

EMU-1 Engine Compatibility and Setup

In order to confirm that the EMU-1 will be compatible with your system, please identify the manufacturer of the gauges (VDO, Faria, US Marine, Yanmar etc...) and the range of values (40 to 140 degrees C, 0 to 5 Bar etc...). Once confirmed, refer to the table below to determine whether your gauges are compatible.

Note: The manufacturer of the engine is not relevant, it is the sender / gauge manufacturer that is important.

All of the senders/gauges on the current list are standard resistance senders/gauges. The EMU-1 is not yet compatible with constant current (4-20 mA) senders/gauges.

Tachometer gauges are not listed because the EMU-1 only needs to have the Pulses Per Revolution (PPR) entered into the configuration. The PPR can usually be found by contacting your engine manufacturer or in the engine documentation.

The EMU-1 can be connected in parallel to existing gauges or as a replacement for some or all of the gauges. The EMU-1 automatically detects whether a gauge is present or not and configures itself to provide a current feed to the sender where required.

If your gauge is not listed below, you can use the 'Custom Gauge Manager' in Toolkit to configure your own gauge. If you require further instructions for using the Custom Gauge Tool then please contact Technical Support.

Gauge Compatibility Tables

Fluid Level

Unit	Min Range	Max Range	Voltage	Market	Manufacturer
Ohms	3	180	12/24	EU	VDO
Ohms	3	180	12/24	EU	VDO/Volvo (Ocean)
Ohms	10	180	12/24	EU	VDO/Volvo (Ocean)
Ohms	10	180	12/24	EU	Faria
Ohms	240	33	12/24	US	VDO
Ohms	240	33	12/24	US	Faria
Ohms	240	33	12	US	US Marine (Faria)

Pressure

Type	Unit	Min Range	Max Range	Voltage	Market	Manufacturer
Engine Boost	Bar	0	2	12/24	EU	VDO
Engine Boost	Bar	0	5	12/24	EU	VDO
Engine Boost	Bar	0	8	12/24	EU	VDO
Engine Boost	Bar	0	10	12/24	EU	VDO
Engine Boost	Bar	0	10	12/24	EU	VDO/Volvo (Ocean)
Engine Boost	Bar	0	10	12/24	EU	VDO Viewline
Engine Boost	Bar	0	10	12/24	EU	Faria
Engine Boost	PSI	0	80	12/24	US	Faria
Engine Boost	PSI	0	100	12/24	US	Faria
Engine Boost	PSI	0	80	12	US	US Marine
Engine Boost	PSI	0	150	12	US	US Marine
Engine Boost	PSI	0	80	12	US	Datcon
Engine Boost	PSI	0	100	12	US	Datcon
Engine Boost	Bar	0	3	12	EU	Yanmar 6LP
Engine Boost	PSI	0	100	12	US	Murphy EGS21
Engine Coolant	Bar	0	5	12/24	EU	VDO
Engine Coolant	Bar	0	8	12/24	EU	VDO
Engine Coolant	Bar	0	10	12/24	EU	VDO
Engine Coolant	Bar	0	10	12/24	EU	VDO/Volvo (Ocean)
Engine Coolant	Bar	0	10	12/24	EU	VDO Viewline
Engine Coolant	Bar	0	5	12/24	EU	Faria
Engine Coolant	Bar	0	10	12/24	EU	Faria
Engine Coolant	PSI	0	80	12/24	US	Faria
Engine Coolant	PSI	0	100	12/24	US	Faria

