

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Programmable Electronic System

with type designation(s)
Modicon M258

Issued to

Schneider Electric Automation GmbH
Marktheidenfeld, Germany

is found to comply with

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

Application :

Location classes:

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.

Temperature A

Humidity B

Vibration A

EMC A*

Enclosure Required protection according to DNV Rules shall be provided upon installation on board

Issued at **Hamburg** on **2018-04-23**

This Certificate is valid until **2023-04-22**.

for **DNV GL**

DNV GL local station: **Augsburg**

Approval Engineer: **Marco Rinkel**

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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.



Product description

Modicon M258 Programmable Logic Controller

Module reference	Description	Manufacturer
Motion controllers		
LMC058LF42	LMC058 Eth/2CAN/Motion/42DIO	B&R (Bernecker + Rainer)
LMC058LF424	LMC058 Eth/2CAN/Motion/2PCI/42DIO/4AI	B&R (Bernecker + Rainer)
LMC058LF424S0	LMC058 Eth/2CAN/Motion/2PCI/42DIO/4AI/S	B&R (Bernecker + Rainer)
LMC058LF42S0	LMC058 Eth/2CAN/Motion/42DIO/S	B&R (Bernecker + Rainer)
Logic controllers		
TM258LD42DT	M258 CTRL Eth/SL/42DIO	B&R (Bernecker + Rainer)
TM258LD42DT4L	M258 CTRL Eth/SL/2PCI/42DIO/4AI	B&R (Bernecker + Rainer)
TM258LF42DR	M258 CTRL Eth/CAN/SL/2PCI/42DIO Relay	B&R (Bernecker + Rainer)
TM258LF42DRS0	M258 CTRL Eth/CAN/SL/2PCI/42DIO Relay/S	B&R (Bernecker + Rainer)
TM258LF42DT	M258 CTRL Eth/CAN/SL/42DIO	B&R (Bernecker + Rainer)
TM258LF42DT4L	M258 CTRL Eth/CAN/SL/2PCI/42DIO/4AI	B&R (Bernecker + Rainer)
TM258LF42DT4LS0	M258 CTRL Eth/CAN/SL/2PCI/42DIO/4AI/S	B&R (Bernecker + Rainer)
TM258LF42DTS0	M258 CTRL Eth/CAN/SL/42DIO/S	B&R (Bernecker + Rainer)
TM258LF66DT4L	M258 CTRL Eth/CAN/SL/2PCI/66DIO/4AI	B&R (Bernecker + Rainer)
TM258LF66DT4LS0	M258 CTRL Eth/CAN/SL/2PCI/66DIO/4AI/S	B&R (Bernecker + Rainer)
Bus bases		
TM5ACADL100	100 Locking Bus Base + Module	B&R (Bernecker + Rainer)
TM5ACBM01R	Bus Base /24Vdc Left Isolated Grey	B&R (Bernecker + Rainer)
TM5ACBM01R10	10 Bus Base /24Vdc Left Isolated Grey	B&R (Bernecker + Rainer)
TM5ACBM05R	Bus Base /@/24Vdc Left Isolated Grey	B&R (Bernecker + Rainer)
TM5ACBM05R10	10 Bus Base /@/24Vdc Left Isolated Grey	B&R (Bernecker + Rainer)
TM5ACBM11	Bus Base /24Vdc connected White	B&R (Bernecker + Rainer)
TM5ACBM1110	10 Bus Base /24Vdc connected White	B&R (Bernecker + Rainer)
TM5ACBM12	Bus Base 240Vac cod/24Vdc connect. Black	B&R (Bernecker + Rainer)
TM5ACBM1210	10 Bus Base 240Vac cod/24Vdc conn. Black	B&R (Bernecker + Rainer)
TM5ACBM15	Bus Base 24Vdc/@/24Vdc connect. White	B&R (Bernecker + Rainer)
TM5ACBM1510	10 Bus Base 24Vdc/@/24Vdc connect. White	B&R (Bernecker + Rainer)
TM5ACLPL10	10 Bus Base Locking Plates Left	B&R (Bernecker + Rainer)
TM5ACLPR10	10 Bus Base Locking Plates Right	B&R (Bernecker + Rainer)
Terminal blocks		
TM5ACTB06	Term. Block 6 pin 24Vdc White	ODU
TM5ACTB0610	10 Term. Block 6 pin 24Vdc White	ODU
TM5ACTB12	Term. Block 12 pin 24Vdc White	ODU
TM5ACTB1210	10 Term. Block 12 pin 24Vdc White	ODU
TM5ACTB12PS	Term. Block 12 pin 24Vdc Grey	ODU
TM5ACTB32	Term. Block 12 pin 240Vac cod. Black	ODU
TM5ACTB3210	10 Term. Block 12 pin 240Vac cod. Black	ODU

