Certificate No:
TAA0000301

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Loading and unloading arrangement

with type designation(s)
Portable Control Units Mini and Maxi and Central Unit, Radio module RC400 / TR02

Issued to
Scanreco AB
Skärholmen, **Sweden**

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.

Location classes:

Temperature	**B**
Humidity	**B**
Vibration	**A**
EMC	**B**
Enclosure	**B / IP65**

Issued at **Høvik** on **2021-06-09**
This Certificate is valid until **2026-06-08**.
DNV local station: **Sweden CMC**

for **DNV**

Approval Engineer: **Ståle Sneen**

Marta Alonso Pontes
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

Type Portable Control Units Mini and Maxi and Central Unit, Radio module RC400 / TR02.

Rating

Communication mode:	TX or RX half-duplex
Local oscillator type:	Synthesizer
Operating Frequency:	433.05-434.75 MHz
Channel spacing:	25 kHz
Frequency stability:	±2 ppm -10°C to +55°C
Data rate:	Up to 8 kbits

Transmitter

Output power:	10 dBm Max
Deviation:	4±0.6 kHz
Spurious emission:	-55 dBm < 1 GHz
Adjacent channel power:	-40 dBm

Receiver

Spurious emission:	-60 dBm < 1 GHz

Software Version:

Portable control units:	Maxi/Mini with joysticks: version 2.5
	Maxi/Mini with levers: version 2.6
Central unit:	version 4.2

Portable Control Units

Mini with joysticks:	Analog inputs:	6 bi-directional analog inputs (A/B) via cross joysticks
	Digital inputs:	7 digital inputs via toggle switches
	Radio:	Built-in radio transmitter
	IP-Class:	IP65
Mini with levers:	Analog inputs:	6 bi-directional analog inputs (A/B) via linear levers
	Digital inputs:	7 digital inputs via toggle switches
	Radio:	Built-in radio transmitter
	IP-Class:	IP65
Maxi with joysticks:	Analog inputs:	9 bi-directional analog inputs (A/B) via cross joysticks
	Digital inputs:	7 digital inputs via toggle switches
	Radio:	Built-in radio transmitter
	IP-Class:	IP65
Maxi with levers:	Analog inputs:	8 bi-directional analog inputs (A/B) via cross joysticks
	Digital inputs:	7 digital inputs via toggle switches
	Radio:	Built-in radio transmitter
	IP-Class:	IP65
Central Unit:	Power supply:	9 to 36 V
	IP-Class:	IP65
	Cable interface:	Terminal connectors
	Fuse Internal:	10 A
	Current consumption:	Idle: 90 mA
		Operational: 225 mA + external loads
	Analogue outputs:	Short circuit proof, overload protected, max. 0.5 A load/output
	Digital outputs:	Short circuit proof, overload protected, max. 1.8 A load/output
	Dump valve outputs:	Short circuit proof, overload protected, max. 2 A load
	Digital inputs:	Up to 4 digital inputs available
	Radio module:	TR02 RC400 Integrated duplex radio ISM-band, R&TTE approved

Place of manufacture

Scanreco AB
Arsta Skolgränd 22
100 74 Stockholm, SWEDEN

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 GL rules for classification of ships Pt.4 Ch.9 Control and monitoring systems.

Application/Limitation

The type approval does not cover the different administrations requirements for use of the radio frequency band. The applied frequency band 433.05-434.79 MHz is defined by ITU-R Radio Regulations (2020) as an ISM-band for ITU Region 1 that may be subject to special authorisation by the administration concerned. Any use if the radio frequency band shall be in line with the requirements of the administration concerned.

The central unit should be supplied by a galvanically insulated instrument power supply of approved type.

EMC in the range 2 GHz to 6 GHz according to DNVGL-CG-0339, December 2019 has not been documented. EMC up to 6 GHz must additionally be documented for installation on ships contracted for construction on or after 2022-01-01.

Type Approval documentation

Tests carried out

Applicable tests according to class guideline DNVGL-CG-0339, December 2016.
Applicable tests according to EN 300-220-1 V2.3.1, EN 301 489-1 V1.8.1, EN 301 489-3 V1.4.1.

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