Engine Coolant	PSI	0	80	12	US	US Marine
Engine Coolant	PSI	0	150	12	US	US Marine
Engine Coolant	PSI	0	80	12	US	Datcon
Engine Coolant	PSI	0	100	12	US	Datcon
Engine Coolant	PSI	0	100	12	US	Murphy EGS21
Engine Oil	Bar	0	5	12/24	EU	VDO
Engine Oil	Bar	0	8	12/24	EU	VDO
Engine Oil	Bar	0	10	12/24	EU	VDO
Engine Oil	Bar	0	10	12/24	EU	VDO/Volvo (Ocean)
Engine Oil	Bar	0	10	12/24	EU	VDO Viewline
Engine Oil	Bar	0	5	12/24	EU	Faria
Engine Oil	Bar	0	10	12/24	EU	Faria
Engine Oil	PSI	0	80	12/24	US	Faria
Engine Oil	PSI	0	100	12/24	US	Faria
Engine Oil	PSI	0	80	12	US	US Marine
Engine Oil	PSI	0	150	12	US	US Marine
Engine Oil	PSI	0	80	12	US	Datcon
Engine Oil	PSI	0	100	12	US	Datcon
Engine Oil	Bar	0	8	12	EU	Yanmar 6LP
Engine Oil	PSI	0	100	12	US	Murphy EGS21
Transmission Oil	Bar	0	5	12/24	EU	VDO
Transmission Oil	Bar	0	8	12/24	EU	VDO
Transmission Oil	Bar	0	10	12/24	EU	VDO
Transmission Oil	Bar	0	10	12/24	EU	VDO/Volvo (Ocean)
Transmission Oil	Bar	0	25	12/24	EU	VDO
Transmission Oil	Bar	0	28	12/24	EU	VDO
Transmission Oil	Bar	0	10	12/24	EU	VDO Viewline
Transmission Oil	Bar	0	5	12/24	EU	Faria
Transmission Oil	Bar	0	10	12/24	EU	Faria
Transmission Oil	Bar	0	25	12/24	EU	Faria
Transmission Oil	PSI	0	80	12/24	US	Faria
Transmission Oil	PSI	0	100	12/24	US	Faria
Transmission Oil	PSI	0	80	12	US	US Marine
Transmission Oil	PSI	0	150	12	US	US Marine
Transmission Oil	PSI	0	400	12	US	US Marine
Transmission Oil	PSI	0	80	12	US	Datcon
Transmission Oil	PSI	0	100	12	US	Datcon
Transmission Oil	PSI	0	100	12	US	Murphy EGS21
Engine Fuel	Bar	0	2	12/24	EU	VDO
Engine Fuel	Bar	0	5	12/24	EU	VDO
Engine Fuel	Bar	0	8	12/24	EU	VDO
Engine Fuel	Bar	0	10	12/24	EU	VDO
Engine Fuel	Bar	0	10	12/24	EU	VDO/Volvo (Ocean)
Engine Fuel	Bar	0	10	12/24	EU	VDO Viewline
Engine Fuel	Bar	0	5	12/24	EU	Faria
Engine Fuel	Bar	0	10	12/24	EU	Faria
Engine Fuel	PSI	0	80	12/24	US	Faria
Engine Fuel	PSI	0	100	12/24	US	Faria
Engine Fuel	PSI	0	80	12	US	US Marine
Engine Fuel	PSI	0	150	12	US	US Marine
Engine Fuel	PSI	0	80	12	US	Datcon
Engine Fuel	PSI	0	100	12	US	Datcon
Engine Fuel	PSI	0	100	12	US	Murphy EGS21

Temperature

Type	Unit	Min Range	Max Range	Voltage	Market	Manufacturer
Engine Oil	Deg. C	40	120	12/24	EU	VDO
Engine Oil	Deg. C	40	120	12/24	EU	VDO/Volvo (Ocean)
Engine Oil	Deg. C	50	150	12/24	EU	VDO
Engine Oil	Deg. F	100	250	12/24	US	VDO
Engine Oil	Deg. C	40	120	12/24	EU	VDO Viewline
Engine Oil	Deg. C	40	120	12/24	EU	Faria
Engine Oil	Deg. F	100	250	12/24	US	Faria
Engine Oil	Deg. F	150	300	12/24	US	Faria
Engine Oil	Deg. F	100	250	12	US	US Marine
Engine Oil	Deg. F	100	240	12	US	Datcon
Engine Oil	Deg. C	40	120	12	EU	Wema

