Amphenol SOCAPEX

38999 OVERMOLDED CORDSETS

Ethernet & USB links per NGVA - STANAG AEP- 4754

Cat6 USB 2.0

Description

Designed to perform in the harshest environments, the rugged MIL-DTL-38999 Series III plugs are overmolded on tactical Ethernet or USB cables per NGVA STANAG 4754 standard (NATO Generic Vehicle Architecture). This turn-key solution allows you to connect any NGVA compliant equipments onto any NGVA military vehicle networks.

Main Features

- **Amphenol MIL-DTL-38999 Series III plugs, Aluminum**
- **3 platings**
  - Black Zinc Nickel (500h salt spray resistant ✓) - STANAG 4754 choice
  - Olive Drab Cadmium (500h salt spray resistant)
  - Nickel (48h salt spray resistant ✓)
- **3 signal possibilities**
  - Two **USB 2.0** ports with standard 9-35 layout
  - One 1Gb **Cat6** Ethernet port with standard 11-35 layout
  - Two 1Gb **Cat6** Ethernet ports with standard 13-35 layout
- **3 cordsets terminations**
  - Straight plug (more standard)
  - Right angle plug
  - Free end
- **7 lengths:** 0.75 m, 1.0 m, 1.5 m, 2.0 m, 3.0 m, 4.0 m and 5.0 m
- **Environment resistance**
  - Per MIL-DTL-38999 Series III except operating temperature range: -40°C / +85°C (cables limits)
  - IP68 sealed when mated onto receptacle or cap
- **Cables**
  - Cat7 Ethernet and USB 3.0 tactical cables, LS0H (Low Smoke zero Halogen) polyurethane jacket
- **100% tested**
  - Continuity, insulation resistance, Fluke test report provided with Ethernet cordsets
- **Packaging**
  - Packed in sealed transparent plastic bag

✓: RoHS compliant

Markets & Applications

C4ISR | Armored Vehicle | Navy | Missile

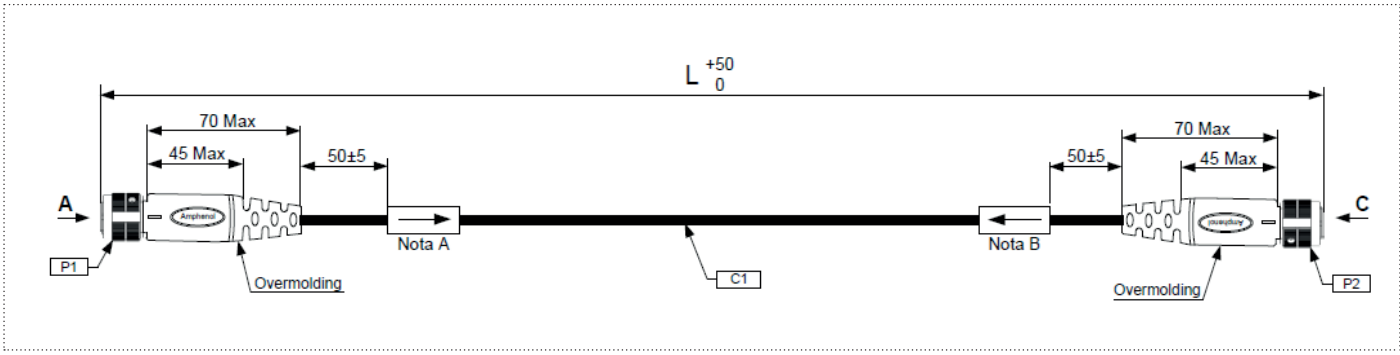
Applications :

- Vetronics, Military Ethernet & USB networks, Ethernet Switches, Communications, Sensors, Optronics

