TYPE APPROVAL CERTIFICATE

This is to certify:

that the Programmable Electronic System

with type designation(s)
Modicon M340-M580-X80

issued to
Schneider Electric France S.A.S.
Carros, **France**

is found to comply with
DNV 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.

Location classes:

Temperature	**B / D***
Humidity	**B**
Vibration	**A**
EMC	**A / B***
Enclosure	**Required protection according to the Rules shall be provided upon installation on board**

* See Application / Limitation

Issued at **Høvik** on **2024-02-23**

for **DNV**

This Certificate is valid until **2028-03-21**.
DNV local unit: **France CMC**

Approval Engineer: **Ståle Sneen**

Product description

	PRODUCT Reference	DESCRIPTION
	CPU	
	BMX P34 1000 (H)	Processor, 1 channel Modbus
	BMX P34 2000	Processor, 2 channel Modbus
	BMX P34 2010	Processor, Modbus CANopen
	BMX P34 20102 (CL)	Processor, Modbus CANopen and Ethernet
(*)	BMX P34 2020 (H)	Processor, Modbus Ethernet
	BMX P34 2030	Processor, Ethernet CANopen
	BMX P34 20302 (H) (CL)	Processor, Ethernet CANopen
(*)	BMX PRA 0100	Peripheral Remote IO Adaptor
(*)	BMX P34 20 ITRB	Processor, 2 channels dedicated to IT business
	BME P58 6040 (C)	Control Processor Unit
	BME P58 5040 (C)	Control Processor Unit
	BME P58 4040	Control Processor Unit
	BME P58 4020	Control Processor Unit
	BME P58 3040	Control Processor Unit
	BME P58 3020	Control Processor Unit
	BME P58 2040 (H)	Control Processor Unit
	BME P58 2020 (H)	Control Processor Unit
	BME P58 1020 (H)	Control Processor Unit
	BME H58 6040 (C)	Control Processor Unit Hot-Standby
	BME H58 4040 (C)	Control Processor Unit Hot-Standby
	BME H58 2040 (C)	Control Processor Unit Hot-Standby
	BME H58 4040K	Control Processor Unit Hot-Standby, bundle
	BME H58 2040K	Control Processor Unit Hot-Standby, bundle
	BME D58 1020 (C)	Control Processor Unit
	Power Supply	
(*)	BMX CPS 2000	Power Supply, standard AC
(*)	BMX CPS 2010	Power Supply, standard isolated DC
	BMX CPS 3020 (H)	Power Supply, high power isolated 24VDC to 48VDC
(*)	BMX CPS 3500 (H)	Power Supply, high power AC
	BMX CPS 3522 (H)	Redundant HP 125 VDC Power Supply
	BMX CPS 3540 (T)	Power Supply, high power AC
	BMX CPS 4002 (H)	Power Supply, redundant, high power AC
	BMX CPS 4022 (H)	Redundant HP 24-48 VDC Power Supply
	Digital I / O	
	BMX DAI 0814	Digital input module, 08I, 100…120 Vac
(*)	BMX DAI 0805	Digital input module, 08I, 220 Vac
(*)	BMX DAI 1602 (H)	Digital input module, 16I 24VAC/24VDC source
(*)	BMX DAI 1603 (H)	Digital input module, 16I 48VAC
(*)	BMX DAI 1604 (H)	Digital input module, 16I, 100VAC to 120VAC
	BMX DAO 1605 (H)	Digital output module, 16Q triacs
(*)	BMX DDI 1602 (H)	Digital input module, 16I 24VDC sink
	BMX DDI 1603 (H)	Digital input module, 16I 48VDC sink
	BMX DDI 1604 (T)	Digital input module, 16I 125 V DC sink
	BMX DDI 3202 K (H)	Digital input module, 32I 24VDC sink
	BMX DDI 6402 K (H)	Digital input module, 64I 24VDC sink
	BMX DDI 3232 (H)	32 * 12/24 Vdc input channels
	BMX DDI 3203 (H)	32 * 48 Vdc input channels
(*)	BMX DDM 16022 (H)	Digital mixed I/O module, 8I 24VDC 8Q transistors source
	BMX DDM 16025 (H)	Digital mixed I/O module, 8I 24VDC 8Q relays
(*)	BMX DDM 3202 K	Digital mixed I/O module, 16I 24VDC 16Q transistors source
(*)	BMX DDO 1602 (H)	Digital output module, 16Q transistors source 0.5A
	BMX DDO 1612 (H)	Digital output module, 16Q sink transistors
	BMX DDO 3202 K (C)	Digital output module, 32Q transistors source 0.1A
	BMX DDO 6402 K (C)	Digital output module, 64Q transistors source 0.1A
(*)	BMX DRA 0805 (H)	Digital relay output module, 8Q isolated relays
(*)	BMX DRA 1605 (H)	Digital relay output module, 16Q relays
	BMX DRA 0804 (T)	Digital relay output module, 8Q isolated relays
	BMX DAI 1614 (H)	H DIG 16X1 SUPERVISED IN 100 TO 120 VAC

	PRODUCT Reference	DESCRIPTION
	BMX DAI 1615 (H)	H DIG 16X1 SUPERVISED IN 200 TO 240 VAC
	BMX DAI 16142	16 * 100…120 Vac input channels
	BMX DAO 1615 (H)	H DIG 16X1 TRIAC OUT 24 TO 240 VAC
	BMXDRA0815 (H)	DIG 8Q 125VDC/250VAC ISOLATED RELAYS
	BMX DRC 0805 (H)	H DIG 8NO/NC 125VDC/250VAC ISOLATED RELAYS
	Analog I / O	
(*)	BMX AMI 0410 (H)	Analog input module, 4 U/I In isolated high speed
(*)	BMX AMI 0800	Analog input module, 8 U/I In No Isolated Fast
(*)	BMX AMI 0810 (H)	Analog input module, 8 U/I In Isolated Fast
	BMX AMM 0600 (H)	Analog mixed I/O module, 4 In U/I, 2 Out U/I
(*)	BMX AMO 0210 (H)	Analog output module, 2 U/I isolated Out
(*)	BMX AMO 0410 (H)	Analog output module, 4 U/I Isolated out
	BMX AMO 0802 (H)	Analog output module, 8 Current No Isolated out
	BMX ART 0414 (H)	Analog input module, 4 TC/RTD isolated Inputs
	BMX ART 0814 (H)	Analog input module, 8 TC/RTD isolated Inputs
(*)	BME AHI 0812 (H)	Analog input module 8 current channels (HART)
(*)	BME AHO 0412 (C)	Analog output module 8 current channels (HART)
	Communication device	
(*)	BMX NOE 0100 (H)	Communication module Ethernet 10/100 RJ45
(*)	BMX NOE 0110 (H)	M340 Factorycast module
	BMX NOC 0401	Communication module Ethernet 10/100 RJ45
	BMX NOC 0402	Communication module Ethernet 10/100 RJ45
	BME NOC 0301 (C)	Full Communication Ethernet
	BME NOC 0311 (C)	Full FactoryCast Ethernet
	BME NOC 0321 (C)	NOC Control
	BMX NOM 0200 (H)	2 serial link ports
	BME NOR 2200 (H)	RTU Communication module
	BMX NUA 0100 (H)	OPC UA module
	BMX NGD 0100	Global Data module
	BME NOS 0300 (C)	Ethernet embedded switch
	BME NOP 0300 (C)	M580 IEC 61850 Communication Module
	BME CXM 0100 (H)	CANopen module
	BMX XBE 1000 (H)	Extension rack module
(*)	BMX EIA 0100	AS-interface module
	BMX NOR 0200 (H)	RTU communication module
	BMX NRP 0200 (C)	Communication with optic fiber
	BMX NRP 0201 (C)	Communication with optic fiber
	BMX CRA 31200	Communication module IO adapter
	BMX CRA 31210 (C)	Communication module IO adapter
	BME CRA 31210 (C)	Communication module remote IO adapter
	Counting & Positioning	
	BMX EHC 0200 (H)	Counting module, high speed 2Ch
	BMX EHC 0800 (H)	Counting module, high speed 8Ch
	BMX ETM 0200 (H)	Frequency module
	BMX MSP 0200	Positioning module (Pulse Output Train)
(*)	BMX EAE 0300 (H)	SSI encoder interface
	BMX ERT 1604 (T)(H)	Time stamping
	Backplanes	
(*)	BMX XBP 0400S	Backplane, 4 slots, NOT extendable, only in pack offer
(*)	BMX XBP 0600 (H)	Backplane, 6 slots
(*)	BME XBP 0400 (H)	Backplane Ethernet, 4 slots
(*)	BME XBP 0800 (H)	Backplane Ethernet, 8 slots
(*)	BME XBP 1200 (H)	Backplane Ethernet, 12 slots
(*)	BME XBP 0602 (H)	Backplane, 6 slots, dual power supplies
(*)	BME XBP 1002 (H)	Backplane, 10 slots, dual power supplies
	Accessories	
	ABE7 CPA xxx	Wiring block for analog inputs
(*)	BMX FC…	Associated Cables

