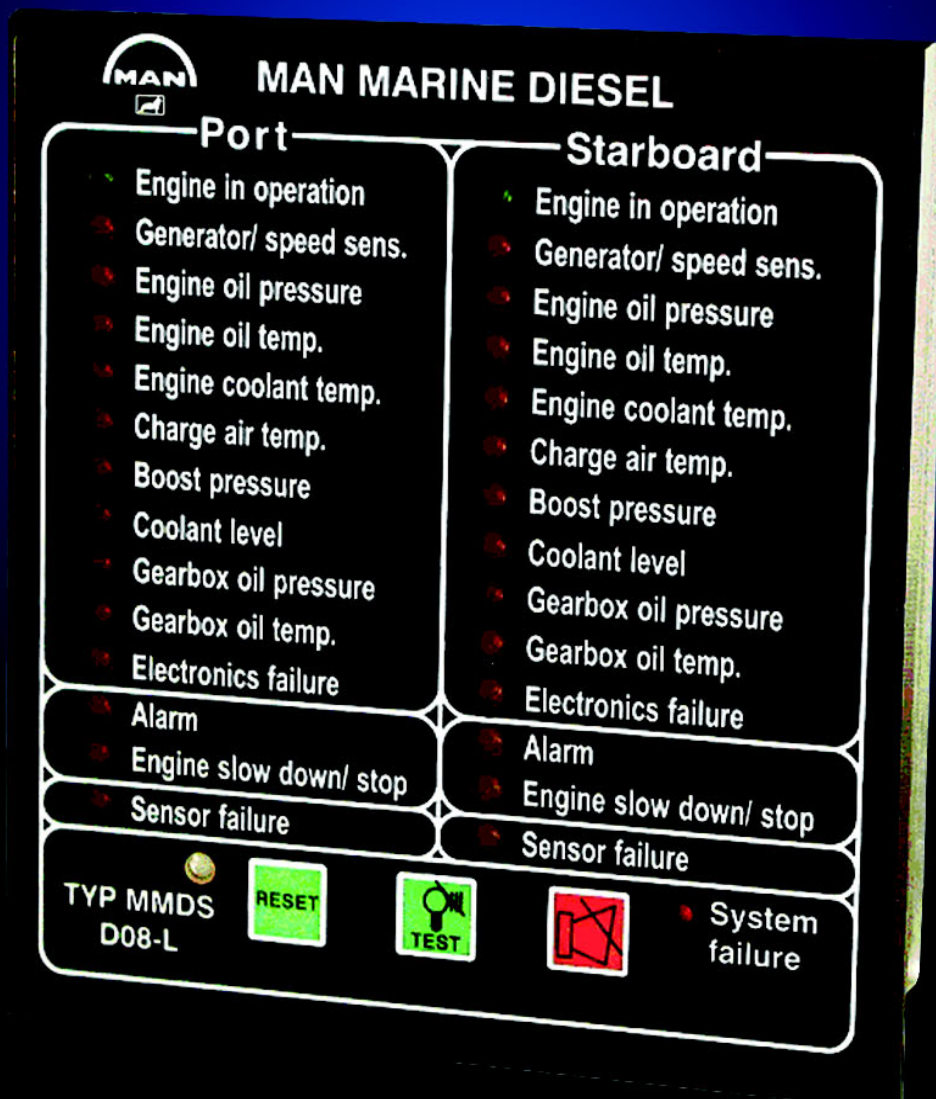


# MAN-Monitoring Diagnose System (MMDS)



D 0836 LE 401 - EDC  
12 Volt - 24 Volt

*Description, checking, interfaces*





## Dear Customer

This manual is intended to help you:

- Familiarize yourself with the components of the MAN Monitoring Diagnostic System (MMDS for short)
- Recognize the interaction of the individual MMDS components
- Install the system correctly in the ship
- Rectify faults and malfunctions

This manual must be read together with Publication 51.99598-XXXX "Electronically Controlled Diesel Injection in Conjunction with MAN Monitoring Diagnostic System (MMDS)".

This Publication was devised under the assumption that its readers will have the necessary basic knowledge of handling and working with marine engines and their electrical systems.

**Caution:**

Relates to work and operating procedures which must be observed in order to avoid damage to or destruction of materials.

**Note:**

Explanatory descriptions which help in understanding the relevant work or operating procedure to be carried out.

Best regards  
MAN Nutzfahrzeuge Aktiengesellschaft  
Nuremberg Plant

Since our products are in continuous development, we reserve the right to make technical modifications.

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## General

This summary is a compilation of the most important regulations. These are broken down into main sections which contain the information necessary for preventing injury to persons, damage to property and pollution.

The engine operating manual contains further information.

