Certificate no.:
TAA00003MS

TYPE APPROVAL CERTIFICATE

This is to certify:

that the Programmable Electronic System

with type designation(s)
Sigma Control 3 system: SC3S, SC3M, SC3L, SC3IOM-31, SC3IOM-32, SC3IOM-33

issued to
Prodrive Technologies Group B.V.
Son, **Netherlands**

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	**A (5°C ~ 60°C)**
Humidity	**B**
Vibration	**B**
EMC	**A**
Enclosure	**Required protection according to relevant Rules shall be provided upon installation on board**

Issued at **Høvik** on **2025-06-13**

This Certificate is valid until **2030-06-12**.

for **DNV**

DNV local unit: **Netherlands CMC**

Approval Engineer: **Ståle Sneen**

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 USD 300 000.

Product description

The Sigma Control 3 is a Soft PLC system comprising the following components:

Name	Type
SC3S	Panel mounted PLC with 5" multi touch display
SC3M	Panel mounted PLC with 5" multi touch display
SC3L	Panel mounted PLC with 7" multi touch display
SC3IOM-31	Industrial I/O module
SC3IOM-32	Industrial I/O module
SC3IOM-33	Industrial I/O module

SC3x

Main processor:	iMX8M Mini quad core Cortex-A53 and single core Cortex-M4, Max 1.6 GHz
Interfaces:	1000Base-T Ethernet, SD Card, AnyBus CompactCom M40, USS Bus/Modbus RTU (RS485 based), IOBus (RS485 based), RFID/NFC, WiFi, Bluetooth, IO (see below)
RFID specification:	13.56 MHz, ISO 14443A, ISO 14443B, ISO(IEC 18092 (NFCIP-1)
WiFi specification:	2.4 GHz, IEEE 802.11b/g, WPA3, WPA2, WPA
Bluetooth specification:	2.4 GHz, Bluetooth 5.2, Bluetooth 5.2 LE
IO specification:	Digital Transistor Output (DOT), Digital Input (DI), Analog Resistance Input (AIR), Analog Current Input (AII), Digital Relay Output (DOR)
Power supply nominal:	24 V DC

SC3IOM-xx

Interfaces:	IOBus (RS485 based), DC output power, IO (see below)
IO specification:	Digital Transistor Output (DOT), Digital Input (DI), Analog Resistance Input (AIR), Analog Current Input (AII), Analogue Current Output (AOI), Digital Relay Output (DOR)
Power supply nominal:	24 V DC

i.MX8M:

SC3x u-boot:	6001-2350-16
SC3x firmware (Linux OS):	6309-2400-68

Soft PLC microcontrollers:

Safety Controller Application:	6309-2204-34
IO-Controller Application:	6309-2204-35

Place of manufacture

Prodrive Technologies Group B.V.
Son, Netherlands

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 the 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.

Application/Limitation

Unit to be supplied from supply unit as per manufacturer's specification, ref. Instruction Manuals.

The type approval does not cover the different administrations requirements for use of the radio frequency bands. The applied frequency bands listed in table 1 are defined by ITU-R Radio Regulations (2024) as ISM-bands. Any use if the radio frequency band must be in line with the requirements of the administration concerned.

Table 1: RF output power for wireless communication

Technology	Frequency [Hz]	Channel	Max. RF output power
RFID/NFC	13.56 MHz ±7 kHz	-	-7 dBm
WLAN	2401.0 MHz to 2473.0 MHz	1-11	15 dBm
Bluetooth (BR/EDR)	2401.5 MHz to 2480.5 MHz	1-79	5 dBm
Bluetooth (BLE)	2401.0 MHz to 2481.0 MHz	1-39	5 dBm

The equipment is approved for maritime installation in category A EMC locations, but it must always be made sure that the EMC environment is sustained, and that other equipment is not harmfully affected by the equipment covered by this certificate. In such cases, it is the manufacturer of the wireless equipment’s responsibility to find a solution which maintains the required EMC environment onboard.

Type Approval documentation

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