TÜRK LOYDU

TYPE APPROVAL CERTIFICATE

This Certificate consists of 3 pages.

This is to certify that the

Monitoring, Alarm and Control System Components
Propulsion Remote Control System Components

With type designations

MCS-5, MCS-6
RCS-5, RCS-6

Manufactured by

MTU Friedrichshafen GmbH

Is found to comply with

TL Rules, Part E, Chapter 104 - Naval Ship Technology, Propulsion Plants January 2015, TL Rules, Part E, Chapter 105 - Naval Ship Technology, Electrical Installations January 2016, TL Rules, Part E, Chapter 106 - Naval Ship Technology, Automation January 2015, TL Rules, Part B, Chapter 5, Electric July 2019, TL Rules, Part B, Chapter 4-1, Automation July 2019, TL Rules, Part B, Chapter 4, Machinery January 2020.

Application	: Engine Monitoring, Alarm and Control Systems. PCS applications.
Design	: MTU Friedrichshafen GmbH
Sizes	: According to Approved Sizes.
Address of Manufacturer	: 88045 Friedrichshafen, Germany
Place and date	: İSTANBUL / 30.12.2021

Subject to the conditions referred to in the following pages, this certificate is valid until 10.12.2026

Emrah SÖĞÜTCÜ
New Building Division Manager

89588

Product description: Monitoring, Alarm and Control System Components, Propulsion Remote Control System Components. 24 VDC.

Type Designation : MCS-5, MCS-6, RCS-5, RCS-6
Materials used : Below sub components to be used ;

Management Computer Units:
MCU 1, -2, -3 PC/AT-486 (19" rack) ; MCU 8: CPU INTEL 430TX (19" rack); MCU11: CPU INTEL Pentium M, 1.4GHz ; MCU12: CPU Atom D510 – Dualcore 1,66GHz.
Peripheral Interface Modules with input/output:
PIM1 ; PIM2 ; PIM3 ; PIM4 ; PIM5
System Bus Coupling Unit:
SCU1
Central Connecting Unit:
CCU2
Remote Interface Module:
RIM1
Programmable Process Stations:
PPS1 ; PPS2 ; PPS4
Control and Display Panels:
PAN1 ; PAN2 ; PAN3 ; PAN4 ; PAN 9
Indicator Panels:
DIS1 ; DIS3 ; DIS 5 ; DIS10 ; DIS11
Local Operator Panel, Central Processing Unit for all subsystems:
LOP14
Control Lever:
ROS2, ROS7, ROS13, ROS14
Communication Process Station:
CPS
Filter Module:
FIB
Standard Automation Module with I/Os for additional control functions:
SAM1; MPDR 9651 (19" - colour monitor) ; 71114 PCD (14" - color monitor) ; RK 90 Keypad; KBD1 Keyboard ; B5XX9P ; TRB1 Trackball.
Propulsion plant remote control system for fixed pitch propulsion:
RCS-5 FPP/8
Control Lever for waterjet applications:
ROS 2-01/A
Control Lever for fixed pitch propeller applications:
ROS 2-01/8 ; ROS 14-. ./8
Control Lever for controllable pitch propeller applications:
ROS 2-01/C ; ROS 14-. ./C
Remote operation station control lever:
ROS 7 ; ROS 13
Remote Interface Module:
RIM1

Application/ Limitation (Approval conditions) :

- Engines are not covered by this approval.
- Individual Product Certification is required. In projects under TL Class Rules, the engines to be Monitored and Controlled with the enlisted scope of materials, a Product Certificate must also be obtained.
- For each application, the project documentations and software descriptions are to be submitted to TL for approval.
- Systems will be delivered with the relevant documentation for their maintenance and their operation.
- Any changes to the approved design parameters or construction including software version are to be intimated and approved by TL.
- If requirement of enclosure IP level higher than the approved material, required IP level is to be complied with.

Documentation : Plan Approval Letters issued by TL :
PAE-EPAS/008400/20-1962/GTÇ 17.01.2021
PAE-EPAS/010834/20-1962/GTÇ 02.11.2021
PAE-EPAS/010977/20-1962/GTÇ 16.11.2021
PAE-EPAS/011141/20-1962/SÜ 01.12.2021
PAE-EPAS/011153/20-1962/GTÇ 02.12.2021

Test carried out (and results) : Type Approval Tests Reports submitted by Maker :
20201126_ROS13 3.8.7 – 4
20201126_ROS14 3.8.7 – 5
DIS10 3.8.7 – 3
DIS11 3.8.7
MCU12 3.8.7 – 1
PAN1-8 3.8.7 - 2 MFD-1
PAN9 3.8.7 - 9
PIM1 PIM5 3.8.7 – 10
PIM2 PIM3 3.8.7 – 11
PPS1 3.8.7 - 12
PPS2 3.8.7 – 13
PPS4 3.8.7 – 14
RIM1 3.8.7 – 8
ROS2 3.8.7 – 7
ROS7 3.8.7 – 6
ROS13-17 3.8.7-15
TRB 3.8.7 – 17

Place of test carried out : MTU Friedrichshafen GmbH, 88045 Friedrichshafen, Germany.

Marking of product : The product to be marked same as below mentioned.
- Maker's name or trade mark.
- Equipment type or model identification.
- Serial number of the units.
- TL Product Certification Marking(s) for each individual shipset.

Serhan OFLAS
Surveyor

This certificate is subject to terms and conditions described below:

- Any significant change in design or construction may render this Certificate invalid. Type Approval Certificate is not valid for equipment, the design or manufacture of which has been varied or modified from the specimen tested. This certificate is not valid for products without marking above mentioned. The manufacturer should notify TÜRK LOYDU of any modifications or changes to the equipment in order to obtain valid certificate. This certificate shows that tested specimens as representative of the product complies of the TÜRK LOYDU rules, and relevant international instruments that apply to it.