DNV·GL

Certificate No:
TAA000019N

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Programmable Electronic System

with type designation(s)
MELSEC-Q and MELSEC-Q Redundant System

Issued to
Mitsubishi Electric Corporation, Nagoya Works
NAGOYA AICHI, Japan

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	**A**
Humidity	**B**
Vibration	**A**
EMC	**B**
Enclosure	**Required protection according to DNV rules shall be provided upon installation onboard**

Issued at **Busan** on **2017-07-01**
This Certificate is valid until **2019-06-30**.
DNV GL local station: **Kobe**

Approval Engineer: **Baeg Soon Choi**

for **DNV GL**

Michael Jost Auf der Stroth
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.

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Product description

MITSUBISHI ELECTRIC CORPORATION MELSEC-Q SERIES AS LISTED BELOW:

CPU Module :	Q00CPU, Q00JCPU, Q01CPU, Q02CPU, Q02CPU-A, Q02HCPU, Q02HCPU-A, Q06HCPU, Q06HCPU-A, Q12HCPU, Q12PHCPU, Q25HCPU, Q25PHCPU, Q12PRHCPU, Q25PRHCPU, Q00UJCPU, Q00UJCPU-S8, Q00UCPU, Q01UCPU, Q02UCPU, Q03UDCPU, Q04UDHCPU, Q06UDHCPU, Q03UDECPU, Q04UDEHCPU, Q06UDEHCPU, Q10UDHCPU, Q13UDHCPU, Q20UDHCPU, Q26UDHCPU, Q10UDEHCPU, Q13UDEHCPU, Q20UDEHCPU, Q26UDEHCPU, Q02PHCPU, Q06PHCPU, Q03UDVCPU, Q04UDVCPU, Q06UDVCPU, Q13UDVCPU, Q26UDVCPU, Q04UDPVCPU, Q06UDPVCPU, Q13UDPVCPU, Q26UDPVCPU,
Base Unit :	Q312B, Q32SB, Q33B, Q33SB, Q35B, Q35SB, Q38B, Q52B, Q55B, Q612B, Q63B, Q65B, Q68B, QA1S33B, QA1S35B, QA1S38B, QA1S65B, QA1S68B, QA65B, Q38RB, Q68RB, Q65WRB, Q35DB, Q38DB, Q312DB
Large Size Base Unit :	Q35BL, Q38BL, Q55BL, Q65BL, Q68BL
Power Supply Module :	Q61P, Q61P-A1, Q61P-A2, Q61SP, Q62P, Q63P, Q64P, Q64RP, Q64PN, Q64RPN
Extension Cable :	QC05B, QC06B, QC12B, QC30B, QC40B, QC50B, QC100B, QC10TR, QC30TR
Input/Output Module :	QH42P, QX41Y41P, QX48Y57
Input Module :	QX10, QX28, QX40, QX40-S1, QX40H, QX41, QX41-S1, QX42, QX42-S1, QX50, QX70, QX70H, QX71, QX72, QX80, QX80H, QX81, QX82, QX82-S1, QX90H
Large Size Input Module :	QX11L, QX21L
Output Module :	QY10, QY18A, QY22, QY40P, QY41P, QY41H, QY42P, QY50, QY68A, QY70, QY71, QY80, QY81P, QY82P
Large Size Output Module :	QY13L, QY23L, QY11AL
Analog Unit :	Q62DA, Q62DAN, Q64AD, Q64DA, Q64DAN, Q68ADI, Q68ADV, Q68DAI, Q68DAIN, Q68DAV, Q68DAVN, Q64AD2DA, Q64DAH, Q64ADH
Channel Isolated Analog Module	Q62AD-DGH, Q62DA-FG, Q64AD-GH
Channel Isolated Thermocouple Input Module :	Q64TD, Q64TD-F10, Q64TDV-GH, Q64TDV-GH-F10, Q68TD-G-H01, Q68TD-G-H02
Channel Isolated Analog-Digital Converter Module :	Q66AD-DG, Q68AD-G
Channel Isolated Digital – Analog Converter Module :	Q66DA-G
Temperature Input Module :	Q64RD, Q64RD-F10
Current Transformer Input Module	Q68CT
Channel Isolated RTD Input Module :	Q64RD-G, Q68RD3-G
Temperature Control Module :	Q64TCRT, Q64TCRTBW, Q64TCTT, Q64TCTTBW, Q64TCRTN, Q64TCRTBWN, Q64TCTTN, Q64TCTTBWN

Loop Control Module :	Q62HLC
Load Cell Input Module :	Q61LD
Interrupt Module :	QI60
Channel Isolated Pulse input Module :	QD60P8-G
High Speed Counter Module :	QD62, QD62D, QD62E, QD63P6, QD64D2, QD65PD2
Positioning Unit :	QD70P4, QD70P8, QD75D1, QD75D2, QD75D4, QD75P1, QD75P2, QD75P4, QD70D4, QD70D8, QD72P3C3, QD75D1N, QD75D2N, QD75D4N, QD75P1N, QD75P2N, QD75P4N, QD73A1
MELSECNET/H Module :	QJ71BR11, QJ71LP21, QJ71LP21-25, QJ71LP21G, QJ71LP21GE, QJ71LP21S-25, QJ72BR15, QJ72LP25-25, QJ72LP25G, QJ72LP25GE
CC-Link Module :	QJ61BT11, QJ61BT11N
CC-Link IE Module :	QJ71GP21-SX, QJ71GP21S-SX, QJ71GF11-T2
CC-Link/LT :	QJ61CL12
Serial Communication Module :	QJ71C24, QJ71C24-R2, QJ71C24N, QJ71C24N-R2, QJ71C24N-R4,
Ethernet Module :	QJ71E71, QJ71E71-B2, QJ71E71-B5, QJ71E71-100
Profibus Module :	QJ71PB92D, QJ71PB92V, QJ71PB93D
MODBUS Module :	QJ71MB91, QJ71MT91
FL-net Module :	QJ71FL71, QJ71FL71-B2, QJ71FL71-B2-F01, QJ71FL71-B5, QJ71FL71-B5-F01, QJ71FL71-T, QJ71FL71-T-F01, QJ71FL71-F01
Devicenet Module :	QJ71DN91
NeXUS Module :	QJ71E71-100-F10
AS-I Master Module :	QJ71AS92
Spring Clamp Terminal Block:	Q6TE-18SN
Web Server Module :	QJ71WS96
Intelligent Communication Module :	QD51, QD51-R24
C language Coprocessor Module :	QD54-S1
Modem Interface Module :	QJ71CMO
Memory Card :	Q3MEM-4MBS, Q3MEM-8MBS, Q3MEM-4MBS-SET, Q3MEM-8MBS-SET
Extended SRAM Cassette:	Q4MCA-1MBS, Q4MCA-2MBS, Q4MCA-4MBS, Q4MCA-8MBS

The products listed above are the ones without coating. When special coating is applied for the purpose to enhancing resistant to corrosive gas(not for insulation protection), suffix "(C)" will be added at the end of the product type designation.

Type designation of specialty coatings:

- MELQUID V985-15E Liquid type
- MELQUID V985-SE Spray type

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
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.

Type Approval documentation

Tests carried out

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

Periodical assessment

The scope of the retention/renewal survey 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 survey 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

Retention survey is to be performed at renewal of this certificate.

END OF CERTIFICATE