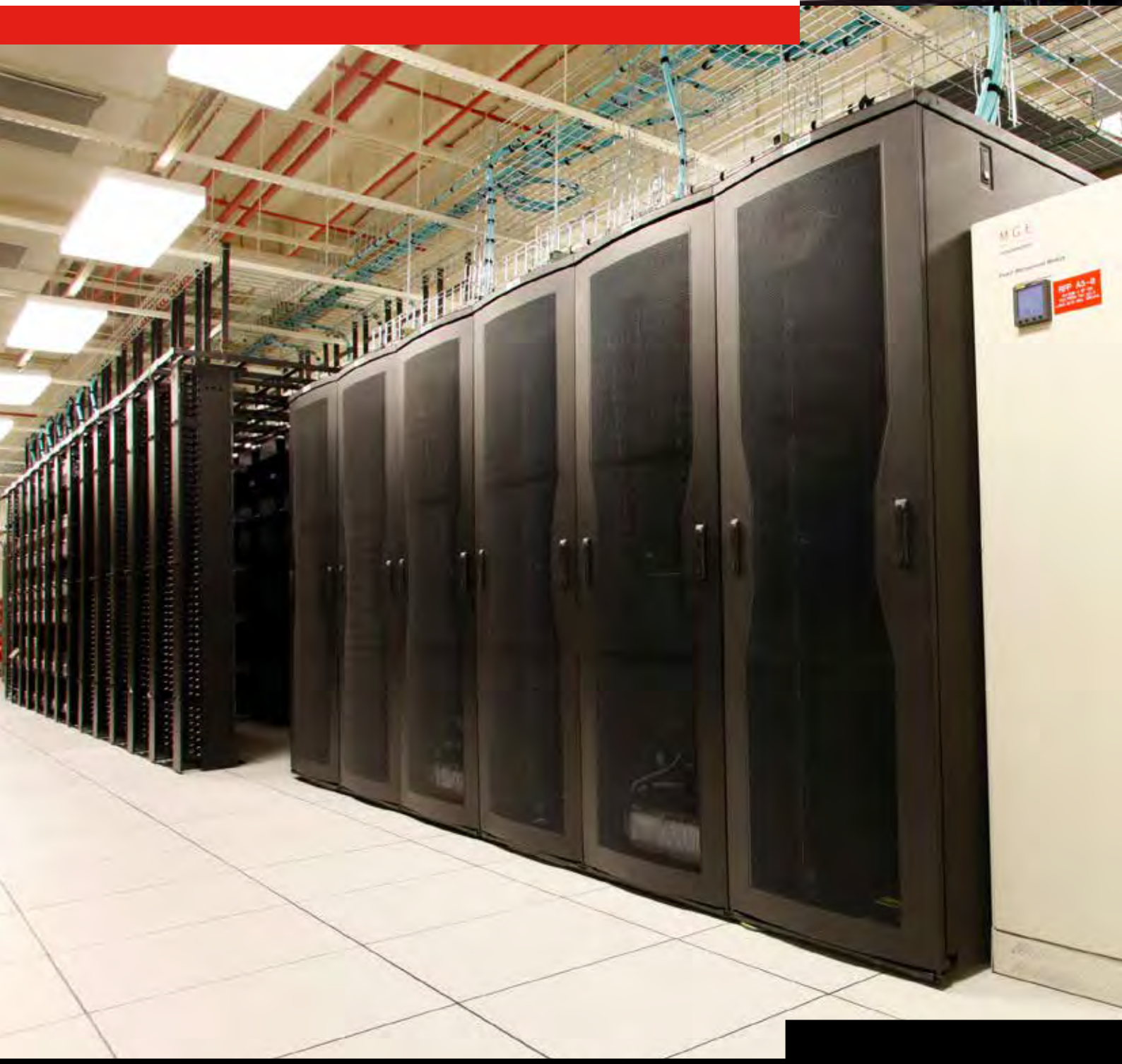
Data Centres

LAN Systems Catalogue



Nexans

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Fibre Copper Hardware Service

Smart Choices for Digital Infrastructure

Three steps to empower your data centre

Our world is becoming increasingly mobile, digital and smart. As our dependence on digital services grows, so does traffic in our data centres. The biggest jump has been in east-west traffic within the data centre, on top of continued growth in north-south traffic from the data centre to the user.

Supporting these explosive rates of digital growth requires an agile, carefully planned IT infrastructure, and efficient data access and exchange. Cabling systems need to be robust, flexible and scalable, designed to support business growth and technological evolutions.

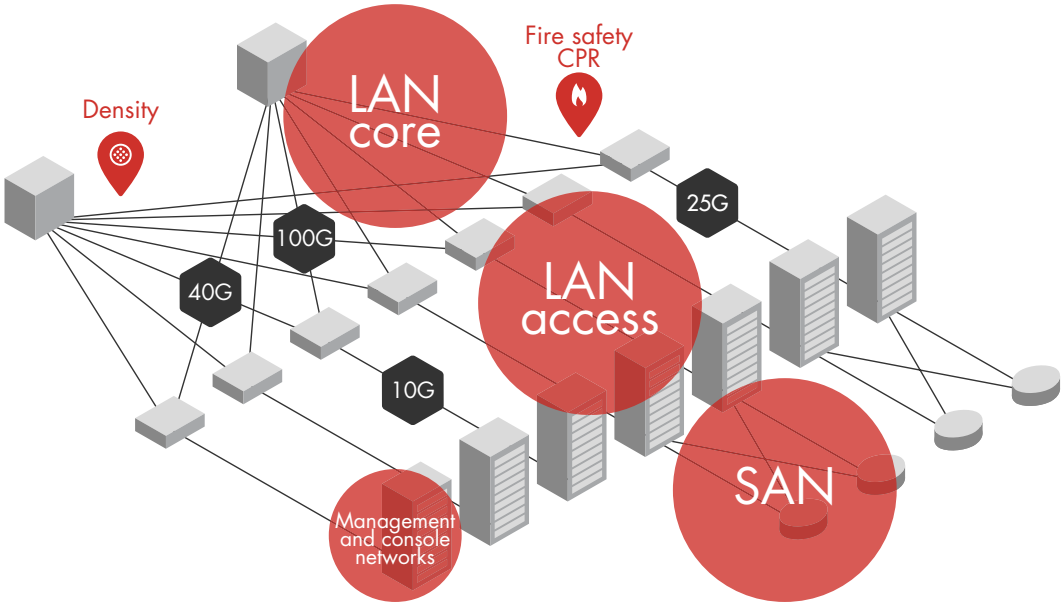
At Nexans, we can help you build and operate an efficient and cost-effective digital infrastructure that will help you reach your business goals.