(*)	PRODUCT Reference	DESCRIPTION
(*)	BMX FT…	Associated Cables
(*)	BMX FTB 2000	Terminal block kit, screw 20 std. points
(*)	BMX FTB 2010	Terminal block kit, screw 20 cir. points
(*)	BMX FTB 2020	Terminal block kit, spring 20 points
(*)	BMX FTB 2820	Terminal block kit, spring 28 points
(*)	BMX RMS 004GPF	Memory card 4Go for M580 CPU
(*)	BMX RMS 008MP	Memory card 8Mo
(*)	BMX RMS 008MPF	Memory card 8Mo / 8Mo Files
(*)	BMX RMS 128MPF	Memory card 8Mb / 128Mo files
(*)	BMX RWS B000M	Memory card NOE Web B
(*)	BMX RWS C016M	Memory card NOE Web C 16Mo
(*)	BMX RWS FC032M	Memory Card 16Mo
(*)	BMX XBC xxxK	BusX Cord (xxx = length)
	BMX XCA USB Hxx	USB cable (x = length)
	BMX XEM 010	Protective cover
	BMX XSP xx00	Shield bar kit , xx slots
	BMX XTS CPSxx	Connector kit
	BMX XTS HSC20	Connector kit
(*)	TCS CCN…	Associated Cables
(*)	TCS MCN 3M4…	Modbus communication cables
	490 NAC 0100	HSBY socket
	490 NAC 0201	HSBY socket
	BMX FTB 4000 (H)	CAGED TERMINAL STRIP 40 POINTS
	BMX FTB 4020 (H)	SPRING TERMINAL STRIP 40 POINTS
	BMX FTW 305	FTB 40 WIRE 3M CABLE
	BMX FTW 505	FTB 40 WIRE 5M CABLE
	PACK & KIT	
	BMX XBE 2005	Extension Rack KIT (2 BMX XBE 1000 ; Cable BMX XBC 008K ; TSX TLY EX)
	Safety	
	BMEP584040S	Safety processor
	BMEP582040S	Safety processor
	BMEP58CPROS3	Safety coprocessor
	BMXCPS4002S	Safety power supply 100…240 Vac
	BMXCPS3522S	Redundant HP 125 VDC Power Supply
	BMXCPS4022S	Redundant HP 24-48 VDC Power Supply
	BMXSAI0410	Safety analogic inputs, 4 ch 4-20mA
	BMXSDI1602	Safety digital inputs, 16 ch 24 Vdc
	BMXSDO0802	Safety digital outputs, 8 ch 0,5 A, 24 Vdc
	BMXSRA0405	Safety digital outputs, 4 ch, 5 A, 24Vdc/230Vac
	BME H58 4040S	Control Processor Unit Hot-Standby
	BME H58 2040S	Control Processor Unit Hot-Standby
	BME H58 6040S	Control Processor Unit Hot-Standby

(*): means compliant EMC Class B
(C): models may be followed by "C" when coated boards
(CL): models may be followed by "CL" when without SD memory Card
(T): Models including suffix "T" stand for Extended Temperature: -25°C up to 70°C
(H): Models may be followed by "H" for Harsh Environment.
The Harsh offer allows Modicon M340 use in severe environment:
    - Chemical aggressive substances; products are tested according to:
        - IEC/EN 60721-3-3, Levels 3C3 and 3C4
        - ISA S71.04, Level GX
        - IEC/EN 60068-2-52 salt mist, test Kb Level 2
        - IEC/EN 60721-3-3, Level 3S4
    - Exposed at climatic aggressive environment:
        - Temperature: -25°C up to 70°C
        - Relative humidity: 5-95% up to 55°C
        - Icing
Note: Able to start in the temperature interval [-25°C,70°C], a monorack configuration can operate at -40°C if placed in an appropriated enclosure.
Please refer to catalogue for more details.

Place of manufacture

Schneider Electric Carros (France)
ZI Carros 8ème Rue
F- 06516 Carros, FRANCE

PT Schneider Electric Manufacturing Batam (Indonesia)
Batamindo Industrial Park – Block 1, 4 & 208
Muka Kuning - Batam Riau
29433 INDONESIA

WUXI Pro-face Co., Ltd.
No.516, Xida Road, Xinwu District,
Jiangsu, China

Application/Limitation

All products comply with EMC class A without cabinet nor filter.
(*) These products comply with EMC Class B requirements without either cabinet or filter.
(H) for Harsh Environment. Temperature: -25°C up to 70°C.

Approval conditions

The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNV, 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 rules for classification of 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 certification the clause for software control will be put into force.

Software control

All changes in software are to be recorded as long as the system is in use on board. Documentation of major changes is to be forwarded to DNV for evaluation and approval before implemented on board. Certification of modified functionality may be required for the particular vessel.

Type Approval documentation

- Automation & Control Modicon M340 automation platform
- Product Test Synthesis MODICON M340
- List of Test Reports M340 March 09

Test Reports:
- Test Configurations Functional No: 0509S01C, 0512S02C, 0514S01C
- EMC Low frequency immunity Test Reports No: 0509S13V, 0509S18V, 0512S01V, 0514S09V
- EMC High frequency immunity Test Reports No: 0509S14V, 0509S20V, 0512S05V, 0512S11V, 0512S15V, 0514S03V, 0514S15V
- EMC Emission Tests Reports No: 0509S15V+2 Annexes, 0512S06V+2 Annexes, 0514S04V+2 Annexes
- Environmental Test Reports No: 0509S09V, 0509S10V, 0512S07V, 0512S08V, 0514S05V, 0514S06V
- Vibration Test No: 2007-0171-02-A, 2007-0171-00-A,
- Immunity to mechanical stress Test Report No: 0512S09V, 0514S07V, 0509S11V
- Vibration Test Reports No: 2007-0171-04-A, 2007-0171-01-A, 2007-0171-03-A, 2007-0171-05-A
- Electrical safety Test Reports No: 0509S03V, 0509S05V, 0509S06V, 0512S03V, 0514S01V, 0512S14V
- Test Configuration Functional No: 0605S01C + 0610S01C
- EMC Low frequency immunity Test Reports No: 0605S07V + 0610S09V
- EMC High frequency immunity Test Reports No: 0605S11V + 0610S08V
- EMC emission Test Reports doc. no.: 0605S08V; 0605S22E; R0708303C2- E; 0610S03V; 4850008401100; R0804140C1-E-C
- Climatic variations immunity Test Reports No: 0605S12V + 0610S04V + 0605S13V + 0610S05V
- Immunity to mechanical stress Test Reports No: 0605S16V + 2007-0958-01-A. + 0610S06V + 200800583-001

Documentation at renewal 2011&2012:
- SITIIAS ENV and EMC Test Reports doc. no.:
A09-001-WT dated 2009-03-28; A09-061-WT-01 dated 2009-12-28; A10-002-WT-01 dated 2009-12-28.