Engine Oil	Deg. F	100	250	12	US	Murphy EGS21
Engine	Deg. C	40	120	12/24	EU	VDO
Engine	Deg. C	40	120	12/24	EU	VDO/Volvo (Ocean)
Engine	Deg. C	50	150	12/24	EU	VDO
Engine	Deg. F	100	250	12/24	US	VDO
Engine	Deg. C	40	120	12/24	EU	VDO Viewline
Engine	Deg. C	40	120	12/24	EU	Faria
Engine	Deg. F	100	250	12/24	US	Faria
Engine	Deg. F	150	300	12/24	US	Faria
Engine	Deg. F	100	250	12	US	US Marine
Engine	Deg. F	100	240	12	US	Datcon
Engine	Deg. C	40	120	12	EU	Wema
Engine	Deg. C	40	120	12	EU	Yanmar 6LP
Engine	Deg. F	100	250	12	US	Murphy EGS21
Transmission Oil	Deg. C	40	120	12/24	EU	VDO
Transmission Oil	Deg. C	40	120	12/24	EU	VDO/Volvo (Ocean)
Transmission Oil	Deg. C	50	150	12/24	EU	VDO
Transmission Oil	Deg. F	100	250	12/24	US	VDO
Transmission Oil	Deg. C	40	120	12/24	EU	VDO Viewline
Transmission Oil	Deg. C	40	120	12/24	EU	Faria
Transmission Oil	Deg. F	100	250	12/24	US	Faria
Transmission Oil	Deg. F	150	300	12/24	US	Faria
Transmission Oil	Deg. F	100	250	12	US	US Marine
Transmission Oil	Deg. F	100	240	12	US	Datcon
Transmission Oil	Deg. C	40	120	12	EU	Wema
Transmission Oil	Deg. F	100	250	12	US	Murphy EGS21

Supported NMEA 2000 Data (PGNs)

The EMU-1 will transmit the converted analogue data from your engines gauges/senders as standard NMEA 2000 engine data PGNs, making the device compatible with MFD's/PC software that also use these standard NMEA 2000 PGNs. To ensure your engine monitoring display is compatible for use with the EMU-1, please check which NMEA 2000 PGN's your display supports against the PGN list below.

PGN	PGN Name	Receive (Rx)	Transmit (Tx)	Tx Rate
59392	ISO Acknowledge	Yes	Yes	N/A
59904	ISO Request	Yes	No	N/A
60160	ISO Transport protocol, Data Transfer	Yes	Yes	N/A
60416	ISO Transport Protocol, Connection Management	Yes	Yes	N/A
60928	ISO Address Claim	Yes	Yes	N/A
65240	ISO Commanded Address	Yes	Yes	N/A
126208	NMEA Request/Command Acknowledgement	Yes	Yes	N/A
126464	RX and Tx PGN Lists	No	Yes	N/A
126720	Propriety Fast-Packet	Yes	Yes	N/A
126996	Product Information	No	Yes	N/A
126998	Configuration Information	No	Yes	N/A
127488	Engine Parameters, Rapid Update	No	Yes	0.1 Seconds
127489	Engine Parameters, Dynamic	No	Yes	0.5 Seconds
127493	Transmission Parameters, Dynamic*	No	Yes	0.5 Seconds
127505	Fluid Level*	No	Yes	2.5 Seconds
127508	Battery Status	No	Yes	1.5 Seconds

*Not enabled by default. Can be configured using Toolkit.

Dual Station Senders

The EMU-1 is compatible with both single and dual station senders.

A dual station sender must always have two gauges connected to it: the EMU-1 cannot replace one or both of those gauges. If it is required to remove one or both gauges, the dual station sender will need to be replaced with a single station sender.

Recommended Wire Gauge

The recommended wire to use between the gauge/sensor and the EMU-1 connectors is a minimum of 24 AWG (0.5mm diameter).

Further Reading

Providing power to the EMU-1.

What's needed to configure the EMU-1

For more information on NMEA 2000 and how it works, please download our free guide to NMEA 2000 networking here: <https://actisense.com/complete-guide-to-building-an-nmea-2000-network/>