We focus on three key areas:

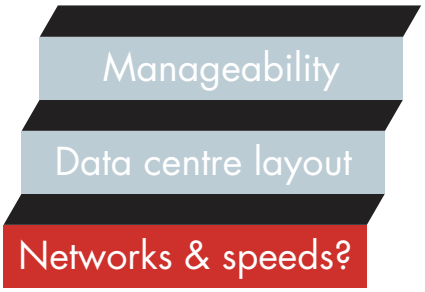
1 - Networks and speeds
Exploring new standards, the evolution from server to switch, and migration scenarios.

2 - Data centre layout
What to consider when designing your data centre.

3 - Manageability
Smart choices to reduce installation times and space usage, increasing flexibility in use and improving your total cost of ownership.



1. Networks & speeds

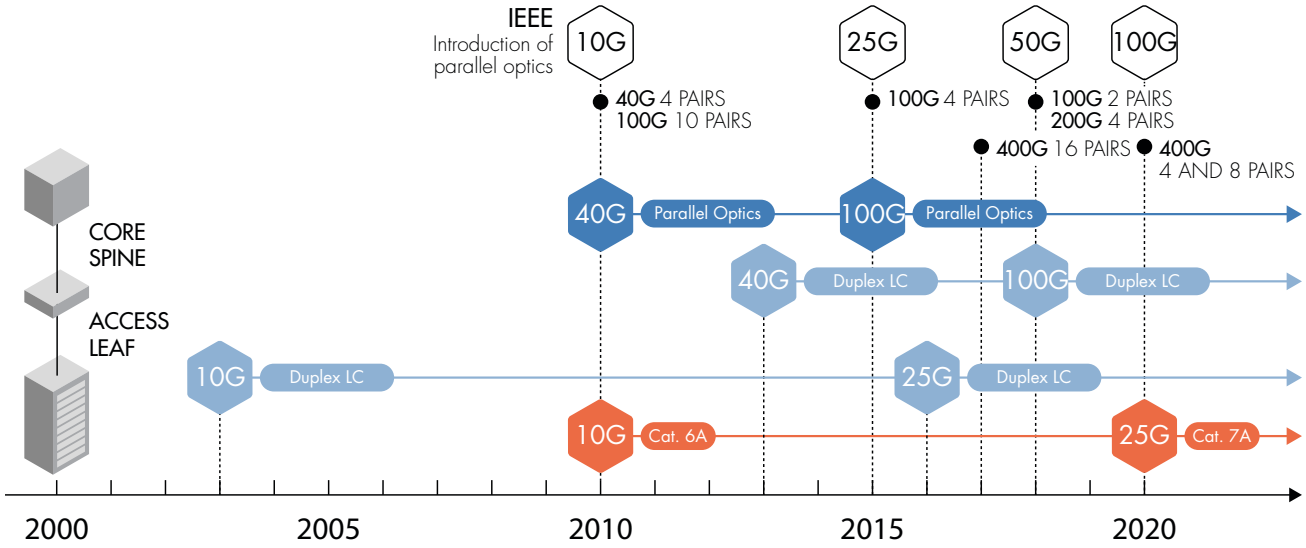


Staying up to date on technology trends and emerging standards is the key to knowing which way to turn, and when.

Choosing which standards to follow has become more complicated. In the past, IEEE high speed protocols were developed well in advance of general use, ahead of market needs. Deciding which speed to work towards was simple: follow the IEC/ISO and TIA standards.

Today, there's a complex landscape of solutions to choose from, including many that operate outside IEEE and other trusted standards bodies. Switch vendors have introduced solutions for 40 Gigabit and 100 Gigabit that are not part of IEEE standards. And some industry alliances have formed multisource agreements.

Nexans can help you to navigate your way through the technology roadmap.



Smart choices for the Core network

When preparing for the LAN core (or spine) network which most likely may need speed of 100G/s, the choice to make is for parallel optics or duplex LC. The advantage of Nexans' MTP solutions is its support for 40, 100 and 200 Gigabit with 8 fibres. This MTP solution will give you at least three, if not four generations of evolution within your data centre. Using the same cabling for 3 or 4 generations lowers installation costs and reduces investment.
You can find our parallel optics solutions on p15, 24, 29 and 30.
Our duplex LC solutions you can find on p14,16, 17-19, 23 and 28

Smart choices for the Access network

Both speeds of 10G as 25G can be supported with fibre in duplex LC as with copper.
Our copper solutions, including our innovative LANmark-7A with GG45 to support 25G, can be found on p 42- 64.

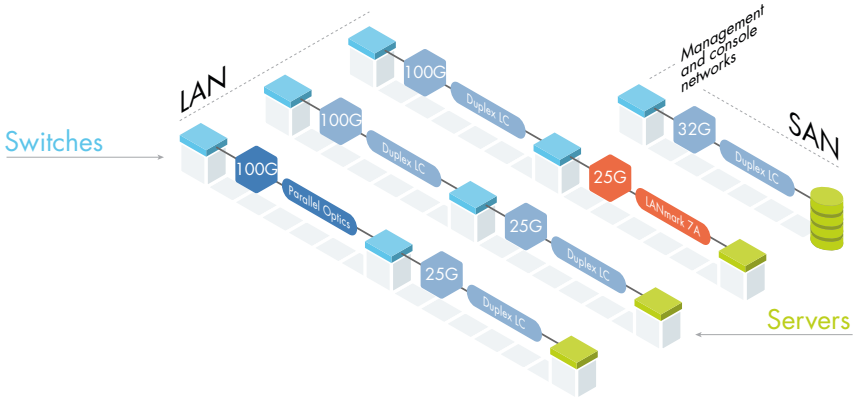
2. Data centre layout

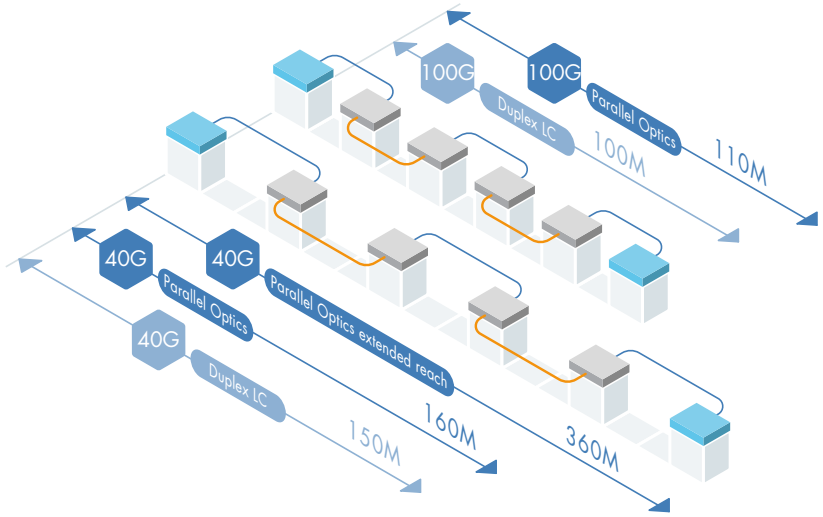
In addition to helping you choose the right standards and technology for your networks and speeds, Nexans can support you in making smart choices for your data centre layout.

