Certificate No:
TAA00000VM

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Programmable Controller

with type designation(s)
TM221

Issued to

Schneider Electric Automation GmbH
Schneiderplatz 1, 97828 Marktheidenfeld, 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 DNVGL Rules shall be provided upon installation on board**

This Certificate is valid until **2020-06-25**.

Issued at **Hamburg** on **2017-02-20**

for **DNV GL**

DNV GL local station: **Augsburg**

Approval Engineer: **Andrea Grün**

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Duy Nam Le
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

CPU modules (Book)
TM221M16R, TM221M16RG
TM221ME16R, TM221ME16RG
TM221M16T, TM221M16TG
TM221ME16T, TM221ME16TG
TM221M32TK, TM221ME32TK

CPU modules (Brick)
TM221C16R, TM221CE16R, TM221C16T, TM221CE16T
TM221C24R, TM221CE24R, TM221C24T, TM221CE24T
TM221C40R, TM221CE40R, TM221C40T, TM221CE40T
TM221C16U, TM221C24U, TM221C40U, TM221CE16U
TM221CE24U, TM221CE40U, TM221C16TS01

CPU modules

TM221M16R	DC 24V power supply, 16IO, relay outputs, 2 SL, screw terminal
TM221M16RG	DC 24V power supply, 16IO, relay outputs, 2 SL, spring terminal
TM221ME16R	DC 24V power supply, 16IO, relay outputs, 1 Eth, 1 SL, screw terminal
TM221ME16RG	DC 24V power supply, 16IO, relay outputs, 1 Eth, 1 SL, spring terminal
TM221M16T	DC 24V power supply, 16IO, transistor outputs, 2 SL, screw terminal
TM221M16TG	DC 24V power supply, 16IO, transistor outputs, 2 SL, spring terminal
TM221ME16T	DC 24V power supply, 16IO, transistor outputs, 1 Eth, 1 SL, screw terminal
TM221ME16TG	DC 24V power supply, 16IO, transistor outputs, 1 Eth, 1 SL, spring terminal
TM221M32TK	DC 24V power supply, 32IO, transistor outputs, 2 SL, HE10 connector
TM221ME32TK	DC 24V power supply, 32IO, transistor outputs, 1 Eth, 1 SL, HE10 connector
TM221C16R	AC 100…240 V power supply, 16IO, relay outputs, 1 SL
TM221CE16R	AC 100…240V power supply, 16IO, relay outputs, 1 Eth, 1 SL
TM221C16T	DC 24V power supply, 16IO, transistor outputs, 1 SL
TM221C16TS01	DC 24V power supply, 16IO, transistor outputs, 1 SL
TM221CE16T	DC 24V power supply, 16IO, transistor outputs, 1 Eth, 1 SL
TM221C24R	AC 100…240 V power supply, 24IO, relay outputs, 1 SL
TM221CE24R	AC 100…240 V power supply, 24IO, relay outputs, 1 Eth, 1 SL
TM221C24T	DC 24V power supply, 24IO, transistor outputs, 1 SL
TM221CE24T	DC 24V power supply, 24IO, transistor outputs, 1 Eth, 1 SL
TM221C40R	AC 100…240 V power supply, 40IO, relay outputs, 1 SL
TM221CE40R	AC 100…240 V power supply, 40IO, relay outputs, 1 Eth, 1 SL
TM221C40T	DC 24V power supply, 40IO, transistor outputs, 1 SL
TM221C16U	DC 24V power supply, 16IO, transistor outputs, 1 SL
TM221C24U	DC 24V power supply, 24IO, transistor outputs, 1 SL
TM221C40U	DC 24V power supply, 40IO, transistor outputs, 1 SL
TM221CE16U	DC 24V power supply, 16IO, transistor outputs, 1 Eth, 1 SL
TM221CE24U	DC 24V power supply, 24IO, transistor outputs, 1 Eth, 1 SL
TM221CE40U	DC 24V power supply, 40IO, transistor outputs, 1 Eth, 1 SL

"U" series are sink type transistor output
"T" series are source type transistor output

Expansion Modules (DIO)

TM3DI8	Module 8 digital inputs, screw terminal
TM3DI8G	Module 8 digital inputs, spring terminal
TM3DI16	Module 16 digital inputs, screw terminal
TM3DI16G	Module 16 digital inputs, spring terminal
TM3DI16K	Module 16 digital inputs, HE10 connector
TM3DI32K	Module 32 digital inputs, HE10 connector
TM3DI8A	Module 8 digital inputs AC120V, screw terminal
TM3DQ8R	Module 8 relay outputs, screw terminal

