

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Peripheral Equipment

with type designation(s)
maxGUARD

Issued to

Weidmüller Interface GmbH & Co. KG
Detmold, 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.

Location class:

| | |
|--------------------|--------------|
| Temperature | B + D |
| Humidity | B |
| Vibration | A |
| EMC | B |
| Enclosure | A |

Issued at **Hamburg** on **2017-11-13**

This Certificate is valid until **2022-10-10**.

DNV GL local station: **Magdeburg**

for **DNV GL**

Approval Engineer: **Dariusz Lesniewski**

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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.



Job Id: **262.1-024252-2**
 Certificate No: **TAA000016Z**
 Revision No: **3**

Product description

maxGUARD is a modular system designed to distribute customized 24 V control voltages. It consists of electronic load monitors, potential distribution terminals, and feed-in, control and alarm modules.

General technical data

| | |
|--|--|
| Rated input voltage | 24V DC |
| Rated current of feed-in module | 40A |
| Number of bus participants | max. 25 (incl. control or active feed-in module) |
| Connection type (all line connections) | PUSH IN |
| PCB's | Coated |

Feed – In Modules

| Part no. | Part name | | HVN |
|------------|--------------|------------------------|-------|
| 2082540000 | AMG FIM-C EX | Feed-in module, 24V DC | 1.0.x |
| 2082530000 | AMG FIM-0 EX | Feed-in module, 24V DC | - |

Electronic Load Monitoring Modules

| Part no. | Part name | | HVN |
|------------|----------------|-------------|-------|
| 2082000000 | AMG ELM-6 EX | 6A, 24V DC | 1.1.x |
| 2082010000 | AMG ELM-12 EX | 12A, 24V DC | 1.1.x |
| 2082440000 | AMG ELM-6D CO | 6A, 24V DC | 1.1.x |
| 2082470000 | AMG ELM-10D CO | 10A, 24V DC | 1.1.x |
| 2082040000 | AMG ELM-1F EX | 1A, 24V DC | 1.1.x |
| 2082050000 | AMG ELM-2F EX | 2A, 24V DC | 1.1.x |
| 2082060000 | AMG ELM-4F EX | 4A, 24V DC | 1.1.x |
| 2082310000 | AMG ELM-6F EX | 6A, 24V DC | 1.1.x |
| 2082320000 | AMG ELM-8F EX | 8A, 24V DC | 1.1.x |
| 2082430000 | AMG ELM-10F EX | 10A, 24V DC | 1.1.x |

Control & Monitoring Modules

| Part no. | Part name | | HVN |
|------------|-----------|------------------------|-------|
| 2083360000 | AMG CM EX | Control module, 24V DC | 1.0.x |
| 2082770000 | AMG AM CO | Alarm module, 24V DC | 1.0.x |

Potential distributor

| Part no. | Part name | | Drawing no. | HVN |
|------------|------------|-----------------------|-------------|-----|
| 2495070000 | AMG PD EX | Potential distributor | 62448 2 | - |
| 2495040000 | AMG MD EX | Potential distributor | 62449 2 | - |
| 2495090000 | AMG OD EX | Potential distributor | 62447 2 | - |
| 2495100000 | AMG DIS EX | Potential distributor | 62446 2 | - |
| 2495080000 | AMG XMD EX | Potential distributor | 62450 3 | - |

Accessories

| Part no. | Part name | | Drawing no. | HVN |
|------------|-------------------|-----------------------------------|-------------|-----|
| 2495380000 | AMG EP | Fastening element | 64416 0 | - |
| 2123000000 | AMG PP | Separation plate | 62451 1 | - |
| 2500760000 | AMG EP KIT | Fastening element + End bracket | - | - |
| 1479000000 | WEW 35/2 V0 GF SW | End bracket | 15292 13 | - |
| 1528090000 | ZQV 4N/10 | Cross-connector, No. of poles: 10 | 58452 1 | - |
| 1528230000 | ZQV 4N/10 BL | Cross-connector, No. of poles: 10 | 58452 1 | - |
| 2460740000 | ZQV 4N/10 RD | Cross-connector, No. of poles: 10 | 58452 1 | - |
| 1527930000 | ZQV 4N/2 | Cross-connector, No. of poles: 2 | 58452 1 | - |
| 1528040000 | ZQV 4N/2 BL | Cross-connector, No. of poles: 2 | 58452 1 | - |
| 2460450000 | ZQV 4N/2 RD | Cross-connector, No. of poles: 2 | 58452 1 | - |

