Certificate No:
TAA0000365

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Network and Communication Components

with type designation(s)
RedFox 7528 Series Industrial Ethernet Switches

Issued to
Westermo Network Technologies AB
STORA SUNDBY, **Sweden**

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	**D**
Humidity	**B**
Vibration	**A**
EMC	**B**
Enclosure	**A / IP40**

Issued at **Høvik** on **2022-08-15**
This Certificate is valid until **2027-08-14**.
DNV local station: **Sweden CMC**

Approval Engineer: **Ståle Sneen**

for **DNV**

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

Westermo RedFox 19" Industrial Ethernet Switches, comprising the following units:

Art. No.	Type Designation	Rated voltage	Description
3641-4540	RedFox-7528-F4G10-F12G-T12G-LV	24-48 VDC	4 x 1/10 Gbit/s, Ethernet FX, SFP+ 12 x 100/1000 Mbit/s, Ethernet FX, SFP 12 x 10/100/1000 Mbit/s, Ethernet TX, RJ-45
3641-4440	RedFox-7528-E-F4G10-F12G-T12G-LV		
3641-4541	RedFox-7528-F4G10-F12G-T12G-LV-CC	24-48 VDC	4 x 1/10 Gbit/s, Ethernet FX, SFP+ 12 x 100/1000 Mbit/s, Ethernet FX, SFP 12 x 10/100/1000 Mbit/s, Ethernet TX, RJ-45 Conformal Coated
3641-4441	RedFox-7528-E-F4G10-F12G-T12G-LV-CC		

Dielectric strength – signal to other isolated ports: 1.5 kVAC
Dielectric strength – power and PoE to other isolated ports: 1.5 kVAC

Westermo SFP transceivers are covered by type approval certificate TAA000006B.

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.

Application/Limitation

Shielded CAT6 Ethernet cable is required to fulfil class requirements for EMC.
Tested and approved for direct connection to 24 to 48 VDC distribution boards (test voltage 18.0 - 62.4 VDC).

Type Approval documentation

Tests carried out

Applicable tests according to class guideline DNV-CG-0339, August 2021.
15 g, 11 ms shock test according to IEC 60068-2-27:2008.

Marking of product

Westermo
Art. No. and Type as listed under Product description
Unique serial number
Power supply voltage and current rating

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