Things to consider when designing your data centre:

- What cable lengths will you need to meet the physical dimensions of your data centre?
- Do you have certain space constraints?
- What are the fire safety and other challenges?

LANmark cabling systems allow you to optimally balance copper and fibre, in line with the performance you need, for any number of ports and any bandwidth.





Nexans connectivity solutions exceed the requirements of all relevant standards, ensuring that data centres perform better and more reliably. You can find more details on garantueed distances with Nexans fibre solutions on p 32-37.

3. Manageability

Nexans can support you in making smart choices to make your network more manageable:

- Easy identification features
- Dedicated fibre trunking systems
- LANsense physical layer automated documentation
- Choosing a patching solution with the density you need

Patching is clearly one of the most significant areas a data centre manager has to deal with on a daily basis. Nexans provides 3 different density levels in its fibre offering – see p 10-19. Its Enspace Ultra high density solution can support 144 LC connections on 1 HU

And two levels on with copper solutions – see p 43-44. Its slimflex high density patch cord with high density patch panel can support 48 RJ45 cords on 1 HU.

Coloured shutters and latch protectors can be used to to differentiate networks/protocolls and/or redundancy path See p 63.

Construction Products Regulation (CPR)

Cable Performances: Reaction to fire

A number of data centres have suffered fire damage over the years. After a data centre fire the biggest problem is not the damage to the data centre and its equipment, but the fact that the users can't use the services that the data centre was running.

So after a data centre fire, you don't only need to replace the servers and switches, you may get a big fine from an airline company, for example, because nobody can book a flight and you're out of business for a while. So, for this reason, but not only for this reason, we recommend to apply (the highest) classification of CPR fire performance. So all your data centre choices can be with good CPR fire performance levels.

The contribution of cables to the development of fire is described in European Standard EN 50575 according to 7 performance classes, also known as 'EuroClasses' (A_{ca}, $B1_{ca}$, $B2_{ca}$, C_{ca}, D_{ca}, E_{ca} and F_{ca}) , based on flame spread and heat release, completed by additional classifications for smoke production (s), flaming droplets (d) and acidity (a).

CABLE TYPES	EURO-CLASS	CRITERIA	ADDITIONAL CRITERIA
No contribution to fire	**A_{ca}**	Non combustible	
For future developments	**$B1_{ca}$**	Very low heat release and flame spread (using 30 kw flame source)	Smoke production (s1, s1a, s1b, s2, s3) Acidity (a1, a2, a3) Flaming droplets (d0, d1, d2)
Low Fire Hazard cables	**$B2_{ca}$**	Very low heat release and flame spread (using 20.5 kw flame source	
	C_{ca}		
Standard cables	**D_{ca}**	Moderate heat release and flame propagation	
	E_{ca}	Moderate flame propagation	
	F_{ca}	Not meeting Class E_{ca}	

For Communication cables inside buildings only 4 classes are relevant: $B2_{ca}$, C_{ca}, D_{ca}, E_{ca}.
Manufacturers need to establish a Declaration of Performance (DoP) for each cable type subject to the CPR, clearly stating the reaction-to-fire performance and the Notified Body who carried out the homologation.

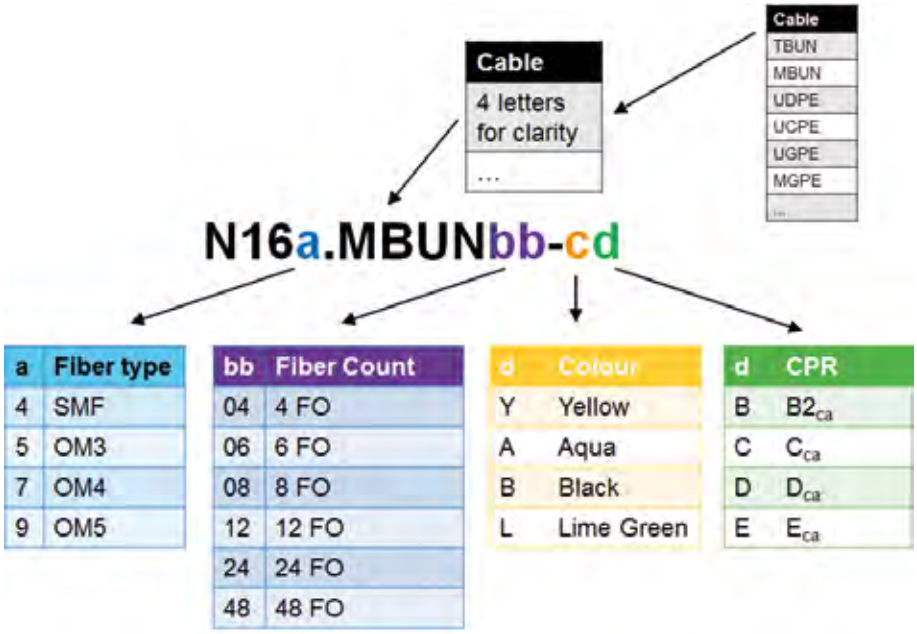
For more details please visit www.nexans.co.uk/CPR

How to find the right type of CPR cable?

In order to find the right type of cable from Nexans large portfolio, the CPR graded cables have an extension to the part numbers, with a suffix to designate the "EuroClass" performance: -XB, -XC, -XD, -XE ("X" denoting the colour of the cable sheath).

