

TYPE APPROVAL CERTIFICATE

Certificate No:
TAA0000026
Revision No:
5

This is to certify:

That the Engine Safety, Control and Alarm System

with type designation(s)

DCU 410E, DCU 408E, DCU 410, SDU 404, SDU 410, RIO 410, RP 410, RP 410E, RP480i, DCU 408, RPS, Marine Pro - 400 Series

Issued to

Auto-Maskin AS
Skjetten, Norway

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:

Type	Temperature	Humidity	Vibration	EMC	Enclosure
DCU 410E	D	B	B	A	B (Panel front only)
DCU 408E	D	B	B	A	
DCU 410	B	B	A	A	
SDU 404	D	B	A	A	Required protection according to the Rules to be provided upon installation on board
SDU 410	B	B	B	A	
RIO 410	B	B	A	A	
RP 410	A	B	A	B	B (Panel front only)
RP 410E	D	B	B	B	
RP 480i	D	B	B	B	
DCU 408	B	B	A	A	Required protection according to the Rules to be provided upon installation on board
RPS	D	B	A	A	

Issued at **Høvik** on **2022-11-03**

for **DNV**

This Certificate is valid until **2026-03-03**.

DNV local unit: **Oslo Maritime and CAP**

Approval Engineer: **Sergey Gilmiyarov**

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Jan Tore Grimsrud
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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Product description

Diesel Engine Control, Monitoring and Safety Systems: Marine Pro - 400 Series.

The 400 Series is designed to be integrated with independently approved propulsion and auxiliary marine engines. Sensor inputs to the 400 Series will either come from independent sensors, or from Type Approved engine control module (ECM). Shutdown Unit (SDU) shall have independent switches and sensors provided.

Hardware:

Part Number	OEM Part Number	Description	FW number
1006445	---	DCU 410E	3.X
1100601	5410203	DCU 410E (OEM1)	3.X
1100235	458-7750	DCU 410E (OEM2)	3.X
1006505	---	DCU 410E (OEM3)	3.X
1100701	---	DCU 410E (OEM4)	3.X
1006510	---	DCU 408E	3.X
1006450	---	DCU 410	2.X
1100146	2863181	DCU 410 (OEM 1)	2.X
1100230	334-2665	DCU 410 (OEM 2)	2.X
1006418	---	SDU 404	1.X
1100405	492-6333	SDU 404 (OEM2)	1.X
1006451	---	SDU 410	1.X
1100186	2867055	SDU 410 (OEM 1)	1.X
1100630	5471762	SDU 410 (OEM 1)	1.X
1100232	334-2668	SDU 410 (OEM 2)	1.X
1006453	---	RIO 410	1.X
1100187	2867056	RIO 410 (OEM 1)	1.X
1100231	334-2667	RIO 410 (OEM 2)	1.X
1006446	---	RP 410E	3.X
1100604	5419007	RP 410E (OEM1)	3.X
1100236	458-7760	RP 410E (OEM2)	3.X
1006506	---	RP 410E (OEM3)	3.X
1100702	---	RP 410E (OEM4)	3.X
1500061	---	RP 480i	3.X
1006452	---	RP 410	2.X
1100145	2863182	RP 410 (OEM 1)	2.X
1100233	334-2666	RP 410 (OEM 2)	2.X
1006455	---	DCU 408	2.X
1311229	---	RPS	N/A

The current firmware numbers and versions are listed in documents:

Document name	Document number
Firmware Release description DCU410 / DCU 408	5005
Firmware Release description SDU 410	5008
Firmware Release description SDU 404	5022
Firmware Release description RIO 410	5009
Firmware Release description RP 410/RP 410E/RP 480i	5011

Minor changes in firmware and consequent changes of firmware version numbers are allowed and covered by this Type Approval when such changes are performed in accordance with Firmware Version Labeling Strategy – 3/1201-AMS007/1 rev. A dated 2013-04-30, i.e. not changing core functionality as it is described in type approval documentation. Such firmware changes to be registered in the above listed Firmware Release descriptions.

Application/Limitation

- FW and Classified Installation can be verified in display, through the sub menu "Version information".
- The Type Approval covers hardware and firmware listed under Product description.
- Possibility of CCTV camera implementation into system shall be disabled for DNV classified systems.
- Possibility of alarm acknowledgment from control stations which are inactive and / or outside machinery spaces shall be disabled for DNV classified installations.