A11-040-WT dated 2011-05-05.
- Schneider Electric ENV Validation Test Reports: doc, no.:
0803S01C dated 2009-02-17; 0803S02C dated 2009-08-05; 0803S03C dated 2009-03-09; 0803S04C dated 2009-08-07; 0803S05C dated 2009-10-19; 0803S07V dated 2009-01-14; 0803S08V dated 2009-01-13; 0803S17V dated 2009-05-12; 0911M01V dated 2009-10-05; 0911M02V dated 2009-11-02; 0911M03V dated 2009-11-06; 0911M04V dated 2009-11-26; TF-045-001 dated 2011-05-19
- Automation Platform Modicon M340, doc. No.: 0504Q-EN.indd ver.4.0
- Product Test Synthesis for M340 – BMXEAE0300

Documentation at extension 2014:
- Relevant test reports in EAV5002500 folder:
1306S01V dated 2013-07-23, 1306S02V dated 2013-09-27, 1306S03V dated 2013-09-20
1306S04V dated 2013-10-15, 1306S05V dated 2013-10-15, 1306S06V dated 2013-10-15
1306S07V dated 2013-10-18, 201305-041 dated 2014-01-13, 201305-061 dated 2014-01-13
201305-071 dated 2014-01-13, 201305-081 dated 2014-01-13, 201305-441 dated 2014-01-13
21306685-001 dated 2013-10-21, ET2013-11-602 dated 2013-04-01, R3106187C6-EC-A1 2013-10-11
- Relevant test reports in S1A6162900 folder:
0000578237 dated 2009-12-29, 0000580321 dated 2009-12-28
- Relevant test reports in HRB2730300 folder:
1106S08V dated 2012-09-05, 1106S09V dated 2012-08-27, 1106S10V dated 2012-09-18
1106S12V dated 2012-10-10, R1203121C2-E-C-A1 dated 2012-05-30,
R1210386C2-E-C dated 2012-05-30, R1210386C4-E-C dated 2013-02-19,
R1203121C4-E-C-A1 dated 2013-02-19
- Relevant test reports in BBV4529500 folder:
0803S19V dated 2009-10-07
0803S21V dated 2009-10-19, 0803S24V dated 2009-05-11, 0803S26E dated 2009-05-15
- Product test synthesis:
BBV4529500_03, EAV5002500_01, HRB2730300_01, S1A6162900_00
Data sheet: Modicom M580 Processors, 0555Q-EN Rev. 1.0

Extension 2016:
Instruction Sheet: NHA3301400_02
Catalogues: DIA6ED2151012EN dated 2016-01, Modicon M580 automation platform
Data sheets: EIO0000002264.00 dated 2016-03, Product instruction BMXETM
                 DMDI 3126E dated 2016-01, M580 Ethernet Module
                 DMDI 3182E dated 2016-04, Global Data Module
Test reports: NVE4157400 01 dated 2016-05-30, Schneider "PRODUCT TEST SYNTHESIS"

Renewal & Extension 2018:
Instruction Sheet: NHA3301400_05
Catalogues: DIA6ED2110104EN dated 2014-09, Modicon M340 automation platform
                 DIA6ED2131203EN V4.0 dated 2017-01, Modicon X80 I/O platform
Test reports: NVE4157400 04 dated 2017-07, Schneider "PRODUCT TEST SYNTHESIS"
                 QGH9327300 01 dated 2017-09, Schneider "PRODUCT TEST SYNTHESIS"

Extension 2021
Catalogues: DIA6ED2151012EN V7.0 dated 2020-01, Modicon M580 automation platform
                 DIA6ED2131203EN V11.0 dated 2020-01, Modicon X80 I/O platform
Test reports, Schneider "PRODUCT TEST SYNTHESIS":
                 PHA8883800 04 dated 2021-02
                 NVE4157400 06 dated 2021-02
                 MFR8124600 02 dated 2021-02
                 QGH9327300 06 dated 2021-02

Type approval assessment report for TAA00000VJ, DNV France CMC 2023-11-09.
Type approval assessment report for TAA00000VJ, DNV Batam NB & CMC 2024-02-06.
Type approval assessment report for TAA00000VJ, DNV Jiangyin NB & CMC 2024-02-01.

Tests carried out

Applicable tests according to class guideline DNV-CG-0339, August 2021.

Marking of product

The products to be marked with:
- manufacturer name
- model name
- serial number
- power supply ratings

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