



# TYPE APPROVAL CERTIFICATE

Certificate No:  
**TAE000013Z**  
Revision No:  
**2**

## This is to certify:

That the **Power supply unit**

with type designation(s)  
**MASS-24/50MB, 24/75C, 24/75-120V & 24/100C**

Issued to

**Navico Group EMEA B.V.**  
**Amsterdam, Noord-Holland, Netherlands**

is found to comply with

**DNV rules for classification – Ships, offshore units, and high speed and light craft**

## Application :

**Products approved by this certificate are accepted for installation on all vessels classed by DNV.**

<b>Voltage output</b>	<b>24 V DC</b>
<b>Power</b>	<b>up to 3500 VA</b>
<b>Temperature class</b>	<b>A</b>
<b>Vibration class</b>	<b>A</b>
<b>Humidity class</b>	<b>B</b>
<b>Degree of protection</b>	<b>A</b>

Issued at **Høvik** on **2023-01-17**

This Certificate is valid until **2027-12-31**.

DNV local unit: **Netherlands FIS**

Approval Engineer: **Nicolay Horn**

for **DNV**



Digitally Signed By: Elter, Frederik Tore  
Location: DNV Høvik, Norway

**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.



## Name and place of manufacturer

Mastervolt International, Amsterdam, Netherlands	Confidential information
---	--------------------------

## Product description

Battery charger. Charging of 24 V open and closed lead acid (gel or wet) batteries, lithium batteries and power simultaneously power loads. Equipped with temperature compensated charging.

Type	Input Voltage	Input Current	Output (at 40 °C)	Enclosure
MASS-24/50MB	1 ph 180 - 260 V AC, 50/60 Hz, $\pm 5\%$	7,0 A at 230 V AC	24 V DC / 50 A	IP 23
MASS-24/75C	1 ph 180 - 260 V AC, 50/60 Hz, $\pm 5\%$	11,2 A at 230 V AC	24 V DC / 75 A	IP 23
MASS-24/75-120V	1 ph 180 - 260 V AC, 50/60 Hz, $\pm 5\%$	11,2 A at 230 V AC	24 V DC / 75 A	IP 23
MASS-24/100C	1 ph 180 - 260 V AC, 50/60 Hz, $\pm 5\%$	14,4 A at 230 V AC	24 V DC / 100 A	IP 23

## Application/Limitation

The output current will be decreased if operating at 45 °C for longer period or with restricted ventilation. Derating with 2.5 % / °C > 40 °C.

Applicable for bridge installation in accordance with Class requirements.

## Type Approval documentation

### Datasheet:

Mastervolt Installation Manual version 2 issued 2018  
 Mastervolt User Manual version 2.3 issued February 2014  
 Technical details – charger mass 24/100, dated 2003-03-05.

### Drawings:

PCB: Mass 3 /V7.  
 PCB: Mass 2 /V2.

### Test reports:

Kiwa Dare test reports nos. 20220606.00LBS01 dated 2022-11-17.  
 Kiwa Dare test reports nos. 20220606.002LBS601 dated 2022-11-17.  
 Kiwa Dare test reports nos. 20220606.003LBS601 dated 2022-11-29.  
 Kiwa Dare test reports nos. 20220606.004LBS01 dated 2022-11-17.  
 DARE Measurements EMC Test Report ref. no. 12C00157RPT01. (24/100).  
 DARE Measurements EMC Test Report ref. no. 15C01712RPT01(24/50).  
 DARE Measurements EMC Test Report ref. no. 17C00651RPT01(24/75 120V).  
 KEMA Environmental Test report for Battery charger, model MASS 3-24/100 no. 2076565-QUA/EMC 04-4743 dated 2004-10-19.

See also approval letter 262.1-008458-J-13.

## Tests carried out

Low temperature, Dry heat & Vibration in according to SfC No. 2.4 Class A, Humidity/ Damp heat in according to SfC No. 2.4 Class B and EMC in accordance with DNV-CG-0339 August 2021 Class B.

## Marking of product

Mastervolt – charger model no. 24/xxx – charger input – charger output.

## Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the Type approval is complied with and that no alterations are made to the product design or choice of materials.



Job Id: **262.1-008458-5**  
Certificate No: **TAE000013Z**  
Revision No: **2**

The main elements of the periodical assessment are:

- Inspection on factory samples, selected at random from the production line (where practicable)
- Results from Routine tests (RT) checked (if not available, tests according RT to be carried out)
- Review of type approval documentation
- Review of possible change in design, materials and performance
- Ensuring traceability between manufacturer's product type marking and Type Approval Certificate.

Periodical assessment to be performed at 2 and 3.5 year and at renewal.

END OF CERTIFICATE