Example for copper cable:

Example for fibre cable:



a	Fiber type
4	SMF
5	OM3
7	OM4
9	OM5

bb	Fiber Count
04	4 FO
06	6 FO
08	8 FO
12	12 FO
24	24 FO
48	48 FO

d	Colour
Y	Yellow
A	Aqua
B	Black
L	Lime Green

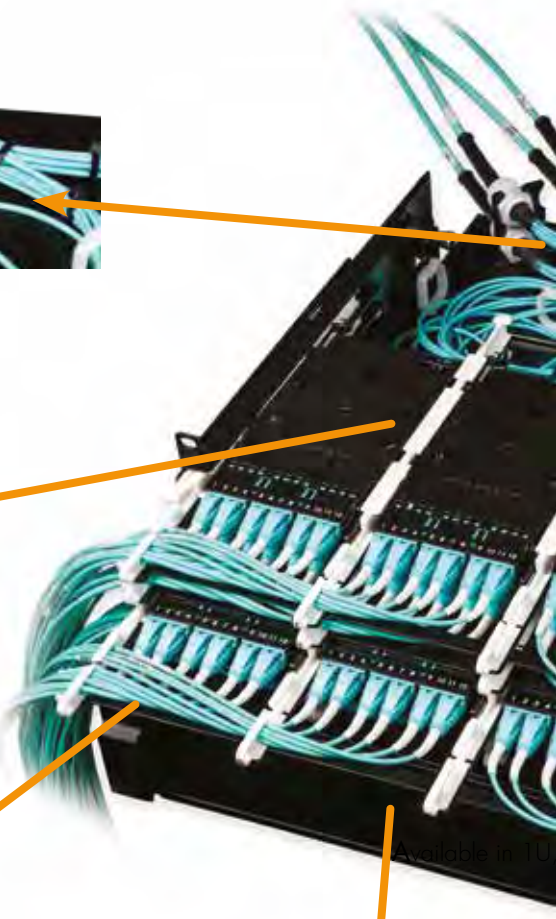
d	CPR
B	$B2_{ca}$
C	C_{ca}
D	D_{ca}
E	E_{ca}

To ensure that the Declaration of Performance (DoP) is accurate and reliable, the performance of the cable should be assessed and the production in the factory should be controlled in accordance with an appropriate system.
EN 50575 stipulates 3 types of AVCP systems (Assessment and Verification of Constancy of Performance) for cables:

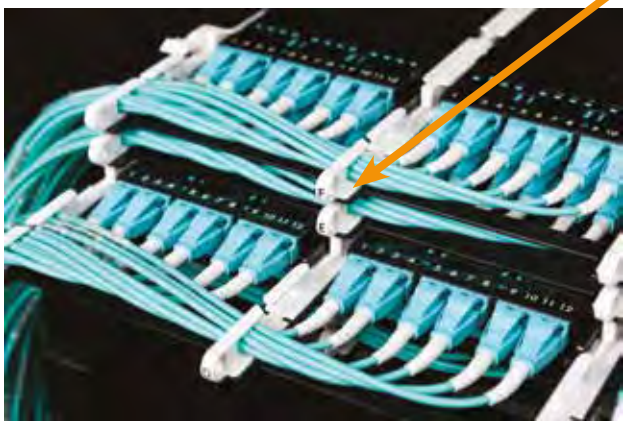
- System 1+ for $B2_{ca}$ and C_{ca} cables: to be carried out by EC listed Notified Product Certification Body: includes initial type testing and factory audit, followed by continuous surveillance through Factory Production Control (twice per year) and repeat audit testing on product sampling (every three years).
- System 3 for D_{ca} and E_{ca} cables: to be carried out by EC listed Notified Testing Laboratory: consists of initial type testing only.
- System 4 for F_{ca} cables: auto-declaration by the manufacturer after own testing.

LANmark-OF ENSPACE

- Cables fixed with glands
- Cables can be fixed left, middle and right of panel



- Can be installed from front and rear
- 12x LC or 6x MTP



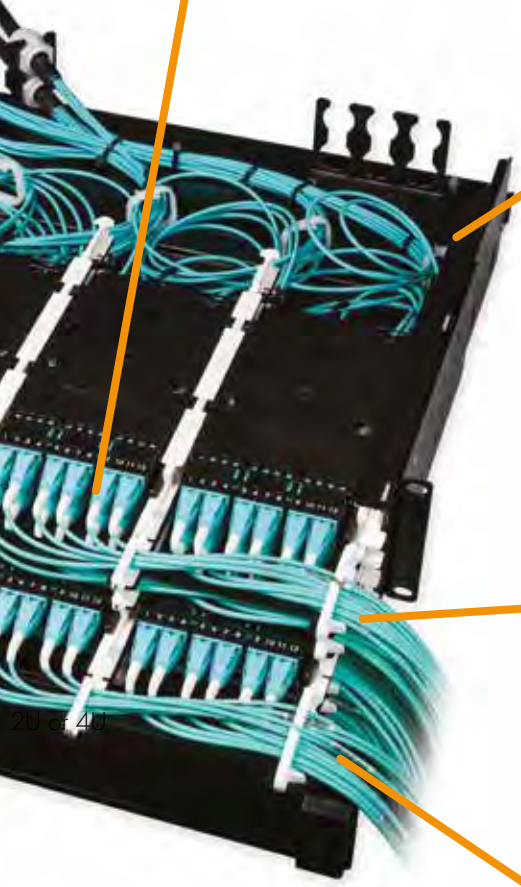
- Finger tip access to patch cords
- Individual sliding tray with 4 modules
- Locking positions when installed, for patching and before removal

- Opens 180° even w

Easy patching and flexible scalability

- Internal auto-shutter
- Improved eye safety

- Sliding and tilting rear drawer



2U or 4U

- Integrated patch cord guide
- Side grips for easy tray removal

- Available in 1U, 2U or 4U

- Patch cord 2mm diameter
- Uniboot connector
- Bend insensitive fibre

ith panels below

MTP is a trademark of UN Conec

LANmark-OF ENSPACE UHD Patch Panels

- Optical patch panel with Ultra High Density: up to 144x LCs or 72x MTP in a rack height unit
- Up to 12x ENSPACE modules in 1U
- 3 individually sliding trays per 1U for maximum flexibility during operation and installation
- 3 different locking positions for trays: operational, patching and installation position
- Patch cord management for each individual tray
- Labelling front for port identification
- Labelling front opens almost 180°: Port identification visible even when the panel is high in rack
- Sliding and tilting tray at the rear of the panel for better access to cables during initial installation and additions
- Optimised for installation of LANmark-OF ENSPACE Pre-Term with cable glands

MTP is a trademark of UN Conec

N Number	Description	Height unit	# modules	# DLC adaptors /10G ports	# MTP adaptors/ 40G/ 100G ports
NSPACE.PP1U	LANmark-OF ENSPACE UHD Patch Panel 1U 12x Modules Black	1U	12	72	72
NSPACE.PP2U	LANmark-OF ENSPACE UHD Patch Panel 2U 24x Modules Black	2U	24	144	144
NSPACE.PP4U	LANmark-OF ENSPACE UHD Patch Panel 4U 48x Modules Black	4U	48	288	288

