Certificate No:
TAA00002Z1

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Control and Monitoring System

with type designation(s)
Integrated automation system, Propulsion control system, Switchboard protection relays

Issued to
ABB AS
Fornebu, **Norway**

is found to comply with
DNV rules for classification – Ships Pt.6 Ch.5 Sec.21 Cyber security

Application :

This type approval covers security capabilities for DNV security profiles SP0 and SP1 (edition July 2021).

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

Issued at **Høvik** on **2022-04-22**
This Certificate is valid until **2024-04-21**.
DNV local station: **Oslo Maritime and CAP**

Approval Engineer: **Knut Omberg**

for **DNV**

Jarle Coll Blomhoff
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

This type approval covers security capabilities of:

1. ABB integrated system for DNV security profile SP0
2. ABB integrated system for DNV security profile SP1

The type approved systems are identified by version V1.0.0 as further detailed in Type Approval documentation below.

The systems are intended used for the following typical functions:
- Automation, control, monitoring and alarm
- Vessel management
- Power management
- Propulsion control
- Switchboard protection relays
- Remote access platform (RAP)

The system architectures consist of the following security zones:
- Demilitarized zone
- Operations and management zone
- Control zone

Application/limitation

The following shall be verified on board:

- 3rd party interfaces connected to modules CI867A (Modbus TCP) and CI868A (IEC 61850) are limited to devices within the same security zone.

- Physical access to the system components is restricted/controlled.

- Panel 800 is not used for control functions.

Approval conditions

For each delivery to DNV class notation Cyber secure or Cyber secure(Essential), document "*System version and modification log*" (8MAL100010-0209) shall be submitted to DNV to demonstrate that the delivered system is covered by this type approval.

Compliance with other applicable DNV rules shall be verified by product certification as required by Pt.4 Ch.9 (ships) or DNV-OS-D202 (offshore units).

Correct configuration of security capabilities shall be verified on board.

Type Approval documentation

The type approved systems are represented by the following documents:

Version	Document no.	Document name	Revision
V1.0.0	8MAL100010-0200	Common compliance description	H
	8MAL100010-0201	Common test procedure	K
	8MAL100010-0203	System architecture and asset inventory SP0	G
	8MAL100010-0204	Functional description SP0	F
	8MAL100010-0205	System architecture and asset inventory SP1	C
	8MAL100010-0206	Functional description SP1	C

Minor modifications to the type approved systems are to be identified by updating the last number in the version and are covered by this type approval.

Major modifications to the type approved systems are to be identified by updating either the first or the second number in the version and shall be informed to DNV for assessment and update of this certificate.

The following additional documents form the basis for this type approval.

- 8MAL100010-0079 Rev.F Modification strategy and change management
- 8MAL100010-0209 Rev.A System version and modification log
- 8MAL100010-0202 Rev.E Type testing summary
- 8MAL100010-0248 Rev.G Network Traffic Information
- 8MAL100010-0211 Rev.B Deployment and configuration checklist
- Type approval initial assessment report by DNV, dated 2022-03-14

Place of manufacture

ABB Helsinki, Merenkulkijankatu 1, 00980 Helsinki, Finland
ABB Fornebu, Snarøyveien 30, 1360,Fornebu, Norway
ABB Ulsteinvik Stålhaugen 14, 6065, Ulsteinvik, Norway

Tests carried out

Type testing was carried out in accordance with DNV rules Pt.6 Ch.5 Sec.21 edition July 2021 in accordance with test procedure document 8MAL100010-0201/H.

Marking of product

The components in the type approved systems are marked/identified in accordance with name, model and version as listed in documents 8MAL100010-0203 or -0205 (System architecture and asset inventory).

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