TYPE APPROVAL CERTIFICATE

Certificate No:
TAE00000JB
Revision No:
1

This is to certify:

That the Field bus cables

with type designation(s)
PROFIBUS DP 2513, PROFIBUS DP 2466, PROFIBUS DP 2512

Issued to
Primatec AS
GRIMSTAD, **Norway**

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 GL.

Issued at **Hamburg** on **2021-04-19**

This Certificate is valid until **2026-04-18**.
DNV local station: **Venice**

Approval Engineer: **Carsten Hunsalz**

for **DNV**

Digitally Signed By: Schaarmann, Arne
Location: DNV GL SE Hamburg, Germany
Signing Date: 2021-04-20

Arne Schaarmann
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.

Product description

Type : PROFIBUS DP 2466 FC 1x2x 24/19 AWG FR
PROFIBUS DP 2513 1x2x 24/19 AWG + 3G1,00 mm² FR
PROFIBUS DP 2512 1x2x 24/19 AWG + 2x1,00 mm² FR

PROFIBUS DP 2466 FC	
Conductors	Stranded bare copper 24/19 AWG
Insulation	Foam skin polyethylene (PE)
Fillers	Two, solid polyethylene
Separator/core assembly	Polyester (PET) tape or non-woven tape PET/PA (polyamide)
Inner jacket	Thermoplastic elastomers (TPE)
Screen	Aluminium/polyester tape + tinned copper wire braid
Separator	Non-woven tape PET/PA (polyamide)
Outer Jacket	Thermoplastic Polyurethane (TPU) Flame Retardant Mud resistant

PROFIBUS DP 2513 and PROFIBUS DP 2512	
Profibus cable	
Conductors	Stranded bare copper 24/19 AWG
Insulation	Foam skin polyethylene (PE)
Fillers	Two, solid polyethylene
Separator/core assembly	Polyester (PET) tape or non-woven tape PET/PA (polyamide)
Screen	Aluminium/polyester tape + tinned copper wire braid
Separator	Polyethylene (PE) inner jacket (PE) or Polyethylene (PE) tape
Power supply conductor	
Conductors	Stranded bare copper 2 or 3 x 1,00mm²
Insulation	Solid Polypropylene (PP)
Global Assembly	
Fillers	Solid Polyethylene
Global screen	Tinned copper wire braid
Common Separator	Non-woven tape PET/PA (polyamide)
Outer jacket	Thermoplastic Polyurethane (TPU) Flame Retardant Mud resistant

PROFIBUS DP 2466 FC	PROFIBUS DP 2513 &PROFIBUS DP 2512
Number of cable element x Number of cores x conductor cross-section	Number of cable element x Number of cores x conductor cross-section + number of conductor including or not hearth conductor x conductor cross section
1x2x24/19 AWG	1x2x24/19 AWG + 3G1,00 mm²
	1x2x24/19 AWG + 2x1,00 mm²

Cable Parameter	PROFIBUS DP 2466 FC	PROFIBUS DP 2513 & PROFIBUS DP 2512	Power supply conductor
Impedance	150Ω	150Ω	
Capacity	30pF/m	30pF/m	
Resistance	66 Ω/Km	69 Ω/Km	19,5 Ω/Km
Conductor cross-sectional area	0,25mm^2	0,25mm^2	1.0 mm^2
Colour of sheath non-IS	Violet	Violet	
Colour of inner cable conductor A (RxD/TxD-N)	Green	Green	
Colour inner cable conductor B (RxD/TxD-P)	Red	Red	

Application/Limitation

PROFIBUS DP 2466 FC: Max voltage rating 250V, not suitable for power supply purpose, temperature ratings -40°C to 80°C, Oil and Mud resistance, suitable for drag chain installation (dynamic application) not suitable in torsion apparatus.

PROFIBUS DP 2513 & PROFIBUS DP 2512: Max voltage rating 300V, temperature ratings -40°C to 70°C Oil and Mud resistance, suitable for drag chain installation (dynamic application) not suitable in torsion apparatus.

Type Approval documentation

Technical cable data sheet Profibus DP 2466 FC 1x2x 24/19 AWG FR MUD Resistant.
Technical cable data sheet Profibus DP 2513 1x2x 24/19 AWG + 3G1 FR MUD Resistant Nek 606
Test report Code: 0505785 dated 2015-02-26
Test report Code: 0502488 dated 2015-02-26

Tests carried out

Standard	Release	General description	Limitation
DNV GL		Test Plan	Relevant tests performed
IEC 60092-350	2020-01	General construction and test methods of power, control and instrumentation cables for shipboard and offshore applications. Cold bend and cold impact test	
IEC 60092-360	2021-01	Annex D: Procedure for drilling fluid immersion tests for sheaths	IRM903 100°C 7d. Calcium Bromide 70°C 56d. Oil based mud must be added to IEC requirement: Carbo Sea 70°C 56d or EDC 95/11 70°C 56d
IEC 61158-2 ed. 1	2014-07	Industrial communication networks. Fieldbus specifications. Part 2: Physical layer specifications and service definition.	Cable specifications as per item 22.1.2.2
IEC 60332-1-2	2015-07	Tests on electric and optical fibre cables under fire conditions - Part 1-2: Test for vertical flame propagation for a single insulated wire or cable - Procedure for 1 kW pre-mixed flame	Flame retardant small scale
NEK 606 Ed. 4	2009	Cables for offshore installations. Halogen-free and/or mud resistant. Technical specification.	Mud resistance test: IRM903 100°C 7d. Calcium Bromide 70°C 56d. Oil based mud: Carbo Sea 70°C 56d or EDC 95/11 70°C 56d

Marking of product

PRIMATEC Profibus DP 2466 FC 1x2x 24/19 AWG FR - MUD Resistant - NEK 606 - DNV - Lot.No. –
Meter marking
PRIMATEC Profibus DP 2513 1x2x24/19 AWG + 3G1,00mm² FR- MUD Resistant - NEK 606 - DNV - Lot.No. –
Meter marking
PRIMATEC Profibus DP 2512 1x2x24/19 AWG + 2x1,00mm² FR - MUD Resistant - NEK 606 –DNV - Lot.No. –
Meter marking

Place of Production

CEAM CAVI SPECIALI S.p.A. con socio unico
Via Lombardia, 20
35043 Monselice (PD)
Italy.

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the Type approval are complied with and that no alterations are made to the product design or choice of materials.

The main elements of the assessment are:

- Inspection on factory samples, selected at random from the production line (where practicable)
- Results from Routine Tests (RT) checked (if not available tests according to RT to be carried out)
- Review of type approval documentation
- Review of possible change in design, materials and performance
- Ensuring traceability between manufacturer's product type marking and 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