

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Peripheral Equipment**

with type designation(s)
MPPC, MM, MPCbox

Issued to

Sonove GmbH
Sonthofen, 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 B

Humidity B

Vibration A

EMC B

Enclosure Required protection according to DNV GL rules shall be provided upon installation onboard

Issued at **Hamburg** on **2020-07-03**

This Certificate is valid until **2022-07-02**.

for **DNV GL**

DNV GL local station: **Augsburg**

Approval Engineer: **Jens Dietrich**

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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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV GL AS, its parent companies and subsidiaries as well as their officers, directors and employees ("DNV GL") 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

Panel PCs:

MPPC15 Glass Celeron DC	440.yz2.xxxx
MPPC15 Glass i7 DC	440.yz2.xxxx
MPPC15 RT Celeron DC	445.yz2.xxxx
MPPC15 RT i7 DC	445.yz2.xxxx
MPPC15 Glass Celeron AC	440.yz1.xxxx
MPPC15 Glass i7 AC	440.yz1.xxxx
MPPC15 RT Celeron AC	445.yz1.xxxx
MPPC15 RT i7 AC	445.yz1.xxxx
MPPC17 Glass Celeron DC	450.yz2.xxxx
MPPC17 Glass i7 DC	450.yz2.xxxx
MPPC17 RT Celeron DC	455.yz2.xxxx
MPPC17 RT i7 DC	455.yz2.xxxx
MPPC17 Glass Celeron AC	450.yz1.xxxx
MPPC17 Glass i7 AC	450.yz1.xxxx
MPPC17 RT Celeron AC	455.yz1.xxxx
MPPC17 RT i7 AC	455.yz1.xxxx
MPPC19 Glass Celeron DC	460.yz2.xxxx
MPPC19 Glass i7 DC	460.yz2.xxxx
MPPC19 RT Celeron DC	465.yz2.xxxx
MPPC19 RT i7 DC	465.yz2.xxxx
MPPC19 Glass Celeron AC	460.yz1.xxxx
MPPC19 Glass i7 AC	460.yz1.xxxx
MPPC19 RT Celeron DC	465.yz1.xxxx
MPPC19 RT i7 DC	465.yz1.xxxx
MPPC20 Celeron DC	475.yz2.xxxx
MPPC20 i7 DC	475.yz2.xxxx
MPPC23 Glass Celeron DC	480.yz2.xxxx
MPPC23 Glass i7 DC	480.yz2.xxxx
MPPC23 RT Celeron AC	485.yz2.xxxx
MPPC23 RT i7 AC	485.yz2.xxxx
MPPC23 Glass Celeron AC	480.yz1.xxxx
MPPC23 Glass i7 AC	480.yz1.xxxx
MPPC23 RT Celeron AC	485.yz1.xxxx
MPPC23 RT i7 AC	485.yz1.xxxx

RAM: DDR3 4 GB, DDR3 8 GB; SSD: 64GB, 128GB, 256GB,
Interfaces: 2x PS/2, 1/2x GLAN, 4x Serial (RS232 or RS485), 4x USB 2.0 Rear,
2x USB 2.0 Front, LPT Parallel Interface, Riser 2x PCI.

Main-CPU:

BS77 i7-3615QE 4x 2.3GHz, BS77 i7-3517UE 2x 1.7GHz,
BS45 Core 2 Duo SL9400 2x 1.86GHz,
BS77 Celeron 1020E, 2x2.2 GHZ, CR902-BL1020E Celeron 2x 2.2GHz,

CR902-BL3517UE i7 2x 1.7GHz.

Monitors:

MM15 Glass DC	540.002.xxxx
MM15 RT DC	545.002.xxxx
MM15 Glass AC	540.001.xxxx
MM15 RT AC	545.001.xxxx
MM17 Glass DC	550.002.xxxx
MM17 RT DC	555.002.xxxx
MM17 Glass AC	550.001.xxxx
MM17 RT AC	555.001.xxxx
MM19 Glass DC	560.002.xxxx
MM19 RT DC	565.002.xxxx
MM19 Glass AC	560.001.xxxx
MM19 RT AC	565.001.xxxx
MM20 Glass DC	570.002.xxxx
MM23 Glass DC	580.002.xxxx
MM23 RT DC	585.002.xxxx
MM23 Glass AC	580.001.xxxx
MM23 RT AC	585.001.xxxx

PC-Boxes:

MPC box Celeron DCAC	413.yz2.xxxx
MPC box Celeron AC	413.yz1.xxxx
MPC box Celeron DCAC	413.yz3.xxxx
MPC box i5 DC	411.yz2.xxxx
MPC box i5 AC	411.yz1.xxxx
MPC box i5 DCAC	411.yz3.xxxx
MPC box i7 DC	410.xz2.xxxx
MPC box i7 AC	410.yz1.xxxx
MPC box i7 DCAC	410.yz3.xxxx

Type key: yz1.xxxx, yz2.xxxx, yz3.xxxx

y=code for Operating System

z=code for SSD capacity: 32...512GB

xxxx: Customer config specific No. (to be composed of components listed):

Power Supply variants: DC: 24 VDC, AC: 230VAC, DCAC: Redundant supply 230VAC/24VDC
CPUs: CL types: Intel Celeron G1820TE, i5 types: Intel Core i5-4590T, i7 types: Intel Core i7-4770TE,
RAM: 4...16 GByte; SSD: 32...512 GByte,
Interfaces:
2x PS/2, 2x GLAN (+2 optional), 2x Serial RS232, 4x Serial RS485/422 (optional),
4x USB (+4 optional), 1 LPT Parallel Interface, 1xDVI.

Compass safe distances (IEC 60945:2002, 11.2, Standard compass):

MPPC15 AC: 133cm

MPPC19 AC: 145cm

MPPC20 DC: 170cm
MPPC23 AC: 220cm
MM17 AC: 137cm
MM19 DC: 98cm
MM23 AC: 210cm
MPC-box DC: 99cm
MPC-box AC: 103cm
MPC-box DCAC: 123cm

Approval conditions

The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNV GL, 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 GL rules for classification of ships Pt.4 Ch.9 Control and monitoring systems.

Product certificate

If specified in the Rules, ref. Pt.4 Ch.9 Sec.1, the control and monitoring system 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.

EMC in the range 2 GHz to 6 GHz according to DNVGL-CG-0339, December 2019 has not been documented. EMC up to 6 GHz must additionally be documented for installation on ships contracted for construction on or after 2022-01-01.

Tests carried out

Applicable tests according to DNV GL CG-0339, November 2016.

Marking of product

Maker, type designation, product no. and serial number.

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

A renewal assessment will be performed at renewal of the certificate.