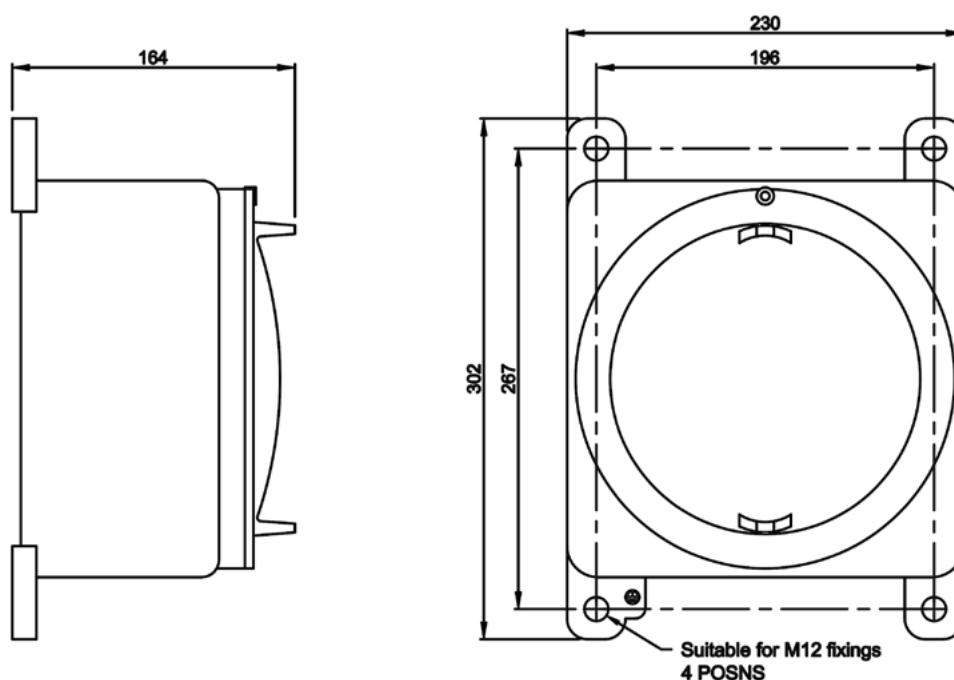


Technical specifications:

Power:	100-240 VAC; 50-60Hz; 25 VA; 0.375 A max 24/48 VDC/VAC 50-60Hz; 20W/ 25VA; 1.0 A max
Certification:	ATEX II 2 G D Ex 'd' IIC T6, IP 66
Environment	Hazardous Area Zone 1
Operating temperature:	-20 °C to +55 °C
Storage temperature:	-40 °C to +85 °C
Enclosure:	Aluminium alloy Painted RAL 7035 grey epoxy

IP rating:	IP66
Entries:	M20 threaded entries (quantity 5 off)
Terminations:	Screw terminals, 2.5 mm ² capacity
External dimensions:	302 x 230 x 164 mm
Fixings:	To suit M12 bolts, four positions
Weight:	7.5 kg
No. of host ports:	4 ports

Enclosure dimensions:



Current Protocol Emulation Options

Input / Output (Gauge side) (Field Side)  	Enraf GPU/BPM	Rosemount TRL2	WM550	Motherwell
	(including 811, 854, 873, 954 and more)	(including REX and more)	(Including 1315, 1323, NMS5x, NRF590 and more)	(MCS485 2800)
RS485 Modbus E+H Single gauge (NMS8x, NMR8x, NRF8x)	✓	✓	✓	✓