

TYPE APPROVAL CERTIFICATE

Certificate No:
TAA00002CH
Revision No:
3

This is to certify:

That the **Miscellaneous Internal Communication Equipment**

with type designation(s)
EC MA MUN Series

Issued to

Commend International GmbH
Salzburg, Austria

is found to comply with

DNV 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.

Location classes:

Temperature	D
Humidity	B
Vibration	A
EMC	B
Enclosure	Required protection according to the Rules shall be provided upon installation on board.

Issued at **Hamburg** on **2025-09-22**

This Certificate is valid until **2030-09-21**.

DNV local unit: **Hamburg**

Approval Engineer: **Heinz Scheffler**



for **DNV**

This document has been digitally signed and will therefore not have handwritten signature

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Frederik Tore Elter
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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Product description

Hardware Module for Intercom systems

Keypad Module

- Dimensions: 95 x 95 x 44,5 mm
- Connector: I²C- bus (2x)
- Power supply: via I²C-bus
- System connection: via I²C-bus (Daisy-Chain)
- Buttons „0“ - „9“, „*“, „#“ plus 4 system buttons
- Backlight
- Key tones: can be deactivated
- Degree of protection: IP65
- Item No.: EC MA MUN KB16 * / M-MUN-KB16-*

Push-Button Module 1/2/3

- Dimensions: 95 x 95 x 44,5 mm
- Connector: I²C- bus (2x)
- Power supply: via I²C-bus
- System connection: via I²C-bus (Daisy-Chain)
- Max. power consumption: 1 Button 200mW, 2 Button 275mW, 3 Button 350mW
- Buttons: 1 to 3
- Backlight
- Key tones: can be deactivated
- Button arrangement: either left or right
- Labelling field: can be replaced without opening the device
- Degree of protection: IP65
- Item No.: EC MA MUN PBS1/2/3 * / M-MUN-PBS1/2/3-*

Camera Module

- Dimensions: 112 x 107 x 63,9 mm (including SIP module)
- Power supply: PoE / PoE+ / 24VDC (1,5A) via SIP module
- System connection: internal
- IR-lighting
- Angle: D/H 150° / 130 °
- Frame rate: up to 30 fps
- Video codec: H.264 and MJPG
- Degree of protection: IP65
- Item No.: EC MA MUN CAM1 * / M-MUN-CAM1-*

Loudspeaker Module

- Dimensions: 95 x 95 x 58,9 mm
- Loudspeaker: 8 Ohm/10Watt
- Amplifier performance: 5 W (RMS)
- Sound pressure level dB (SPL): 94dB (SPL)/1 kHz/1m
- System connection: via SIP module
- Status: observable using speaker light ring
- Degree of protection: IP65
- Item No.: EC MA MUN LS10 * / M-MUN-LS10-*

SIP Module basic

- Dimensions: 112 x 107 x 60,5 mm
- Connector: I²C- bus (1x)
- Power supply: PoE / PoE+ / 24VDC (1,5A)
- System connection: internal
- Relay Output 1x SPDT (60VDC/2A/max.30W or 25VAC/2A/max.62,5VA)
- Input: 2x Dry Contact
- Uplink RJ-45
- Operating system: Linux
- Audio codec: G722
- Data rate: 10/100 Mbit
- Amplifier performance: 5 W (RMS)
- Audio bandwidth: 8 kHz
- Status display: observable using speaker light ring (RGB)
- VoIP protocol: SIP
- Item No.: EC MA MUN CPU1 / M-MUN-CPU1

SIP Module advanced

- Dimensions: 112 x 107 x 60,5 mm
- Connector: I²C- bus (1x)
- Power supply: PoE / PoE+ / 24VDC / 1,5A
- System connection: internal
- Relay Output 1x SPDT (60VDC/2A/max.30W or 25VAC/2A/max.62,5VA)
- Input: 2x Dry Contact
- Uplink RJ-45
- Downlink RJ-45
- Operating system: Linux
- Audio codec: G722
- Data rate: 10/100 Mbit
- Amplifier performance: 5 W (RMS)
- Audio bandwidth: 8 kHz
- Video Codec H.264
- Status display: observable using speaker light ring (RGB)
- VoIP protocol: SIP
- Item No.: EC MA MUN CPU2 / M-MUN-CPU2

SIP Module advanced+

- Dimensions: 112 x 107 x 60,5 mm
- Connector: I²C- bus (1x)
- Power supply: PoE / PoE+ / 24VDC / 1,5A
- System connection: internal
- Relay Output 2x SPDT (60VDC/2A/max.30W Or 25VAC/2A/max.62,5VA)
- Input: 4x Dry Contact
- Uplink RJ-45
- Downlink RJ-45
- Operating system: Linux
- Audio codec: G722
- Data rate: 10/100 Mbit
- Amplifier performance: 5 W (RMS)
- Audio bandwidth: 8 kHz
- Video Codec H.264
- Status display: observable using speaker light ring (RGB)
- VoIP protocol: SIP
- Item No.: EC MA MUN CPU3 / M-MUN-CPU3