Expansion Modules (DIO)

TM3DQ8RG	Module 8 relay outputs, spring terminal
TM3DQ16R	Module 16 relay outputs, screw terminal
TM3DQ16RG	Module 16 relay outputs, spring terminal
TM3DQ8T	Module 8 transistor (source) outputs, screw terminal
TM3DQ8TG	Module 8 transistor (source) outputs, spring terminal
TM3DQ16T	Module 16 transistor (source) outputs, screw terminal
TM3DQ16TG	Module 16 transistor (source) outputs, spring terminal
TM3DQ16TK	Module 16 transistor (source) outputs, HE10 connector
TM3DQ32TK	Module 32 transistor (source) outputs, HE10 connector
TM3DQ8U	Module 8 transistor (sink) outputs, screw terminal
TM3DQ8UG	Module 8 transistor (sink) outputs, spring terminal
TM3DQ16U	Module 16 transistor (sink) outputs, screw terminal
TM3DQ16UG	Module 16 transistor (sink) outputs, spring terminal
TM3DQ16UK	Module 16 transistor (sink) outputs, HE10 connector
TM3DQ32UK	Module 32 transistor (sink) outputs, HE10 connector
TM3DM8R	Module 8IO, relay outputs, screw terminal
TM3DM8RG	Module 8IO, relay outputs, spring terminal
TM3DM24R	Module 24IO, relay outputs, screw terminal
TM3DM24RG	Module 24IO, relay outputs, spring terminal
TM3XTYS4	Module TeSys

Expansion modules (AIO)

TM3AI2H	Module 2 analog inputs, screw terminal
TM3AI2HG	Module 2 analog inputs, spring terminal
TM3AI4	Module 4 analog inputs, screw terminal
TM3AI4G	Module 4 analog inputs, spring terminal
TM3AI8	Module 8 analog inputs, screw terminal
TM3AI8G	Module 8 analog inputs, spring terminal
TM3AQ2	Module 2 analog outputs, screw terminal
TM3AQ2G	Module 2 analog outputs, spring terminal
TM3AQ4	Module 4 analog outputs, screw terminal
TM3AQ4G	Module 4 analog outputs, spring terminal
TM3AM6	Module 6 analog I/O, screw terminal
TM3AM6G	Module 6 analog I/O, spring terminal
TM3TM3	Module 3 thermocouple inputs / analog outputs, screw terminal
TM3TM3G	Module 3 thermocouple inputs / analog outputs, spring terminal
TM3TI4	Module 4 thermocouple inputs, screw terminal
TM3TI4G	Module 4 thermocouple inputs, spring terminal
TM3TI8T	Module 8 thermocouple inputs, screw terminal
TM3TI8TG	Module 8 thermocouple inputs, spring terminal

Option modules

TMC2AI2	2AI 0…10V / 0…20mA / 4…20mA Analog input
TMC2HOIS01	2AI 0…10V / 0…20mA / 4…20mA Analog input
TMC2PACK01	2AI 0…10V / 0…20mA / 4…20mA Analog input
TMC2TI2	2 Thermocouple or RTD input
TMC2AQ2V	2AO 0…10V Analog Output
TMC2AQ2C	2AO 4…20mA Analog Output
TMC2SL1	1 Serial Line
TMC2CONV01	1 Serial Line

Software Version: 1.3 SP1
Firmware Version: 1.3.x.xx

Application/Limitation

The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNVGL, 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 DNVGL Rules for 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. 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.

Type Approval documentation

Test report :

- KL 80140627   dated 22-01-2015
- KL 80140709   dated 26-02-2015
- OT304-E15256B   dated 01-07-2015

Technical description NHA78019 01   dated 11-2015
Impact analysis TM221C16TS01 Version 0.3   dated 2016-02-29
Release Notes SoMachine Basic Software V1.3 SP1   dated 03-2015
User Manual Modicon M221 EIO 0000001384.02   dated 01-2015
Modicon Logic Controller Programming Guide EIO 0000001360.04   dated 03-2015

Tests carried out

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

Marking of product

The products to be marked with:

- Manufacturer name
- Model name
- 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

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