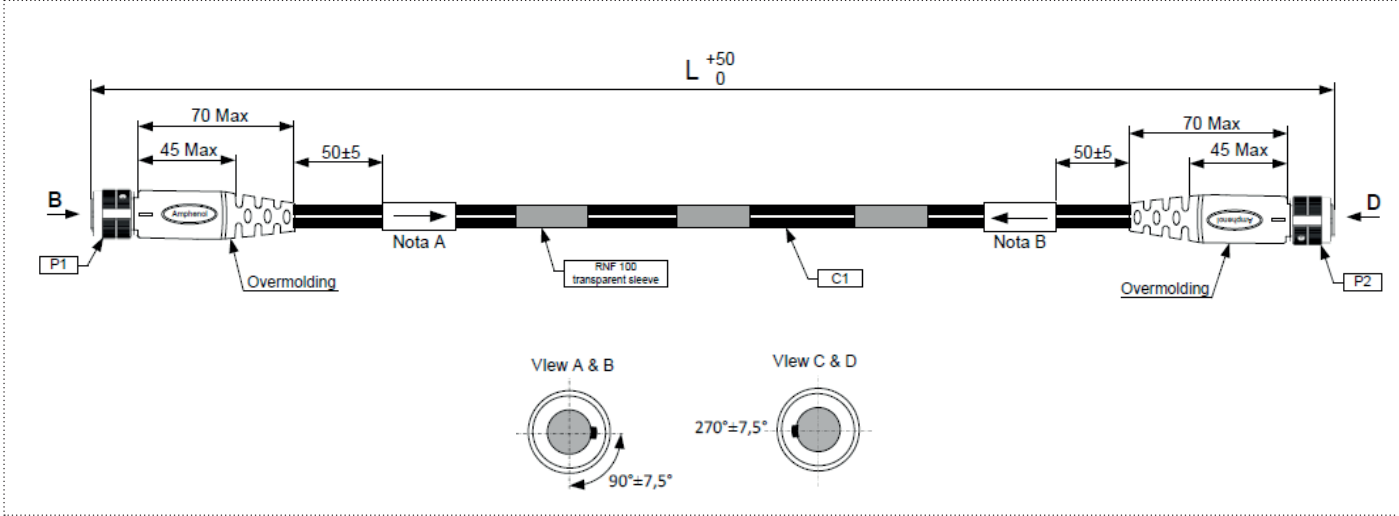
OVERALL DIMENSIONS

(Meters or millimeters when not specified)

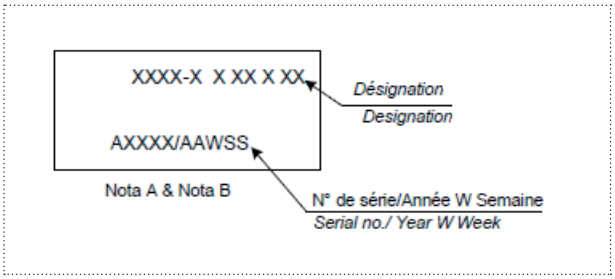
Straight outputs for 9-35 & 11-35 Layouts



Straight outputs for 13-35 layout



- **L:** 0.75 m, 1.0 m, 1.5 m, 2.0 m, 3.0 m, 4.0 m or 5.0 m
- **P1 & P2:** Amphenol MIL-DTL-38999 Series III plugs with pin contacts
- **C1:** Amphenol Military Rugged Cat7 Ethernet or USB 3.0 cables, key data in next pages
  Note: • USB3.0 cable, but USB2.0 link. For full USB3.0 link please use our USBF TV 3.0
  • Cat7 cable, but cat6(1Gb) link. For full Cat6A (10Gb) link, please use our RJFTV Cat6A or µCom/TVµCom
- **Nota A & B:** Marking labels Brady THT & BPT
- Transparent RNF100 sleeves every 200mm for 13-35 layout