The following documentation of the actual application is to be submitted for approval in each case:

- Reference to this Type Approval Certificate
- System block diagram
- List of control and monitored points (list covering alarms, safety functions)
- Power supply arrangement (may be part of the System block diagram)
- Test Program for certification survey (FAT program) describing testing of application system in project specific configuration.

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, preferably at the engine/system application maker integrating control, monitoring and safety system, before the system is shipped to the yard. After the certification the clause for application firmware control will be put into force.

Clause for application firmware control

All changes in firmware 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 firmware are to be approved before being installed in the computer.

Type Approval documentation

Binder DNV Approval – 400 system Project number: 1418

Equipment related documentation

400 System FAT, Test Plan. Date 2007-10-22

Technical Report No. 2007-3495. Revision No. 3

Extension in 2010:

Electrical-drawing---revision-G---1911-HMP014-1-rev -G.pdf

Schematic-drawing---revision-D---1910-HMP013-1-rev.-D.pdf

Electrical-drawing---revision-G---1911-HMP015-1-rev.-G.pdf

1888-SDU410 Rev8.pdf

DNV Oslo Retention Survey Report, dated 2010-06-25

Renewal in 2012:

Document name	Document number	Revision	Date
Product release information (product HMP015/1)	4/109 20-HMP015/1	A	2011-08-11
Product release information (product HMP014/1)	4/109 21-HMP014/1	B	2011-09-08
Product Release Information Marine Pro Series Components	2/109 21-AMS007/1	A	2012-08-28

Update 2013-10-24:

Firmware Version Labeling Strategy – 3/1201-AMS007/1 rev. A dated 2013-04-30

Upgrade 2014-06-17:

Document name	Document number	Revision	Date
EMC and Environmental Validation Report DCU 410E	1/2919-HMP531/1	A	2014-05-05
SOFTWARE VALIDATION REPORT	1/2919-HMQ531/1	B	2014-04-03
Factory Acceptance Test – 400 System	1006450	PB1	2014-05-15
Nemko Report	E14070.00	00	2014-04-09
EMC tests of DCU 410E	4P01832E1	---	2014-04-14
Environmental test on DCU 410E, SDU 404 and RPS	4P02266-A	---	2014-04-30
Firmware Release description DCU410 / DCU 408	5005	---	2014-06-19

Upgrade 2014-08-27:

Document name	Document number	Revision	Date
EMC tests of SDU 404	SP 4P01832E2	---	2014-04-23
EMC Tests of RPS	SP 4P01832E3	---	2014-04-25
FAT-400-SDU-404-RPS	1006450	PB1	2014-07-08

Upgrade 2018-03-22:

DCU-400E Datasheet dated 2017-10-30

Renewal 2019-03-13:

Document name	Document number	Revision	Date
Firmware Release description DCU410 / DCU 408	5005	---	2018-03-06
Firmware Release description SDU 410	5008	---	2016-11-14
Firmware Release description RIO 410	5009	---	2015-01-05
Firmware Release description RP 410	5011	---	2018-03-06
Firmware Release description SDU 404	5022	---	2018-10-05
EMC test of RP 410E	5P02252-E	---	2015-03-25
Environmental test of RP410E	5P06927	---	2015-10-16

Renewal 2021-03-04:

Document name	Document number	Revision	Date
Environmental test of RP410E with push-in contacts	9PO4380	---	2019-10-22
Sinusoidal vibration test on DCU 410E and SDU 410	4P02266:B	1	2014-04-29
Cold test of DCU 410E, RPS and SDU 404	5P08871	---	2015-11-17

Type Approval Periodical Assessment Report dated 2021-01-28

Update 2021-12-06:

EMC test report E21169.02, dated 2021-09-08

Update 2022-11-03

Document name	Document number	Revision	Date
Firmware Release description RP 410/RP 410E/RP 480i	5011	---	2022-03-28
Environmental test of RP 480i	9P04380		2019-10-22
EMC testing of Marine Panel	9P06118	B	2019-12-09
Test report	E21093.00	00	2021-05-21
IP test report	O156095	1	2021-06-10

Tests carried out

Applicable tests according to DNV Class Guideline CG-0339 (2021-08)

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

A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE