



## Type Approval Certificate

This is to certify that the undernoted product(s) has/have been tested with satisfactory results in accordance with the relevant requirements of the Lloyd's Register Type Approval System.

<b>Manufacturer</b>	<b>Bachmann Electronic GmbH</b>
<b>Address</b>	Kreuzäckerweg 33, Feldkirch, 6800, Austria
<b>Type</b>	Control Units
<b>Description</b>	Programmable Logic Controller System Refer to the Appendix for further details.
<b>Trade Name</b>	M1-Series
<b>Application</b>	Marine, Industrial and Offshore applications for use in environmental categories ENV2, ENV3 and ENV4 as defined in Lloyd's Register Type Approval System, Test Specification Number 1 – 2019.
<b>Specified Standard</b>	Manufacturer's specification IACS unified requirements E10 (Rev.8 Feb 2021)
<b>Additional Tests</b>	Flame Retardant Test according to IEC60092-101 and IEC60695-11-5 1.) Cold Weather option for all CPU modules possible, marked by /W 2.) Cold Climate option for all modules possible marked by * or CC Low Temperature Test (-25°C/16hrs) Compass Safe Distance Test (Standard = 74cm; Steering = 43cm)

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## Type Approval Certificate

### Other Conditions

Type approval of products according to Test Specification No.1 is essentially a Type Approval of hardware and firmware. Systems comprising the components described above are subject to a separate plan appraisal according to applicable Rules and Regulations when installed on LR classed vessels.

The equipment exceeds the maximum conducted emission level for bridge and deck zones. If the units are to be installed within these areas, a Common Mode Filter with minimum 2x 1.8mH (e.g. Phoenix NEF 1-10, order no. 2788977) is to be installed.

For the GMP232/12, GMP232/22, GMP232/32, GMP232/42 and GMP232/52 an installation in the bridge or deck zone is not allowed.

For selection of the choke's rated current see Manufacturer's Specification.

This certificate is not valid for equipment, the design, ratings or operating parameters of which have been varied from the specimen tested. The manufacturer should notify Lloyd's Register EMEA of any modification or changes to the equipment in order to obtain a valid Certificate.

### Previous Version:

This certificate supersedes certificate number LR2006533TA-02 issued on 01 February 2023 which is hereby cancelled.

The Design Appraisal Document HPC1562220-23/TW and its supplementary Type Approval Terms and Conditions form part of this Certificate.



## Appendix

### TYPES

#### M1-Series

Software Version M-Base: V3.xx  
V4.xx

#### Processor modules:

MC205, MC206, MC210, MC212, MC220

#### Processor modules with power supply:

MX207, MX213, MX220, MH230

#### Digital input/output modules:

DI216, DI232, DI232/np1

DO216, DO232

DOR206, DOR206/230

DIO216, DIO216/4, DIO232, DIO248, DIO264, DIO280

#### Analogue input/output modules:

AI204/1, AI204/2, AI204/4, AI202/SI, AI204/SI, AI208/SI

AO202, AO202/SI, AO204/SI

AIO202/SI, AIO204/SI, AIO208, AIO208/SI, AIO216, AIO288, AIO288/1

#### Measurement module for condition monitoring:

AIC206, AIC212, AIC214

#### Temperature recording modules:

PTAI216

TI214, TI214/2

#### Digital count modules:

CNT204/H, CNT204/R

#### Positioning modules:

ISI222, ISI222/8

#### Interface modules:

RS204, RS204/R, RS204/T, RS204/2

#### Industrial Ethernet master module:

EM213

#### FAST Bus modules:

FM211, FS211, FS211/N, FM212, FS212, FS212/N, FM221, FS221/N, FM222, FS222/N

#### PROFIBUS DP module:

DPM200



CAN Bus modules:

CM202

Decentral CAN modules:

DIO16-C, DIO32-C, DIO264-C

Analogue/Digital input/output CAN module:

DA3284-C

General input/output modules:

GIO212

Grid measurement modules:

GM260

Grid synchronisation modules:

GSP274

Grid measurement protection module:

GMP232/1, GMP232/2, GMP232/3, GMP232/4

GMP232/12, GMP232/22, GMP232/32, GMP232/42, GMP232/52

Proportional Valve Amplifier modules:

PVA204, PVA208

Safety digital input modules:

SDI208

Safety digital output modules:

SDO204

Safety processor module:

SLC284

Safety Counter module:

SCT202

Safety analogue input module:

SAI205

Backplanes:

BS201, BS201/E, BS202, BS202/E, BS203, BS203/E, BS203/S, BS204, BS204/E, BS204/S, BS205, BS205/E, BS205/S, BS206, BS206/E, BS206/S, BS207, BS207/E, BS207/S, BS208, BS208/E, BS208/S, BS209, BS209/E, BS209/S, BS210, BS210/E, BS210/S, BS211, BS211/E, BS211/S, BS212, BS212/E, BS212/S, BS213, BS213/E, BS213/S, BS214, BS214/E, BS214/S, BS215, BS215/E, BS215/S, BS216, BS216/E, BS216/S



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Power supply modules:  
NT255

Dummy module:  
LM201  
S201, S202, S203, S205

Others:  
CF2xx