### Important:

If, despite all precautions, an accident occurs, in particular through contact with caustic acids, fuel penetrating the skin, scalding from hot oil, anti-freeze being splashed in the eyes etc., **consult a doctor immediately.**

### 1. Instructions for avoiding accidents likely to cause injury

**Only authorized and qualified personnel are permitted to carry out inspection, adjustment and repair work**

- Secure and chock vehicles to prevent the vehicle rolling
- Firmly secure units and assemblies on disassembly
  
- Only authorized personnel are permitted to start and operate the engine
- Do not stand too close to rotating parts while the engine is running.  
Wear close-fitting working clothes
  
- Do not touch hot engine with bare hands:  
risk of burning
  
- Keep area surrounding engine, ladders and stairways free of oil and grease. Accidents caused by slipping can have serious consequences
- Only work with tools which are in good condition. Damaged or worn spanners and wrenches can slip off: Risk of injury!
- Persons must not stand under an engine suspended on a crane hook. Keep lifting gear in perfect condition
  
- Open the coolant circuit only when the engine has cooled down. Follow the instructions given under "Care and Maintenance" in the Operating Manual exactly if it is not possible to avoid opening the coolant circuit with the engine at operating temperature



- Neither tighten up nor open pipes and hoses (lube oil circuit, coolant circuit and any downstream hydraulic fluid circuit) during the operation. Danger of injury caused by liquids escaping under pressure!
- Do not hold hands under the fuel jet when checking injection nozzles. Do not inhale fuel mist
- Always disconnect battery when working on the electrical system



- Do not use rapid charger to start the engine. Rapid charging of batteries is only permitted with the positive and negative leads disconnected!
- Disconnect batteries only with the “ignition” turned off
- Comply with the manufacturer’s instructions when handling batteries.  
**Caution:**  
Battery acid is toxic and corrosive. Battery gasses are explosive



- Only use suitable measuring instruments to **measure voltages!** The minimum input resistance of a measuring instrument should be 10 M  $\Omega$
- **Only disconnect or connect wiring harness connectors on electronic control units only with the “ignition” turned off!**



Disconnect batteries and connect the positive lead to the negative lead such that they are electrically conductive before carrying out any electric welding work. Earth the welding set as close to the weld as possible. Do not place cables of welding set parallel to electrical lines in the vehicle.

Refer to the “Welders’ Code of Practice” for further accident prevention measures.

- **When carrying out repaint jobs**, electronic components may be subject to high temperatures (max. 95°C) for only very short periods; a period of up to approx. 2 hours is permissible at a max. temperature of 85°C, disconnect batteries

## Limitation of liability for parts and accessories

In your own interest, we strongly recommend you use only accessories and original MAN parts expressly approved by MAN for your MAN engine. The reliability, safety and suitability of these parts and accessories have been tested specially for MAN engines. Despite us keeping a constant eye on the market, we cannot assess and be held responsible for these properties in other products, even if they bear TÜV (German testing and inspection institute) approval or any other official approval in any particular case.

## Laying up or storage

Special measures must be implemented in accordance with MAN Company Standard M 3069 Part 3 if engines are to be laid up or placed into storage for more than 3 months.



## Notes

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A series of horizontal dotted lines for writing notes.



## **Monitoring systems**

There is the possibility of connecting two different monitoring systems to the D 0836 engine.

### **1. Monitoring system for D 28 engine**

This system functions exclusively via the serial data line. The 4-20 mA instrument dials are activated by means of digital/analog converters.

### **2. Monitoring system for D 0836 engine**

Here the (CAN) instrument dials are activated with the CAN bus protocol. The alarms with alarm handling are issued at an LED panel (MMDS-D 08-L). An LED display unit monitors two engines simultaneously.

### **3. Throttle lever control**

The throttle lever control system is not dependent on the monitoring system. For both monitoring systems, both the "Mini Marex" and "Marex SB" control systems manufactured by Bosch-Rexroth can be fitted.

Differences between Marex SB and Mini Marex:

#### **Marex SB**

- One control electronics for two engines
- CAN bus throttle lever
- no trolling device

Any 4-20 mA (for speed setting) control system can be connected; there is also the possibility of connecting a control system with Bowden cable via a pedal travel sensor.

Whether the gearbox is electrically or mechanically shiftable is dependent on the gearbox.

However electrically shiftable gearboxes are to be preferred, as are control systems with 4-20 mA for speed setting.



## Layout of MAN Monitoring Diagnostic System (MMDS) for EDC Engines

### Monitoring system of D 28 engine

The engine monitoring and diagnostic system developed by MAN is called the “MAN Monitoring Diagnostic System” or “MMDS” for short. The following diagram shows a complete overview of the system which can be installed on the D 0836 engine.