LANmark-OF ENSPACE HD Patch Panels

- Optical patch panel with High Density: up to 96x LCs or 48x MTP in one rack height unit
- Up to 8x ENSPACE modules in 1U
- 2 fixed module rows, each with 4 slots for ENSPACE modules
- No sliding parts for assured reliability during maintenance
- Integrated Patch cord management for each module row
- Swinging front door that accommodates a slide-in label for port identification. Labelling front for port identification with label that could be slit in
- Labeled front door opens almost 180°: Port identification visible even when the panel is high in the rack
- Optimised for installation of LANmark-OF ENSPACE Pre-Term with cable glands

N Number	Description	Height unit	# modules	# DLC adaptors /10G ports	# MTP adaptors/ 40G/ 100G ports
NSPACE.PPHD1U	LANmark-OF ENSPACE HD Patch Panel 1U 12x Modules Black	1U	8	48	48
NSPACE.PPHD2U	LANmark-OF ENSPACE HD Patch Panel 2U 16x Modules Black	2U	16	96	96

LANmark-OF ENSPACE LC Adaptor Modules

- ENSPACE module with 12x LC adaptors in the front
- Module can be easily mounted into Nexans' ENSPACE patch panel
- Modules can be installed from front and rear of panel
- Innovative handle at rear facilitates removal and installation
- Integrated inner metal shutters
- Optimised for installation with ENSPACE LC/LC Pre-Term
- Integrated strip with color coding for quick fibre identification during installation
- Splice holders with heat shrink or Aluminum splice protectors are included as accessories

N Number	Description	Color adaptor	Fibre category
NSPACE.PLC12AS	LANmark-OF ENSPACE Adaptor Module 12 LC Multimode Aqua Shutters Integrated	Aqua	OM4
NSPACE.PLC12VS	LANmark-OF ENSPACE Adaptor Module 12 LC Multimode Violet Shutters Integrated	Violet	OM4
NSPACE.PLC12LS	LANmark-OF ENSPACE Adaptor Module 12 LC Multimode Lime Green Shutters Integrated	Lime Green	OM5
NSPACE.PLC12BS	LANmark-OF ENSPACE Adaptor Module 12 LC Singlemode Blue Shutters Integrated	Blue	SM OS2
NSPACE.PLC12GS	LANmark-OF ENSPACE Adaptor Module 12 LC/APC Singlemode Green Shutters Integrated	Green	SM OS2

LANmark-OF ENSPACE MTP Adaptor Modules

- ENSPACE module with MTP adaptors in the front for parallel optics
- Module can be easily mounted into Nexans' ENSPACE patch panel
- Modules can be installed from front and rear of panel
- Innovative handle at rear facilitates removal and installation
- Optimised for installation with ENSPACE MTP/MTP Pre-Term
- Key up/key down and key up/key up available
- Integrated strip for quick port identification during installation
- Available density: 2 x MTP, 4 x MTP and 6 x MTP

MTP is a trademark of UN Conec

N Number	Description	Fibre Category	Key orientation	# MTP adaptors
NSPACE.PMTP6A	LANmark-OF ENSPACE Adaptor Module 6x MTP Multimode Key Up Key Down Aqua	OM4	Up / Down	6
NSPACE.PMTP6V	LANmark-OF ENSPACE Adaptor Module 6x MTP Multimode Key Up Key Down Violet	OM4	Up / Down	6
NSPACE.PMTP6U	LANmark-OF ENSPACE Adaptor Module 6x MTP Multimode Key Up Key Up Grey	OM4	Up / Up	6
NSPACE.PMTP6G	LANmark-OF ENSPACE Adaptor Module 6x MTP Singlemode Key Up Key Down Green	SM	Up / Down	6

LANmark-OF ENSPACE MTP- LC Adaptor Modules

- ENSPACE module with 12x LC adaptors in the front and 1 MTP adaptor in the rear
- Ultra low loss performance for multimode: 0,35 dB insertion loss per module
- Low low loss performance for singlemode: 0,5 dB insertion loss per module
- Metallic shutters are integrated into the LC adaptors
- Modules can be installed from front and rear of panel
- Innovative handle at rear facilitates removal and installation
- Modules available with straight and crossed wiring to support polarity method B or C
- Unpinned/female MTP connector inside module
- ENSPACE modules are pre-installed and 100 % factory tested

N Number	Description	Color LC adaptor	Fibre Category
NSPACE.MSLC12AS	LANmark-OF ENSPACE Ultra Low Loss MTP-Module Straight 12 LC Multimode Aqua Shutters Integrated	Aqua	OM4
NSPACE.MSLC12VS	LANmark-OF ENSPACE Ultra Low Loss MTP-Module Straight 12 LC Multimode Violet Shutters Integrated	Violet	OM4
NSPACE.MSLC12LS	LANmark-OF ENSPACE Ultra Low Loss MTP-Module Straight 12 LC Multimode Lime Green Shutters Integrated	Lime Green	OM5
NSPACE.MSLC12BS	LANmark-OF ENSPACE MTP-Module Straight 12 LC Singlemode Blue Shutters Integrated	Blue	SM OS2
NSPACE.MSLC12GS	LANmark-OF ENSPACE MTP-Module Straight 12 LC/APC Singlemode Green Shutters Integrated	Green	SM OS2
NSPACE.MCLC12AS	LANmark-OF ENSPACE Ultra Low Loss MTP-Module Crossed 12 LC Multimode Aqua Shutters Integrated	Aqua	OM4
NSPACE.MCLC12VS	LANmark-OF ENSPACE Ultra Low Loss MTP-Module Crossed 12 LC Multimode Violet Shutters Integrated	Violet	OM4
NSPACE.MCLC12LS	LANmark-OF ENSPACE Ultra Low Loss MTP-Module Crossed 12 LC Multimode Lime Green Shutters Integrated	Lime Green	OM5
NSPACE.MCLC12BS	LANmark-OF ENSPACE MTP-Module Crossed 12 LC Singlemode Blue Shutters Integrated	Blue	SM OS2
NSPACE.MCLC12GS	LANmark-OF ENSPACE MTP-Module Crossed 12 LC/APC Singlemode Green Shutters Integrated	Green	SM OS2

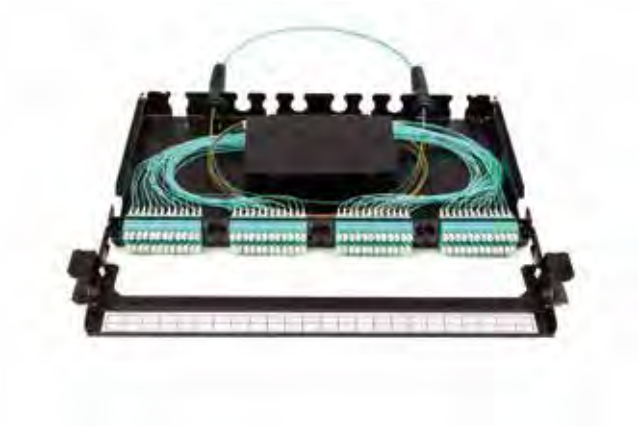
LANmark-OF Plug&Play Panel

- High density patch panel: up to 48 SC or 96 LC depending on module type
- Up to 4 Plug&Play adaptor plates
- Sliding and tilting patch panel for ease of installation, upgrade and maintenance
- Labelling front for port identification and patch cord management