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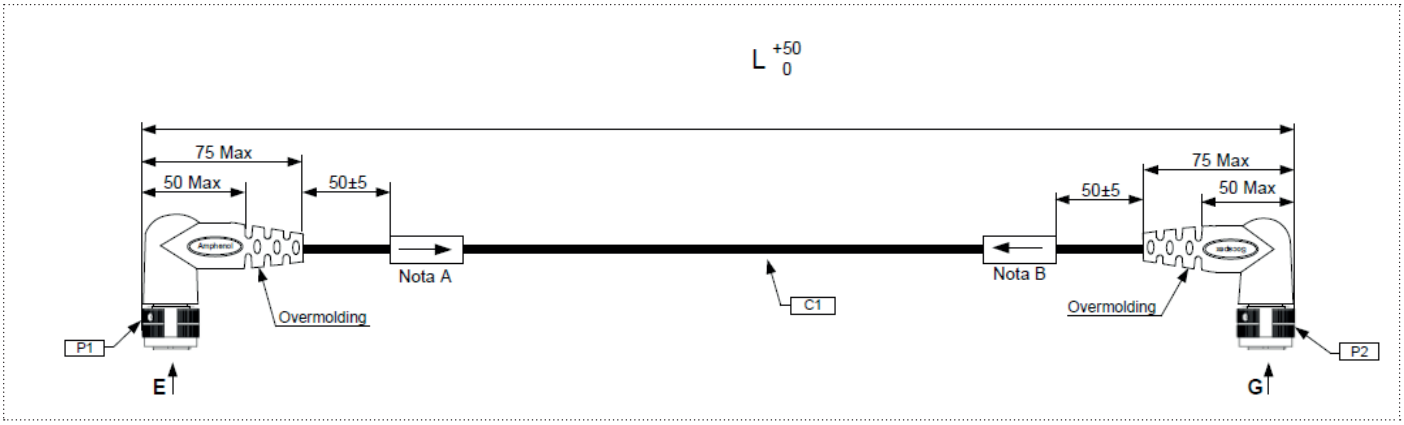
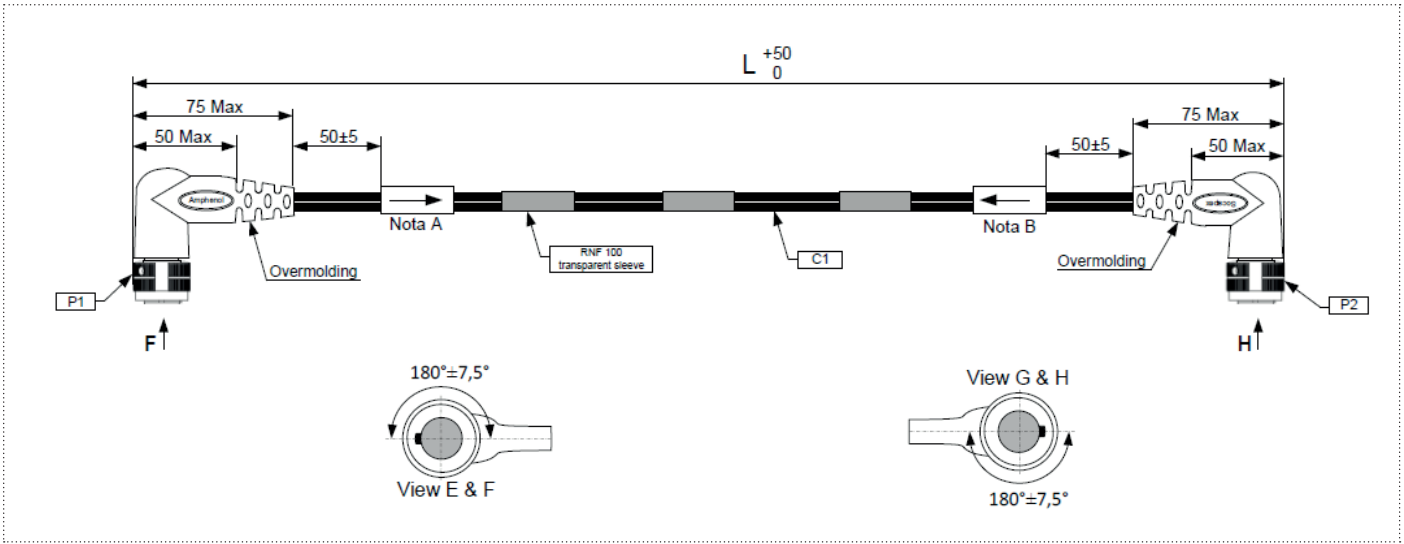
Right angle outputs for 9-35 & 11-35 Layouts



Right angle outputs for 13-35 layout



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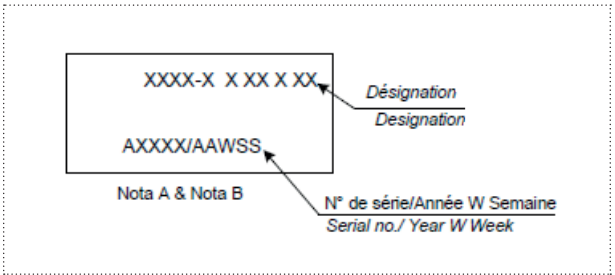