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| | | | | |
|------------|--------------|-----------------------------------|---------|---|
| 1527940000 | ZQV 4N/3 | Cross-connector, No. of poles: 3 | 58452 1 | - |
| 1528080000 | ZQV 4N/3 BL | Cross-connector, No. of poles: 3 | 58452 1 | - |
| 2460810000 | ZQV 4N/3 RD | Cross-connector, No. of poles: 3 | 58452 1 | - |
| 1527970000 | ZQV 4N/4 | Cross-connector, No. of poles: 4 | 58452 1 | - |
| 1528120000 | ZQV 4N/4 BL | Cross-connector, No. of poles: 4 | 58452 1 | - |
| 2460800000 | ZQV 4N/4 RD | Cross-connector, No. of poles: 4 | 58452 1 | - |
| 1527980000 | ZQV 4N/5 | Cross-connector, No. of poles: 5 | 58452 1 | - |
| 1528140000 | ZQV 4N/5 BL | Cross-connector, No. of poles: 5 | 58452 1 | - |
| 2460790000 | ZQV 4N/5 RD | Cross-connector, No. of poles: 5 | 58452 1 | - |
| 1528130000 | ZQV 4N/50 | Cross-connector, No. of poles: 50 | 63074 2 | - |
| 1528240000 | ZQV 4N/50 BL | Cross-connector, No. of poles: 50 | 63074 2 | - |
| 2426730000 | ZQV 4N/50RD | Cross-connector, No. of poles: 50 | 63074 2 | - |
| 1527990000 | ZQV 4N/6 | Cross-connector, No. of poles: 6 | 58452 1 | - |
| 1528170000 | ZQV 4N/6 BL | Cross-connector, No. of poles: 6 | 58452 1 | - |
| 2460780000 | ZQV 4N/6 RD | Cross-connector, No. of poles: 6 | 58452 1 | - |
| 1528020000 | ZQV 4N/7 | Cross-connector, No. of poles: 7 | 58452 1 | - |
| 1528180000 | ZQV 4N/7 BL | Cross-connector, No. of poles: 7 | 58452 1 | - |
| 2460770000 | ZQV 4N/7 RD | Cross-connector, No. of poles: 7 | 58452 1 | - |
| 1528030000 | ZQV 4N/8 | Cross-connector, No. of poles: 8 | 58452 1 | - |
| 1528190000 | ZQV 4N/8 BL | Cross-connector, No. of poles: 8 | 58452 1 | - |
| 2460760000 | ZQV 4N/8 RD | Cross-connector, No. of poles: 8 | 58452 1 | - |
| 1528070000 | ZQV 4N/9 | Cross-connector, No. of poles: 9 | 58452 1 | - |
| 1528220000 | ZQV 4N/9 BL | Cross-connector, No. of poles: 9 | 58452 1 | - |
| 2460750000 | ZQV 4N/9 RD | Cross-connector, No. of poles: 9 | 58452 1 | - |

Application/Limitation

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 RU SHIP Pt.4 Ch.9 Sec. 1.

The installation instructions are to be observed.

The system must be operated with 24 V DC (18...30 V DC) safety extra-low voltage (SELV) or protective extra-low voltage (PELV).

Ex-certification is not covered by this certificate. Application in hazardous area to be approved in each case according to the Rules and Ex-Certification/ Special Condition for Safe Use listed in valid Ex-Certificates issued by a notified/recognized Certification Body.

| | Safe Distance to the | Reduced Safe Distance to the |
|---------------------------|----------------------|------------------------------|
| Standard-Magnetic-Compass | 1.60m | 1.00m |
| Steering-Magnetic-Compass | 1.00m | 0.60m |

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

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Tests carried out

Applicable tests according to Class Guideline DNVGL-CG-0339, Edition November 2016.

Applicable tests according to DIN EN 60945:2015-11:

Salt mist test: Not tested - MaxGuard should be installed in a suitable enclosure (electrical cabinet, panel, console) protected against salt mist.

Acoustic Noise and Signal test: Not tested - MaxGuard modules have no acoustic signals and have no audible components.

Marking of product

The products to be marked with:

- manufacturer name
- part name / part no.
- serial no.
- HVN no.

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 at least every second year and at renewal of this certificate.

END OF CERTIFICATE