Installation with Plug&Play Adaptor Plates and LC/LC Pre-Terms

- Compatible with LANmark-OF Universal LC/LC Pre-Term
- Compatible with LANmark-OF ENSPACE LC/LC Pre-Term
- Fibre organisers as accessory included for fibre management inside patch panel in 4 different loops
- High density: up to 96 LC

LANmark-OF Plug&Play Panel



Optimised for splicing with Plug&PLay

Adaptor Plates and Pigtails

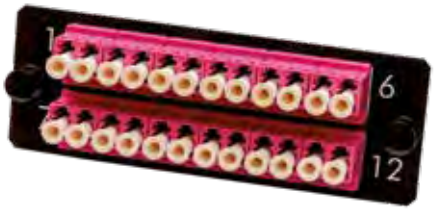
- Up to 4 splice cassettes and 1 cover
- Large splice cassettes for improved fibre management inside cassettes
- Cassettes can be lifted and tilted
- Up to 48 fibres with heat shrink protectors and Tight Buffer pigtails
- Up to 96 fibres with heat shrink protectors and Maxistrip pigtails
- Up to 96 fibres with mechanical/aluminum protection

Splice Cassettes

- Splice cassettes for Plug&Play panels
- Large cassettes with inner and outer routing for fibres of pigtails and cables
- Cassettes for heat shrink protectors with 12 slots, 2 heat shrink protectors could be stacked in same slot
- Cassettes for Aluminum protectors with 2 x 12 slots
- Only one cover per patch panel

N Number	Description
N439.3MPP	LANmark-OF Plug&Play Patch Panel Integrated Cord Guide Sliding Black
N890.090	LANmark-OF Splice Cassette Heat Shrink Protectors
N890.091	LANmark-OF Splice Cassette Aluminum Protectors
N890.092	LANmark-OF Splice Cassette Cover

LANmark-OF Plug&Play SC/LC Adaptor Plates



- Adaptor plates for 3DSC, 6DSC, 6DLC or 12DLC
- Available in multimode, singlemode and singlemode APC
- Module can be easily mounted into Nexans' Plug&Play patch panel
- High density: 4 plates fit into 1U
- Can be used together with SC/LC Pre-Term or cables terminated with splicing

N-number	Description	Adaptor type	Fibre category	Density in 1U
N205.ALC12MMA	LANmark-OF Adaptor Plate 12 LC Multimode Aqua	LC	Multimode	48
N205.ALC24MMA	LANmark-OF Adaptor Plate 24 LC Multimode Aqua	LC	Multimode	96
N205.ALC12MMV	LANmark-OF Adaptor Plate 12 LC Multimode Violet	LC	Multimode	48
N205.ALC24MMV	LANmark-OF Adaptor Plate 24 LC Multimode Violet	LC	Multimode	96
N205.ALC12SMB	LANmark-OF Adaptor Plate 12 LC Singlemode Blue	LC	Singlemode	48
N205.ALC24SMB	LANmark-OF Adaptor Plate 24 LC Singlemode Blue	LC	Singlemode	96
N205.ALC12SAG	LANmark-OF Adaptor Plate 12 LC Singlemode APC Green	LC	SM/APC	48
N205.ALC24SAG	LANmark-OF Adaptor Plate 24 LC Singlemode APC Green	LC	SM/APC	96
N205.ASC06MMA	LANmark-OF Adaptor Plate 6 SC Multimode Aqua	SC	Multimode	24
N205.ASC12MMA	LANmark-OF Adaptor Plate 12 SC Multimode Aqua	SC	Multimode	48
N205.ASC06SMB	LANmark-OF Adaptor Plate 6 SC Singlemode Blue	SC	Singlemode	24
N205.ASC12SMB	LANmark-OF Adaptor Plate 12 SC Singlemode Blue	Sc	Singlemode	48
N205.ASC06SAG	LANmark-OF Adaptor Plate 6 SC Singlemode APC Green	SC	SM/APC	24
N205.ASC12SAG	LANmark-OF Adaptor Plate 12 SC Singlemode APC Green	SC	SM/APC	48

NOTES

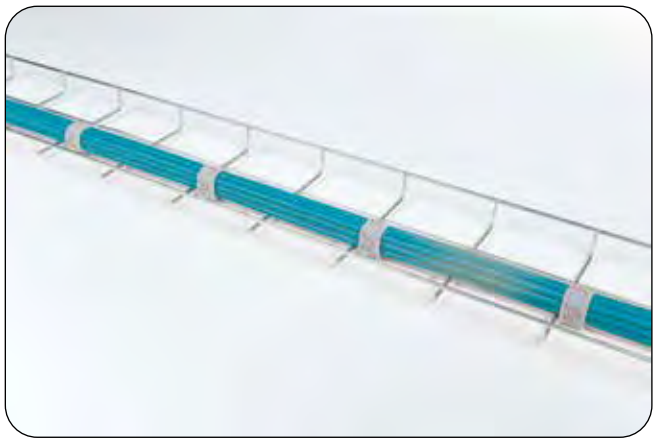
LANmark-OF ENSPACE Pre-Term

LANmark-OF ENSPACE Pre-Term cable

- Cable Pre-Term based on advanced Micro-Bundle technology
- Slim high fibre count cable to allow a maximum of cables in cable trays
- Reduced weight in cable trays
- Bend insensitive fibre inside cables
- Short bend radius for ease of installation
- Flame (IEC 60332-1) and fire retardant (IEC 60332-3)
- LSZH jacket
- CPR level: $B2_{ca\ s1,d0,\ a1}$

	Dimension	Weight	Bend Radius operation	Bend Radius installation	Crush resistance	Max pulling force installation
12F	6,0mm	45 kg/km	60mm	60mm	2000N/10cm	450N
24F	5,9mm	35 kg/km	90mm	120mm	1000N/10cm	450N
48F	5,9mm	35 kg/km	90mm	120mm	1000N/10cm	450N
96F	8,4mm	77 kg/km	120mm	150mm	1000N/10cm	450N