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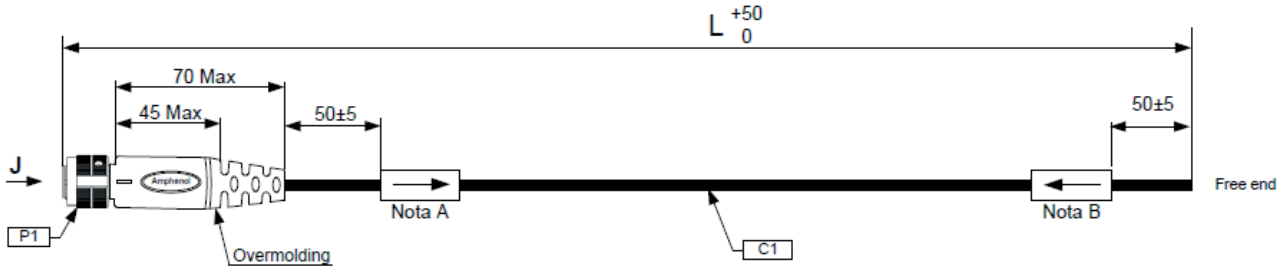
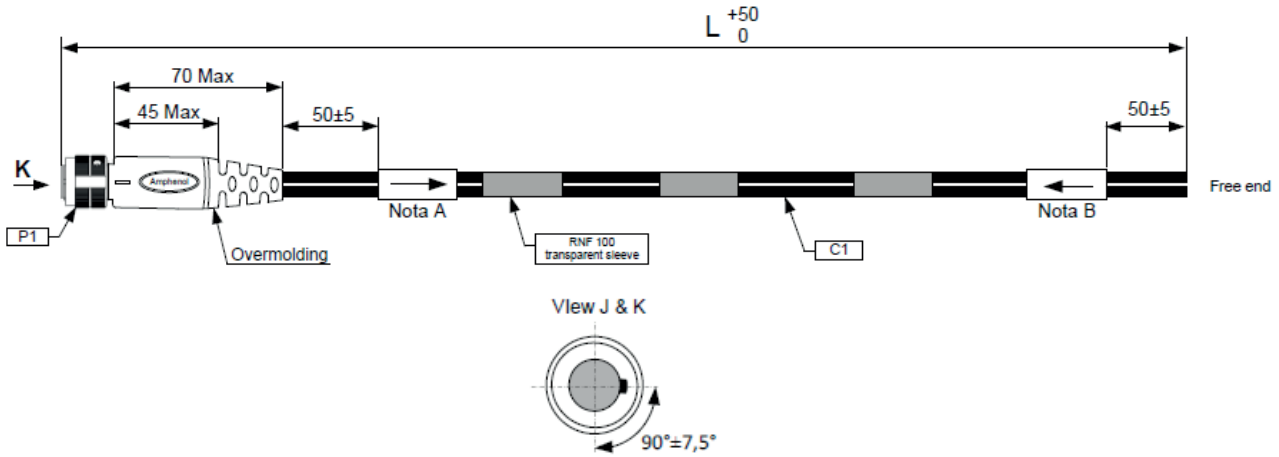
Straight and Free outputs for 9-35 & 11-35 Layouts



Straight and Free outputs for 13-35 Layout



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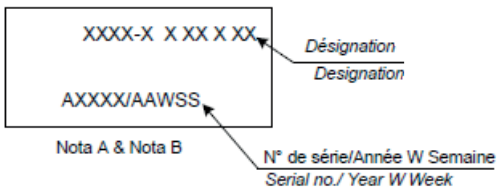

