

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Engine Safety, Control and Alarm System

with type designation(s)
MAN Intelligent Marine Safeguard System

Issued to

MAN Truck & Bus SE
Nürnberg, Bayern, Germany

is found to comply with
DNV GL rules for classification – Ships, offshore units, and high speed and light craft

Application :

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.

Temperature

Humidity

Vibration

EMC

Enclosure

Issued at **Hamburg** on **2019-09-30**

This Certificate is valid until **2024-09-29**.

DNV GL local station: **Augsburg**

for **DNV GL**

Approval Engineer: **Marco Rinkel**

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Joannis Papanuskas
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.



Job Id: **262.1-032162-1**
Certificate No: **TAA00002GB**

Product description

MAN Intelligent Marine Safeguard System is intended to use for MAN engines types:

D2862LEXXX which consist:

List of sensors						
Part number	Description	Environmental Classes				
		Temp.	Humidity	Vibration	EMC	Enclosure
51.25431-6173	E-Box	D	B	A	B	B
51.25805-7017	MCS	D	B	A	B	-
51.25430-0015	MCS_GP	D	B	A	B	-
51.27720-7053	MCS_Display_5inch_local_E-Box	D	B	A	B	B
51.25806-7005	MCS_SU	D	B	A	B	-
51.25430-0016	MCS-SU_GP	D	B	A	B	-
51.27720-7054	MCS-SU_Display_5inch_local_E-Box	D	B	A	B	B
51.25435-0254_1-2	Connector block	D	B	A	B	-
51.27720-7050	Display_7" _ECR	D	B	A	B	-
51.27720-7049	Display_7" _Bridge	D	B	A	B	-

List of sensors						
Part number	Description	Environmental Classes				
		Temp.	Humidity	Vibration	EMC	Enclosure
51.27421-0252	Fuel Supply pressure	D	B	B	n.a.	B
51.27421-0266	Injection pipe leakage					
51.27421-0350	Water level fuel oil pre-filter					
51.25413-6556	Adapter for water level sensor					
51.27421-0251	Engine oil pressure at filter outlet					
51.27421-0249	Engine oil temperature					
51.27421-0249	Coolant temperature at crankcase outlet					
51.27421-0251	Coolant pressure at pump outlet					
51.27421-0269	Coolan pressure in expansion tank					
51.27421-0265	Coolant level in expansion tank					
51.27421-0250	Charge air temperature					
51.27421-0254	Charge air pressure					
51.27421-0030	Crankshaft speed					
51.27421-0270	Exhaust temperature at turbocharger inlet left_right					

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Application/Limitation

This system is only to be used as engine control and monitoring system for auxiliary, propulsion diesel marine engines in multiengine propulsion plants and also for emergency diesel engines.

The following documentation of the actual application is to be submitted for approval in each case:

- Reference to this Type Approval Certificate
- System block diagram
- Power supply arrangement (may be part of the System block diagram)
- List of Control and Monitored points.

The Type Approval covers hardware and software listed under Product description.

As long as the units are covered by the Type Approval, a product certificate according to DNV Rules for Ships Pt.4 Ch.9 Control and Monitoring Systems will **not be required if system is use for described under product description engines types**. Correct configuration and set up for each delivery to be tested during commissioning after installation.

The current software / firmware versions			
Components	Drawing No.	Revision	Version
MCS	51.25805-7017		V2.3.x
MCS_GP	51.25430-0015	a	V2.3.x
MCS_Display_5inch_local_E-Box	51.27720-7053	a	V5.10.x
MCS_SU	51.25806-7005		V2.3.x
MCS-SU_GP	51.25430-0016	a	V2.3.x
MCS-SU_Display_5inch_local_E-Box	51.27720-7054	a	V6.10.x
Display_7inch_Bridge	51.22720-7049	a	V4.10.x
Display_7inch_ECR	51.27720-7050	a	V4.10.x

Clause for application software control

All changes in software are to be recorded as long as the system is in use on board. The records of all changes are to be forwarded to DNV GL for evaluation and approval. Major changes in the software are to be approved before being installed in the computer. A Certification of Application Functions may be required for the particular vessel.

Type Approval documentation Type Approval documentation

See ANNEX

Tests carried out

Applicable tests according to Class Guidelines DNVGL-CG-0339, November 2016.

For the bridge mounted components the 'Compass safe distance' was measured according to section 11.2 of IEC 60945 4th edition (2002).

Marking of product

Manufacturer: MAN Truck & Bus AG, Vogelweierstr.33, 90441 Nürnberg, Germany

Model name: As listed under Product description

Serial number: Unique for each delivered item

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the type are complied with, and that no alterations are made to the product design or choice of systems, software versions, components and/or materials.

The main elements of the assessment are:

- Ensure that type approved documentation is available
- Inspection of factory samples, selected at random from the production line (where practicable)
- Review of production and inspection routines, including test records from product sample tests and control routines
- Ensuring that systems, software versions, components and/or materials used comply with typeapproved documents and/or referenced system, software, component and material specifications
- Review of possible changes in design of systems, software versions, components, materials and/or performance, and make sure that such changes do not affect the type approval given
- Ensuring traceability between manufacturer's product type marking and the type approval certificate

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE

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ANNEX

Type Approval documentation (hidden)