High cable density in trays



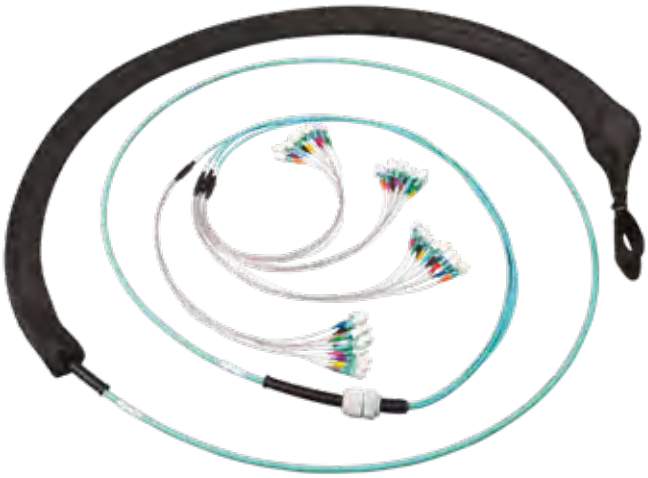
Max number of cables:

427 cables of 48 fibres in 500 mm x 50 mm = 20496 fibres

Small diameter allows high number of cables
Double or triple amount of cables compared to traditional solutions
Space limitations in central patching zones reduced

LANmark-OF ENSPACE Pre-Term

Pre-Term Design



- Protective black net with bubble foam on one side
- Pulling eye one side
- Maximum pulling force on pulling eye: 450N
- Protective bubble foam second side
- Cable gland with rubber boot for strain relief
- Small transition fan-out
- Made to order with 1m increments to reduce overlengths

Optical performance

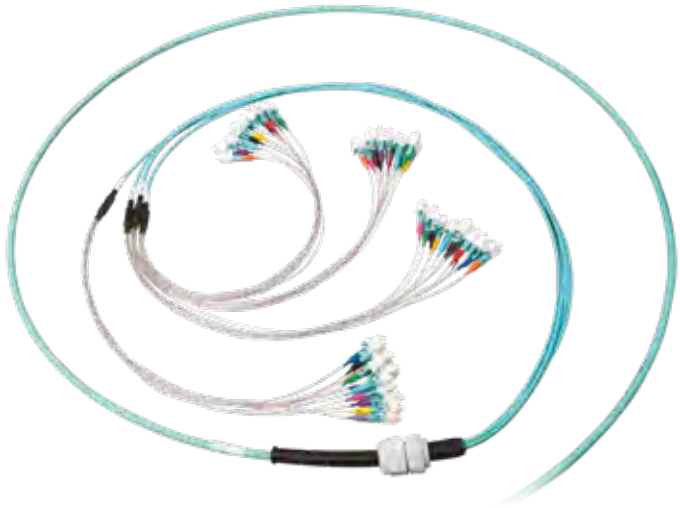
- Ultra low loss performance for multimode
- Low loss performance for singlemode
- Allows for more connections and longer length

Connection type	Max insertion loss	Maximum Return Loss
LC multimode	0,25 dB	30 dB
LC singlemode	0,25 dB	40 dB
LC singlemode APC	0,25 dB	55 dB
MTP multimode	0,25 dB	20 dB
MTP singlemode APC	0,3 dB	45 dB

Packaging

- All Pre-Terms are on cardboard reels
- Volume reel can be reduced quickly: easy to dispose

LANmark-OF ENSPACE LC/LC Fibre Assembly



- Dual stage fan-out for installation inside the ENSPACE panel and inside the ENSPACE module
- Pre-Term based on Micro-Bundle technology
- Cable optimized for installation in Data Centre: small diameter, small bend radius and reduced weight
- Superior fire performance: Euroclass B2ca s1,d0,a1
- Fibres identified with coloured boots
- Fibre pair flip to maintain transmit-receive polarity implemented in manufacturing
- Low loss insertion loss performance: Max 0,25 dB per LC connection
- Fibre count: 12x, 24x, 48x and 96x
- Fibre type: OM4, OM5 and singlemode (OS2)

N15a.DnnnccExxx-eB: ENSPACE LC/LC Pre-Term

a: fibre category	4: Singlemode OS2 7: Multimode OM4 9: Multimode OM5
D: ENSPACE LC/LC Pre-Term	
nnn: fibre count	12, 24, 48 or 96
c: Connector type	L: LC-connector P: LC/APC connector
E: Fan-out optimised for ENSPACE panel	
xxx: length in m	
e: colour cable jacket	Y : Yellow for Singlemode A : Aqua for OM4 V: Violet for OM4 L : Lime Green for OM5
B: fire performance class B2ca s1,d0,a1	

LANmark-OF ENSPACE MTP/MTP Fibre Assembly

- Fibre assembly for installation inside the ENSPACE and Plug&Play panel
- Cable optimized for installation in Data Centre: small diameter, small bend radius and reduced weight
- Superior fire performance: Euroclass B2ca s1,d0,a1
- Method B and Method C polarity options available
- Pre-Term can be used together with MTP-LC modules for LC connectivity or with MTP-adaptor modules for parallel optics
- Male-male/pinned-pinned Pre-Terms
- Low loss insertion loss performance: Max 0,25 dB per MTP connection for singlemode and multimode
- Fibre count: 12x, 24x, 48x and 96x
- Fibre type: OM4, OM5 and singlemode (OS2)

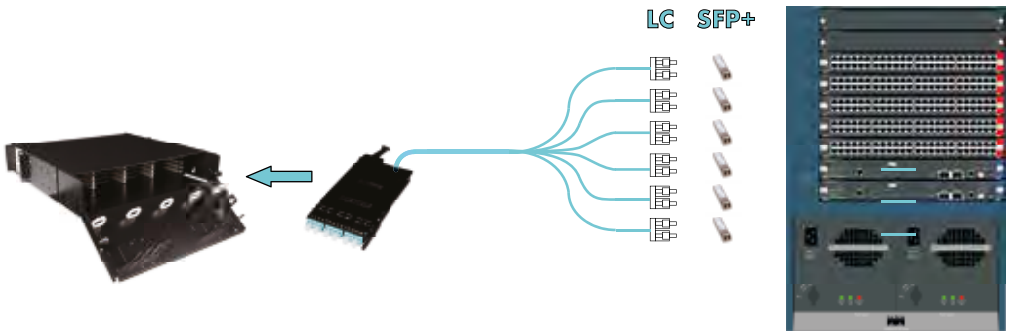
MTP is a trademark of UN Conec

N15a.PnnnMMExxx-eB: ENSPACE MTP/MTP fibre asssembly

a: fibre category	4: Singlemode OS2 7: Multimode OM4 9: Multimode OM5
P: polarity for MTP/MTP Pre-Term	B: method B polarity C: method C polarity
nnn: fibre count	12, 24, 48 or 96
MM: male-male Pre-Term	
E: Fan-out optimised for ENSPACE panel	
xxx: length in m	
e: colour cable jacket	Y : Yellow for Singlemode A : Aqua for OM4 V : Violet for OM4 L : Lime Green for OM5
B: fire performance class B2ca s1,d0,a1	