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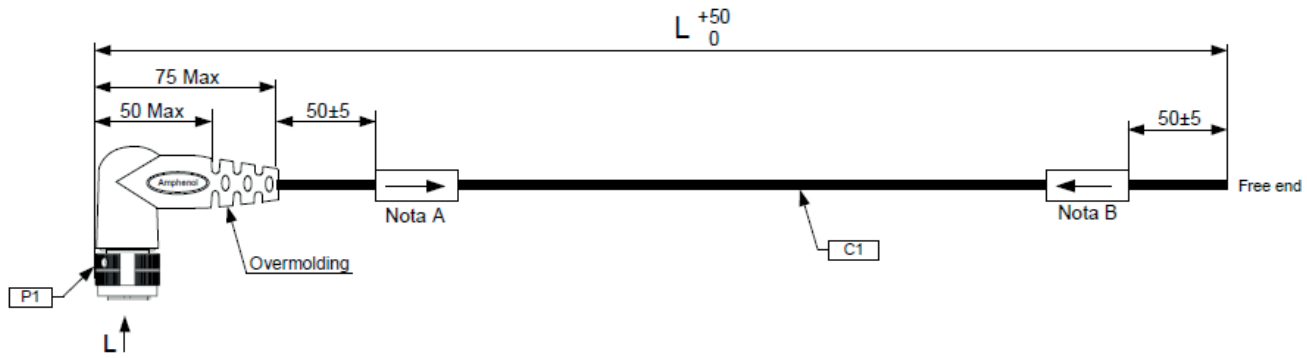
Right angle and Free outputs for 9-35 & 11-35 Layouts



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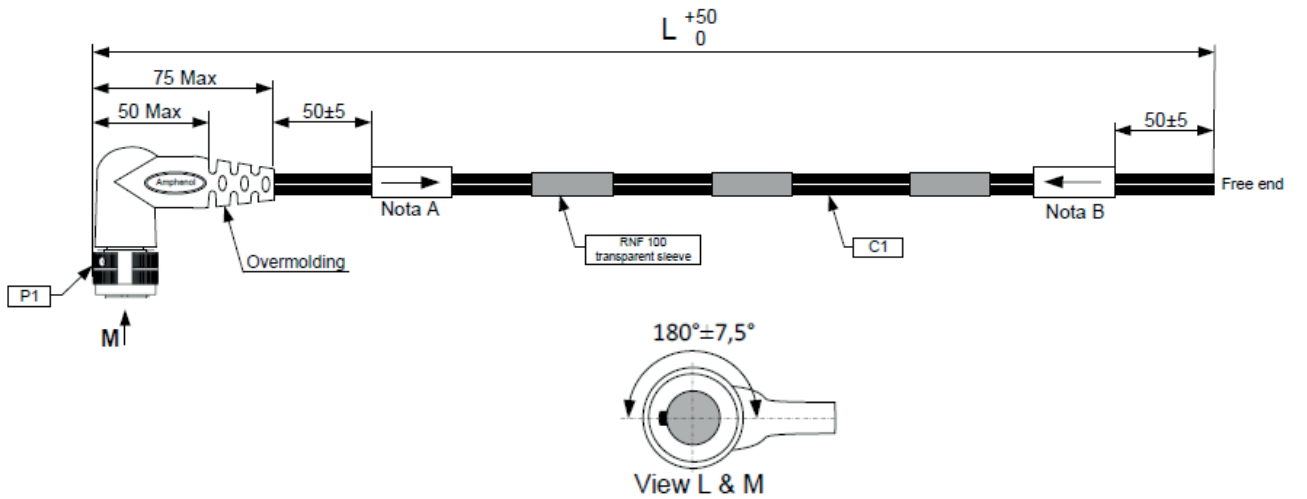

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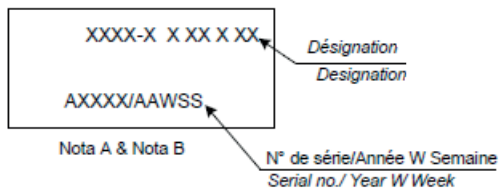
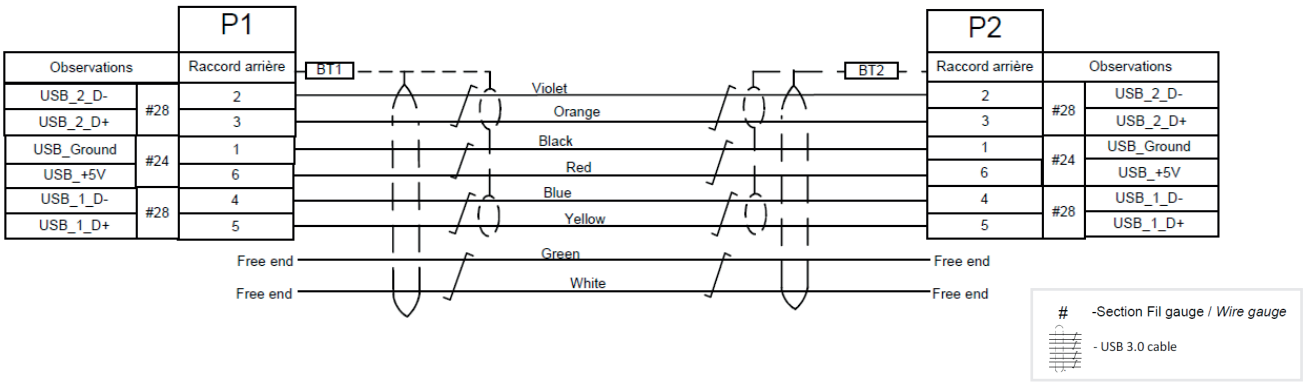