I/O 8 Module

- Dimensions: 108 x 90 x 61 mm
- Connector: I²C- bus (2x)
- System connection: via I²C-bus (Daisy-Chain)
- Power supply: via I²C-bus
- Relay Output 8x SPDT (60VDC/1A/max.30W or 50VAC/1A/max.35VA)
- Input: 8x Dry Contact
- Item No.: EC MA MUN IO08 / M-MUN-IO08

Microphone Module

- Dimensions: 108 x 38 x 15 mm
- Power consumption: 15 mW
- Power supply: via SIP module
- System connection: internal / via SIP module
- Microphone: 2 digital microphones
- Item No.: EC MA MUN MICS / M-MUN-MICS

Display Module

- Dimensions: 95 x 95 x 25,5 mm
- Power consumption: 800 mW
- Power supply: via SIP module
- System connection: internal / via SIP module
- Touch function: Yes
- Item No.: EC MA MUN TD03

Server Module

- Dimensions: 112 x 107 x 67 mm
- System connection: via I²C-bus
- Power supply: PoE / PoE+ / 24VDC (1,5A)
- Max. power consumption: 4.5W (plus connected modules)
- Relay Output 1x SPDT (60VDC/1A/max.30W or 30VAC/1A/max.35VA)
- Input: 2x Dry Contact
- Uplink/Downlink RJ-45
- Operating system: Linux
- Data rate: 10/100 Mbit
- VoIP protocol: SIP
- Item No.: EC MA MUN SSER / M-MUN-SSER

Secure Module

- Dimensions: 112 x 107 x 67 mm
- System connection: via I²C-bus
- Power supply: PoE / PoE+ / 24VDC (1,5A)
- Max. power consumption: 4.5W (plus connected modules)
- Relay Output 1x SPDT (60VDC/1A/max.30W or 30VAC/1A/35VA)
- Input: 2x Dry Contact
- Uplink/Downlink RJ-45
- Operating system: Linux
- Data rate: 10/100 Mbit
- VoIP protocol: SIP
- Item No.: EC MA MUN SEC2 / M-MUN-SEC2

Accessories:

- Spare Module
 - Degree of protection: IP65
 - Item No.: EC MA MUN BCOV * / M-MUN-BCOV-*
- Internal cable
 - Item No.: EC MA EUN CxS# / M-EUN-CxS#
- Module frame
 - EC MA EUN DF#S * / M-EUN-DF#S-*
- Module Housing:
 - Flush mount box
 - 1x1 module EC MA EUN FH1S / M-EUN-FH1S
 - 1x2 module EC MA EUN FH2S / M-EUN-FH2S
 - 1x3 module EC MA EUN FH3S / M-EUN-FH3S
 - 1x4 module EC MA EUN FH4S / M-EUN-FH4S
 - 2x2 module EC MA EUN FH22S / M-EUN-FH22S
 - 2x3 module EC MA EUN FH6S / M-EUN-FH6S
 - Surface mount box
 - 1x2 module EC MA EUN SH2S/ M-EUN-SH2S
 - 1x3 module EC MA EUN SH3S/ M-EUN-SH3S

x means type of cable (L/M/S)

* means Material steel (V4A) or plastic (V0)

means number of modules (1-6)

Application/Limitation

When installing a display module (EC MA MUN TD03a), a DNV Type Approval Power Supply (see Manual PM-Ognios_System-EN-V17-1025, Chapter 3.5) must be installed regarding surge immunity.

The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNV, documentation for the actual application is to be submitted for approval by the manufacturer of the application system in each case.

Reference is made to DNV statutory interpretations DNV-SI-0364, section 4, part 3.

Product certificate

If specified in the DNV statutory interpretations DNV-SI-0364, section 4, part 3., the internal communication systems in which the above listed hardware is used shall be delivered with a product certificate. For each such delivery the certification test is to be performed at the manufacturer of the application system before the system is shipped to the yard. The test shall be done according to an approved test program. After the certification the clause for application software control will be put into force.

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 for evaluation and approval. Major changes in the software are to be approved before being installed in the computer.

Type Approval documentation

Test Reports: U170158E1; E181614E1; 2234233KAU001; 181108_06 EMC32 Report; Performance test 1.4 dated 31.08.2020; BSH Certificate No. 1029 (Compass Safe Distance); E231601E1; U231601E1

Documents: TAA00002CH_Overview_Documents_Rev.04; Manual PM-Ognios_System-EN-V16-0820

Tests carried out

Applicable tests according to class guideline DNV-CG-0339, August 2021.

IEC 60945:2002/COR1:2008; Section 11.2

Marking of product

The products are to be marked:

- Model name
- Manufacturer name
- Serial number (except M-MUN-MICS and Accessories)

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 type approved 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