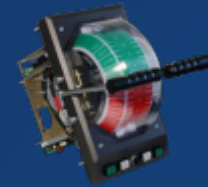


**A067 Bridge
and ECR EOT**



double engine
order telegraph
standardsize,
spade handle

sm electric's Engine Order Telegraph units are based on stainless steel material as well as on massive seawater resistant aluminium/magnesium alloy resulting in a long-term physical life.

The EOT units can be down-graded to simple level drives providing only the desired RPM or pitch value to the connected propulsion remote control system.

The EOT units can be up-graded by an electrical shaft operation that synchronises all connected participants located on bridge wings and/or other bridge areas. In such operation mode the main EOT unit mostly located on bridge centre is providing the interface signals to the connected propulsion remote control system only.

Performance characteristics

- » base material: Al Mg3
- » two handle types and two unit sizes available
- » twin types for twin engine vessels available
- » system voltage : 24VDC nominal
- » dimmable night vision operation
- » various interface technologies to propulsion RCS
- » synchronous operation of all bridge area units (electric shaft)
- » protection rating: IP56



engine
order telegraph
standard size,
ball handle

**A067
Wing lever**



Engine Order Telegraph units located on the bridge wings are mostly provided without the typical EOT feature to transfer and receive the manoeuvre commands between bridge and engine control area. The simplified EOT is called lever and is part of the electrical shaft operation to remote control the main EOT unit on the centre bridge by synchronising all connected participants on the bridge area. Such follow-up technology gives full and reliable control to the OOW during bridge wing operation manoeuvres.

**A067 full
operation EOT
repeater**



telegraph repeater
push button operation
In wall box with bell

sm electric's Engine Order Telegraph unit installed at the main engine local station operates during „EOT operation mode” in correspondance with the main EOT on centre bridge. The manoeuvre commands from bridge are indicated visually incl. audible alarm and have to be acknowledged accordingly. The acknowledgement will be transferred to the bridge as a responding action. A simplified push button repeater version is available as well as an analogue indication and respond by round turning scale operation.

Performance characteristics:

- » base material: Al Mg3 or powder coated sheet steel
- » push button control or round turning scale operation
- » system voltage: 24VDC nominal
- » various interface technologies to propulsion RCS (e.g. redundant current transmitters 4 20mA)
- » protection rating: IP44/IP56

TECHNICAL SYSTEM DATA:

- » system power supply: 24VDC nominal
- » A067 mtBUS RS485 control
- » two handle types and two unit sizes available
- » double EOT for twin main engine control available
- » VDR interface acc. to IEC 61162-2
- » various interface technologies to propulsion RCS
- » all environmental tests min. acc. IEC 60945
- » full operation EOT repeater for ME local station
- » protection rating: IP44/IP56
- » type approved by: GL, BV, LR, RMRS, RRR



telegraph repeater
round turning scale
operation, in wall box
with bell



round turning
scale operation to be
flush mounted

**sm electric's Engine Order Telegraph (EOT)
and Em'cy Engine Order Telegraph Systems (EEOT)**

represent the embodiment of safe and sustained μ P controlled human machine interface as a basic part of the connected remote propulsion system.

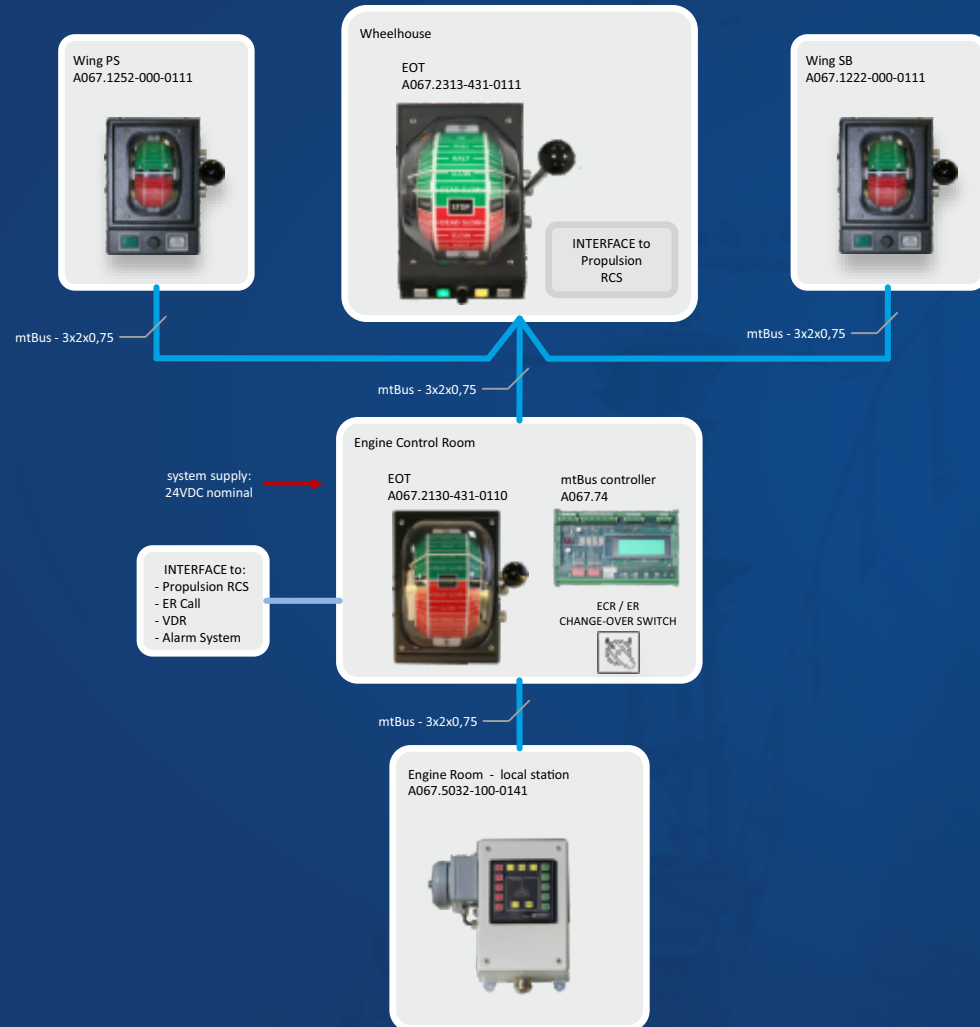
Type approved by major classification societies the equipment is available for various control application. The highly integrated system is administrating a single interface to the potential propulsion system by high-precision shock resistant potentiometer, contact-free optical current transmitter or other defined physical interface unit. The well established μ P controlled “Electrical Shaft” allows a secure Bridge FWD EOT's remote control by corresponding lever controller located typically on the Bridge Wings and/or Bridge AFT.