WIRING DIAGRAMS

Wiring chart according to NATO GENERIC VEHICLE ARCHITECTURE (NGVA) Data infrastructure, Edition A Version 1.4, MARCH 2020

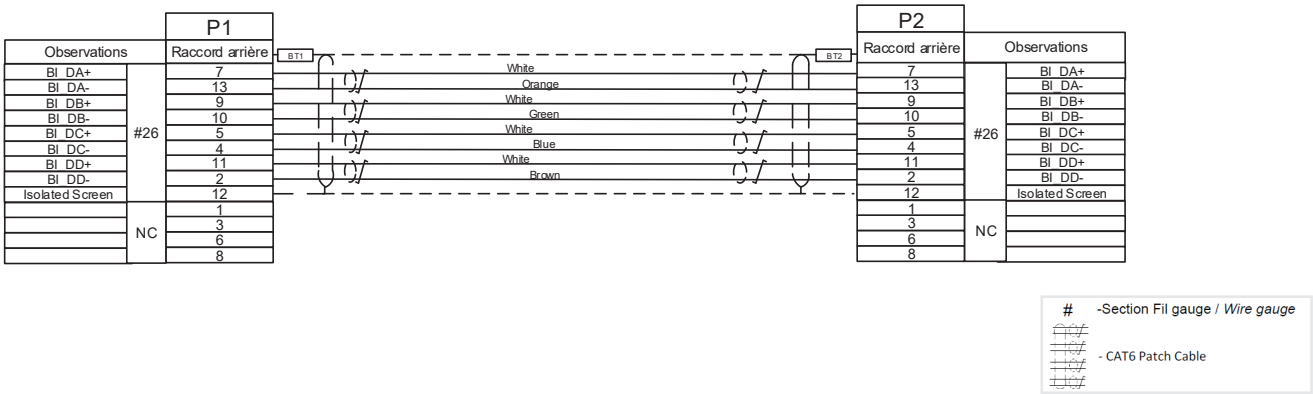
USB Cordsets

Two USB 2.0 ports with 9-35 layout:

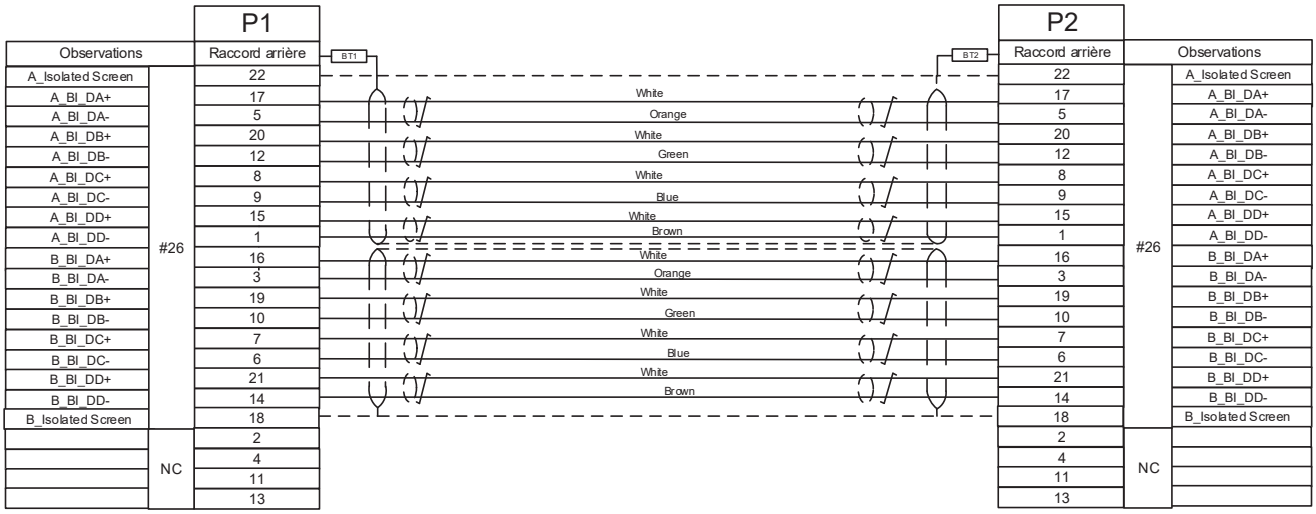


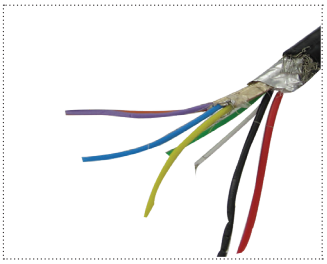
Ethernet Cordsets

One 1Gb Cat6 Ethernet port with 11-35 layout:



Two 1Gb Cat6 Ethernet ports with 13-35 layout:





USB Cable

General construction:

This is a USB-3.0 cable containing two 28 AWG 90Ω USB3.0 parallel shielded pair, one 28 AWG USB2.0 pair, and two 24 AWG power conductors, overall SFTP shields (SFTP = double shielding, braid and foild), jacketed in black UV resistant Polyurethane HFFR *.
Designed for fixed or portable applications in harsh environments.

Jacket compound specification:

Halogen Free Flame Retardant Polyether-based Polyurethane. Glossy finish. Excellent hydrolysis resistance. High microbial resistance. UV resistant. High flexibility.

* HFFR: Halogen Free Flame Retardant

Electrical characteristics

USB3.0 Parallel pair	
Conductor resistance	≤ 210 Ohm/km
Insulation resistance	≥ 200 MOhm/km
Capacitance (1 kHz)	nom. 43 nF/km
Time delay	nom. 5.0 ns/m
Time delay skew	≤ 150 ps/10m
Operating voltage (peak)	≤ 100 V
Impedance	90 ±7 Ohm
Test voltage	500 V
USB2.0 Pair	
Electrical requirements acc. to USB2.0	
Impedance	90 ±15 Ohm
Test voltage	500 V

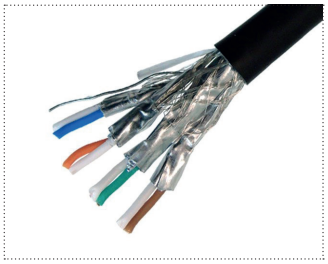
Attenuation

USB3.0 pair-db/10m		USB2.0 pair-db/100m	
625 MHZ	10	1 MHZ	4
1250 MHZ	15	4 MHZ	7.8
2500 MHZ	25	8 MHZ	11.4
5000 MHZ	36	12 MHZ	13.4
7000 MHZ	47	24 MHZ	19
		48 MHZ	27
		96 MHZ	38
		200 MHZ	64
		400 MHZ	116

Data for cable alone only (without connectors at the ends)

Physical characteristics

Data conductors	Tinned stranded copper, 7/0.13 mm nom (28 AWG)
Data insulation	1 mm nom
Color data pair	Green & white (USB2.0) Yellow & blue, orange & violet (USB3.0)
Power conductors	Tinned copper, 7/0.2 mm (24 AWG)
Power insulation	1.1 mm nom
Color power wire	Red & Black
Shields	USB 3.0 pair: foil + stranded tinned copper drain wire. Overall: foil + shield braiding of tinner copper wires (coverage 85%).
Jacket	PU compound
Color jacket	Black
Weight	31 lbs/1000ft (46 kg/km)
Outside diam.	0.20 inch (5.7 mm nom. +/- 0.2)
Min bend radius (during operation)	57 mm (10 x O. D.)
Min bend radius (during installation)	28.5mm (5 x O.D.)
Temperature installation & operational	Plus 85°C, minus 40°C



Ethernet Cable

General construction:

A 4 pair, 26 AWG, 100 Ohm SFTP round patch cable, designed to the ISO / IEC 11801 Category 7 requirements. The cable contains 4 twisted pairs individually shielded, cabled, double shielded with kevlar reinforcement strands, jacketed in black UV resistant Polyurethane HFFR*.
Designed for fixed or portable applications in harsh environments. ✓ RoHS compliant

