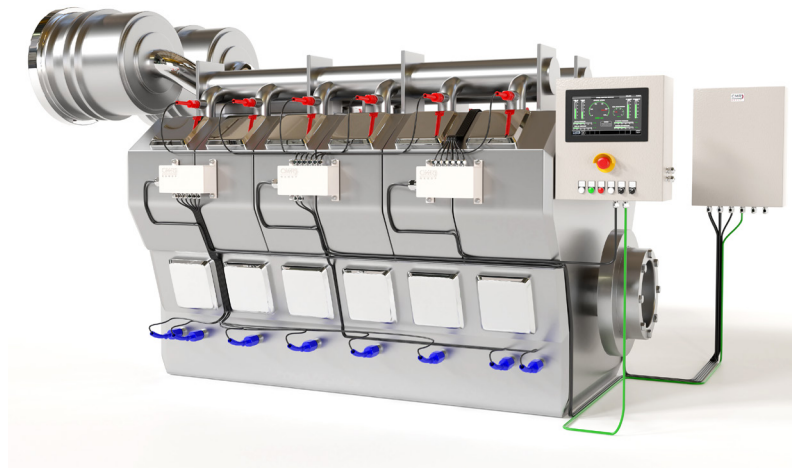


THE ADVANCED & RETRO-COMPATIBLE ENGINE CONTROL SYSTEM
TO EXTEND YOUR ENGINE LIFE CYCLE

KEY BENEFITS

- Fully retro compatible to the existing installation
- Designed and developed with the latest technology
- Open source programs : gives full autonomy & independence to the end user
- Very short downtime during retrofit operation
- Reduced OPEX cost
- No services required from OEM manufacturer
- Class type approved components
- Retrofits performed by our worldwide technical support and service network.



non-contractual picture

FEATURES

➤ **E-pulse** is an Engine Control System Package, suitable for any type high and medium speed diesel engines in Marine and Power plant installations operating in heavy duty conditions.

➤ As a Microprocessor-based system, **E-Pulse** contains all the functionalities for the protection, the monitoring conditions and the control of the engines, their associated auxiliaries and interfaces to external systems.

➤ Since the system topology is the same as the one installed on the engine, **E-Pulse** does not impose changing the existing instruments installed on the engine.

➤ The Interface to external systems such as propulsion system, auxiliaries, vessel or plant management system remains the same in terms of hardwired I/O's and communication I/O's (Modbus RTU, Ethernet TCP/IP)

➤ **CMR Group offers :**

- The expert advice from the inventor of the «precabing systems» concept (first patent in 1972) for Diesel engines.
- A know-how based on over 60 years experience in the development and production of measuring systems, tested and referenced by the biggest engine manufacturers.
- A guarantee of quality and reliability backed up by the ISO 9001 certification.
- A complete manufacturer package including engineering, design, hardware, installation, commissioning, trials, training, warranty, maintenance and obsolescence survey follow up.

MAIN CHARACTERISTICS

E-pulse system architectures :

➤ **Local Operating Panel - LOP** (pict. 1) including:

- Panel PC touch screen and dedicated Man Machine Interface for the readout of the engine parameters
- Protection modules
- Control buttons (start - stop - emergency stop - slow turning - local/remote - speed control +/-).

➤ **Main Control Cabinet - MCC** (pict. 2) including:

- Main Control Unit (MCU): Engine management
- Redundant Safety Unit (RSU): Engine safety
- Hardwired I/O Modules (analogue + binary inputs and outputs): Engine data processing
- Data Communication Module with external system.

➤ **Junction Boxes** (pict. 3):

- Engine Instruments direct connection through shielded cable glands
- Equipped with main strengthened/shielded output cables for direct connection to the MCC
- Halogen free cables specially designed for harsh environment.



MAIN FUNCTIONALITIES AT A GLANCE

1 Engine Alarm and monitoring	Data acquisition, processing and graphical display of all the engine parameters : RPM, Temperatures, pressures, levels, etc... Data monitoring and alarms generation
2 Engine safety	Emergency shutdown, overspeed shutdown, low lub oil pressure shutdown, high coolant temperature shutdown
3 Engine control	Ready to start sequence, Start/Stop sequence, Start block, Slow turning, Load reduction, Nominal idle/nominal speed control, waste gate control when applied
4 Field system interface	Engine remote control interface Hardwired input/output signals interface External communication interface (serial, Ethernet)



For more detailed information, contact us at sales@cmr-group.com