A simplified μ P controlled Em'cy Engine Order Telegraph (EEOT) system operates as the final back-up system in a case the general propulsion remote control system and its back-up mechanism fails.



- » intuitive operation
- » reliable and economic mtBUS system
- » easy to install
- » highly integrated and modular structure
- » clear system diagnosis via central LCDisplay
- » various interface technologies to your propulsion RC system
- » serial VDR interface
- » type approved by all major classification societies

typical EOT system composition



EOT system A067

The main purpose of sm electrics' Engine Order Telegraph system is to generate the desired RPM or pitch value for the connected propulsion remote control system by a sustained and reliable lever known as well as human machine interface (HMI).

In case the connected propulsion remote control system is disturbed the engine order telegraph system is in use to transfer manoeuvre commands to the engine control room or, if required, directly to the engine room's ME local station. The given manoeuvre command activates an audible alarm as long as the command has been accepted by corresponding operation at the connected participants.

The modular system structure allows to extend the system by wing control units. All telegraphs located on the bridge e.g. bridge FWD, bridge AFT, wing SB, wing PS are connected to each other by a virtual mechanical shaft and operates as a remote control of the main bridge FWD telegraph which is providing the main interface to the connected propulsion remote control system.

The centralized **A067 mt Bus controller**, mostly located inside the engine control room console, controls and monitors all network participants and provides further interface signals for ER call, VDR and connected IAMC systems.

- » intuitive operation
- » reliable and economic mtBUS-system
- » easy to install - no on-site adjustments required
- » highly integrated and modular system structure
- » two handle types and two EOT sizes available
- » twin EOT for twin main engine control available
- » clear system diagnosis via central LCDisplay
- » various interface technologies to your propulsion RC system
- » serial VDR interface
- » type approved by GL, BV, LR, RMRS, RRR

A067 mtBUS controller

sm electrics' **A067 mtBUS controller** is designed to manage and monitor permanently all connected network units. Simply to be mounted on a terminal rail (TS35) the controller provides useful system information to the commissioning, service and maintenance staff indicated clearly on a 4 lines 20 characters LC display.

Following interface signals are provided:

Wrong-way contacts, working with a corresponding set of propulsion system contacts generating an alarm in case the given manoeuvre command and the current propulsion direction (propeller shaft or propeller pitch) do not correspond.

EOT Call contact, causing the audible and/or visual alarm means to be activated in case the two connected EOT parties' manoeuvre command do not correspond.

Failure contact, causing an alarm to be transferred to the connected IAMC system or Bridge Alert Management system in case the **mtBUS controller** detects an abnormal system situation.

Serial VDR interface, RS 485, 2-wire/3-wire uni-directional connection to VDR/S-VDR system acc. to IEC 61162-2.

Performance characteristics:

- » well established and sustained RS485 bi-directional mtBus technology
- » system voltage: 24 VDC nominal
- » power consumption 2-3 W
- » to be installed on TS35 terminal rail
- » LC display with 20 characters in 4 lines for system diagnosis
- » VDR connection baud rate selectable 4.800 to 38.400 bit/s
- » Wrong way contacts (dry relay contacts)
- » EOT Call alarm (dry n/o relay contact)
- » Failure contact (dry n/c relay contact)