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Module reference	Description	Manufacturer
Accessories		
TM5ACLITB1	Ident. labels Blue for 16 modules	B&R (Bernecker + Rainer)
TM5ACLITR1	Ident. labels Red for 16 modules	B&R (Bernecker + Rainer)
TM5ACLITW1	Ident. labels White for 16 modules	B&R (Bernecker + Rainer)
TM5ACLT1	Labelling insert tool for label tabs	B&R (Bernecker + Rainer)
TM5ACTCH100	100 Plain text cover holders	B&R (Bernecker + Rainer)
TM5ACTLC100	100 Terminal locking clips/Cover holder	B&R (Bernecker + Rainer)
TM5ACTLS100	100 Legend Strips for cover holder	B&R (Bernecker + Rainer)
Compact I/O expansion modules		
TM5C12D6T6L	Compact 24Vdc 12DI/6DO Tr/4AI /2AO	B&R (Bernecker + Rainer)
TM5C12D8T	Compact 24Vdc 12DI /8DO Tr/3 wires	B&R (Bernecker + Rainer)
TM5C24D12R	Compact 24Vdc 24DI/12DO Relay	B&R (Bernecker + Rainer)
TM5C24D18T	Compact 24Vdc 24DI/18DO Tr	B&R (Bernecker + Rainer)
Communication modules		
TM5NCO1	CANopen FieldBus Interface Module	B&R (Bernecker + Rainer)
TM5PCRS2	PCI Com Module SL RS232	B&R (Bernecker + Rainer)
TM5PCRS4	PCI Com Module SL RS485	B&R (Bernecker + Rainer)
Analogue input expansion modules		
TM5SAI2H	Mod. 2AI $\pm 10V/0-20mA$ 16 bits	B&R (Bernecker + Rainer)
TM5SAI2L	Mod. 2AI $\pm 10V/0-20mA/4-20mA$ 12 bits	B&R (Bernecker + Rainer)
TM5SAI2PH	Mod. 2AI PT100/1000 16 bits	B&R (Bernecker + Rainer)
TM5SAI2TH	Mod. 2AI Thermocouple J/K/S/N 16 bits	B&R (Bernecker + Rainer)
TM5SAI4H	Mod. 4AI $\pm 10V/0-20mA/4-20mA$ 16 bits	B&R (Bernecker + Rainer)
TM5SAI4L	Mod. 4AI $\pm 10V/0-20mA/4-20mA$ 12 bits	B&R (Bernecker + Rainer)
TM5SAI4PH	Mod. 4AI PT100/1000 16 bits	B&R (Bernecker + Rainer)
TM5SAI6TH	Mod. 6AI Thermocouple J/K/S/N 16 bits	B&R (Bernecker + Rainer)
Analogue output expansion modules		
TM5SAO2H	Mod. 2AO $\pm 10V/0-20mA$ 16 bits	B&R (Bernecker + Rainer)
TM5SAO2L	Mod. 2AO $\pm 10V/0-20mA$ 12 bits	B&R (Bernecker + Rainer)
TM5SAO4H	Mod. 4AO $\pm 10V/0-20mA$ 16 bits	B&R (Bernecker + Rainer)
TM5SAO4L	Mod. 4AO $\pm 10V/0-20mA$ 12 bits	B&R (Bernecker + Rainer)
Transmitters and receivers modules		
TM5SBER2	Mod. Bus Receiver/TM5 Bus PWR/PWR distr.	B&R (Bernecker + Rainer)
TM5SBET1	Mod. Bus Transmitter->IP20	B&R (Bernecker + Rainer)
TM5SBET7	Mod. Bus Transmitter->IP67 PW Supply 6W	B&R (Bernecker + Rainer)
Digital input expansion modules		
TM5SDI12D	Mod. 12DI 24Vdc Sink 1 wire	B&R (Bernecker + Rainer)
TM5SDI2A	Mod. 2DI 100-240Vac 2 wires Black	B&R (Bernecker + Rainer)
TM5SDI2D	Mod. 2DI 24Vdc Sink 3 wires	B&R (Bernecker + Rainer)
TM5SDI2DF	Mod. 2DI Fast 24Vdc Sink 3 wires	B&R (Bernecker + Rainer)
TM5SDI4A	Mod. 4DI 100-240Vac 2 wires Black	B&R (Bernecker + Rainer)
TM5SDI4D	Mod. 4DI 24Vdc Sink 3 wires	B&R (Bernecker + Rainer)
TM5SDI6D	Mod. 6DI 24Vdc Sink 2 wires	B&R (Bernecker + Rainer)
TM5SDI6U	Mod. 6DI 100-120Vac 1 wire Black	B&R (Bernecker + Rainer)
Digital mixed input/ output expansion module		
TM5SDM12DT	Mod. 24Vdc 8DI/4DO Tr 1 wire	B&R (Bernecker + Rainer)