Jacket compound specification:

Halogen free flame retardant polyether-based polyurethane	Glossy finish
Excellent hydrolysis resistance	UV resistant acc.UL444 Sec7.12
Resistance to microbial/fungus growth acc. IEC60068-2-10 Environmental Testing – Test J degree of mould growth 1	High flexibility

* HFFR: Halogen Free Flame Retardant

Electrical characteristics (at 20°C - 68°F)

Loop Resistance	< 290 Ohms/Km	
Impedance (100 MHz)	100 +/- 5 Ohms	
Frequency	**Attenuation** (dB/100m)	**N.E.X.T.** (Near-End Crosstalk Loss)
1 MHz	2.9 dB	80 dB min.
4 MHz	5.5 dB	80 dB min.
10 MHz	8.5 dB	80 dB min.
16 MHz	10.8 dB	80 dB min.
20 MHz	12.1 dB	80 dB min.
31.25 MHz	15.2 dB	80 dB min.
62.5 MHz	21.7 dB	75.1 dB min.
100 MHz	27.8 dB	72.4 dB min.
155 MHz	35.0 dB	69.6 dB min.
200 MHz	40.1 dB	67.9 dB min.
300 MHz	50.0 dB	65.3 dB min.
600 MHz	73.3 dB	60.8 dB min.
Insulation resistance	5 GOhm/km	
Voltage operating (peak)	100 V	
Dielectric strength	VAC/1 min - 700 V	
Signal run time	5.13 ns/m	
Return loss (600 MHz)	17.3 dB	
Test voltage (wire/screen rms 50Hz 1min)	700 V	
Screening attenuation (30-600 MHz)	> 90 dB	

Physical characteristics

Conductors	26 AWG (0,14 mm²) tinned copper
Insulation	Polyethylene with skin foumed
Assembly	Pairs cabled with Kevlar strength members and separation tape wrapped
Shields	Inner: aluminium mylar 100% coverage Outer: tinned copper braid 80% overage
Jacket	Black, special PUR compound
Weight	36 lbs / mft (54 kg/km)
Outside diam.	Ø7.0 ± 0.3mm
Min bend radius (repeated)	56mm (8x O. D.)
Min bend radius (single)	28mm (4x O.D.)
Temperature	Transport and fixed installation : -50°C (-58°F) up to + 85°C (185°F) Installation and flexible use : -40°C (-40°F) up to + 85°C (185°F)

Data for cable alone without connectors at the ends

EXAMPLES: 2 USB 2.0 ports in 9-35 layout

USB-TV-2 6 6 ZN P 10

USB-TV-2 8 8 ZN P 10

USB-TV-2 8 0 ZN P 10

EXAMPLES: One 1Gb CAT6 ethernet port in 11-35 layout

ETH-TV-1 6 6 ZN P 10

ETH-TV-1 8 8 ZN P 10

ETH-TV-1 6 0 ZN P 10

EXAMPLES: Two 2Gb ethernet ports in 13-35 layout

ETH-TV-2 6 6 ZN P 10

ETH-TV-2 8 8 ZN P 10

ETH-TV-2 8 0 ZN P 10

How to order NGVA Ethernet & USB Cables

1.	2.	3.	4.	5.	6.
Signal	1st End	2nd End	Plating	Contact Gender	Length
ETH-TV-1	6	6	ZN	P	10

1. Signal

ETH-TV-1	1 port 1Gb Cat6 Ethernet
ETH-TV-2	2 ports 1Gb Cat6 Ethernet
USB-TV-2	2 ports USB 2.0

2. First end

6	Straight plug
8	Right angle plug

3. Second end

6	Straight plug
8	Right angle plug
0	Free

4. Plating

ZN	Black Zinc Nickel (500h salt Spray) ✓ NGVA Choice
W	Olive Drab Cadmium (500h salt Spray)
F	Nickel (48h Salt Spray) ✓

✓ : RoHS compliant

5. Contact gender

P	Pin contacts only per NGVA AEP-4754

6. Length

07	0,75 m
10	1,0 m
15	1,5 m
20	2,0 m
30	3,0 m
40	4,0 m
50	5,0 m

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DOC-001019-ANG - December 2020

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