Digital output expansion modules		
TM5SDO12T	Mod. 12DO 24Vdc Tr 0.5A 1 wire	B&R (Bernecker + Rainer)
TM5SDO2R	Mod. 2DO 30Vdc/230Vac 5A Relay C/O	B&R (Bernecker + Rainer)
TM5SDO2S	Mod. 2DO 100-240Vac 1.0 A coded 3wires	B&R (Bernecker + Rainer)
TM5SDO2T	Mod. 2DO 24Vdc Tr 0.5A 3 wires	B&R (Bernecker + Rainer)
TM5SDO4R	Mod. 4DO 30Vdc-230Vac 5A Relay O	B&R (Bernecker + Rainer)
TM5SDO4T	Mod. 4DO 24Vdc Tr 0.5A 3 wires	B&R (Bernecker + Rainer)
TM5SDO4TA	Mod. 4DO 24Vdc Tr 2A 3 wires	B&R (Bernecker + Rainer)
TM5SDO6T	Mod. 6DO 24Vdc Tr 0.5A 2 wires	B&R (Bernecker + Rainer)
TM5SDO8TA	Mod. 8DO 24Vdc Tr 2 A 1 wire Ext Power	B&R (Bernecker + Rainer)
Special modules		
TM5SE1IC01024	Mod. 1HSC INC 100KHz 24Vdc	B&R (Bernecker + Rainer)
TM5SE1IC02505	Mod. 1HSC INC 250KHz 5Vdc	B&R (Bernecker + Rainer)
TM5SE1SC10005	Mod. 1HSC SSI 1Mb 5Vdc	B&R (Bernecker + Rainer)
TM5SE2IC01024	Mod. 2HSC INC 100KHz 24Vdc	B&R (Bernecker + Rainer)
Common distribution modules (CMD)		
TM5SPDD12F	Mod. 12COM 24Vdc/F=6.3A Int. Distr.	B&R (Bernecker + Rainer)
TM5SPDG12F	Mod. 12COM 0Vdc/F=6.3A Int. Distr.	B&R (Bernecker + Rainer)
TM5SPDG5D4F	Mod. 2x5COM 0/24Vdc F=6.3A Ext. PWR	B&R (Bernecker + Rainer)
TM5SPDG6D6F	Mod. 2x6COM 0/24Vdc F=6.3A Int./Ext. PWR	B&R (Bernecker + Rainer)
Power distributions modules		
TM5SPS1	Mod. PWR Distr. 24Vdc Grey	B&R (Bernecker + Rainer)
TM5SPS1F	Mod. PWR Distr. 24Vdc/F=6.3A Grey	B&R (Bernecker + Rainer)
TM5SPS2	Mod. PWR Distr. 24Vdc/Bus PS Grey	B&R (Bernecker + Rainer)
TM5SPS2F	Mod. PWR Distr. 24Vdc/F=6.3A/Bus PS Grey	B&R (Bernecker + Rainer)
TM5SPS3	FieldBus Interface 24Vdc Power Supply	B&R (Bernecker + Rainer)
Dummy module		
TM5SD000	Dummy module (non-functional)	B&R (Bernecker + Rainer)

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 Rules for Ships Pt.4 Ch.9 Control and Monitoring Systems.

Following module configurations must be placed in a metal cabinet to comply with EMC class A, according to test reports:

- 1014S01C TM2XMTGB – TM258LF42DR – TM5ACBM01R – TM5ACBM11 – TM5SBER2 – TM5SBET1 – TM5SDI2DF – TM5SDI4D – TM5SDI6D – TM5SDO4T – TM4SDO4TA – TM5SDO6T – TM5SPS1, related products TM5SDI2D
- 1014S02C TM2XMTGB – TM258LF42DT4L – TM5ACBM01R – TM5ACBM11 – TM5SAI2L – TM5SAI2PH – TM5SAI2TH – TM5SAI4H – TM5SAO2H – TM5SAO2L – TM5SAO4H – TM5SAO4L – TM5SDM12DT – TM5SDO2T – TM5SDO8TA – TM5SPS1F – TM5SPS2, related products TM258LD42DT – TM5SAI2H
- 1014S04C LMC058LF424S0 – TM2XMTGB – TM5ACBM01R – TM5ACBM11 – TM5PCRS2 – TM5SAI4L – TM5SAO2L – TM5SAO4L – TM5SE1IC01024 – TM5SE2IC01024 – TM5SPS2F, related products TM5PCRS4
- 1014S05C TM2XMTGB – TM258LF66DT4L – TM5ACBM11 – TM5SAOAL

Equipment for installation outside a distance of 5 m from a standard or a steering magnetic compass.

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Product certificate

Each delivery of the application system is to be certified according to Pt.4 Ch.9 Sec.1. The certification test is to be performed at the manufacturer of the application system according to an approved test program before the system is shipped to the yard. 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

See ANNEX

Tests carried out

Applicable tests according to class guideline DNVGL-CG-0339, November 2016.

Marking of product

The marking of the modules used shall be according to Module reference column under Product description.

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

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ANNEX
Type Approval documentation
(hidden)