LANmark-OF ENSPACE Patching Assemblies

- High fibre count fibre assembly for connecting transceivers on switch and ENSPACE modules
- Switch side has a 2mm fan-out with uniboot DLC connector for connecting to SFP+ transceivers
- Panel side:
  - dual stage 900 µm LC fan-out for installation inside the ENSPACE panel with the LC ENSPACE adaptor modules
  - or male MTP-fan out for installation inside the ENSPACE panel with ENSPACE MTP-LC modules
- Micro-Bundle cable optimised for installation in Data Centre: small diameter, small bend radius and reduced weight
- Superior fire performance: Euroclass B2ca s1,d0,a1
- Low loss insertion loss performance: max 0,25 dB per LC connection
- Fibre count: 12x, 24x, 48x and 96x
- Fibre type: OM4, OM5 and singlemode (OS2)



N15a.Snnbbccdxxxe-B

a: fibre category	4: Singlemode OS2, 7: multimode OM4 9: multimode OM5
S: Patching assembly ENSPACE	
nn: fibre count	12,24,48,96
bb: uniboot LC connector on switch side (L2: LC-connector)	
cc: connector inside panel	L9: LC-connector P9: LC/APC connector M3: male MTP connector
d: fan-out length switch side	A: equal length 100cm B: equal length 150cm C: equal length 200cm
Xxx: length in m	
e: colour cable jacket	Y : Yellow for Singlemode A : Aqua for OM4 V : Violet for OM4 L : Lime Green for OM5
B: fire performance class B2ca s1,d0,a1	

Polarity with ENSPACE Pre-Terms

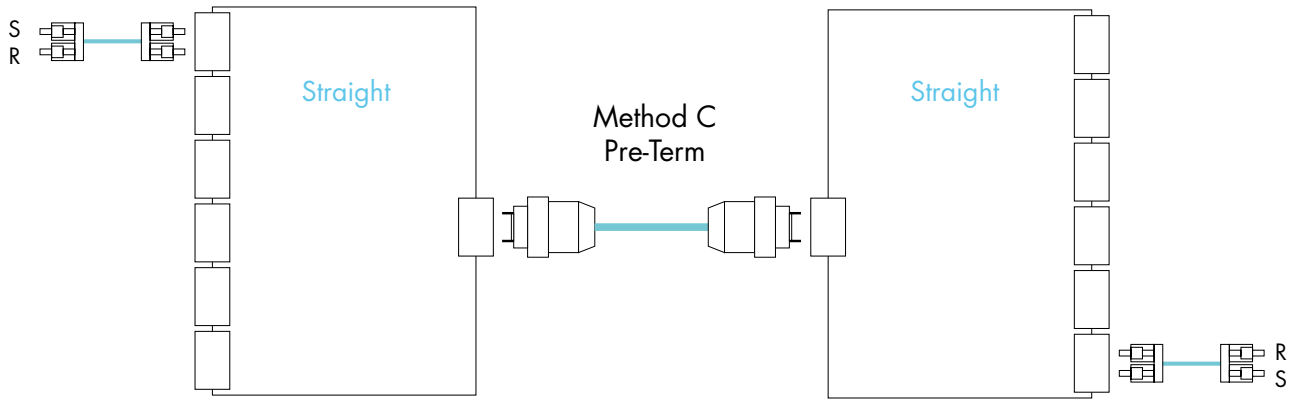
Polarity with LC/LC Pre-Term

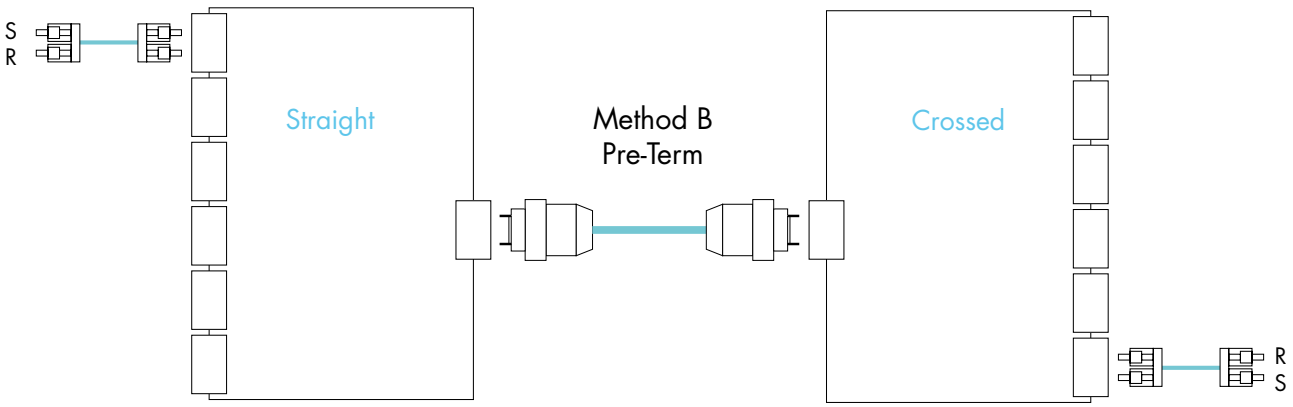
- Coloured boots for 900 µm fibres
- Integrated colour strip inside ENSPACE LC module
- Matching coloured boots with colours on strip guarantee error free installation for duplex transmission
- Required fibre pair flip in Pre-Term to maintain Transmit-Receive polarity introduced during manufacturing

MTP is a trademark of UN Conec

Polarity with MTP-LC modules and MTP-MTP Pre-Term for Duplex Transmission

Duplex transmission

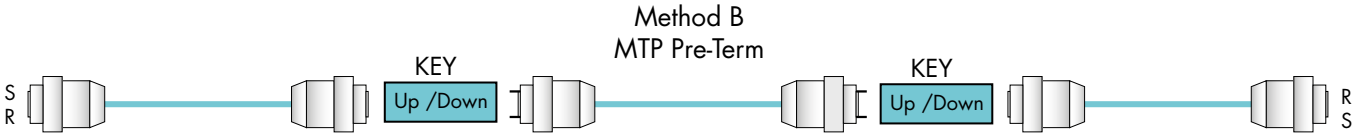




Polarity with ENSPACE Pre-Terms

Polarity with with MTP adaptors
and MTP-MTP Pre-Terms for Parallel transmission

Parallel transmission



MTP is a trademark of UN Conec

LANmark-OF ENSPACE LC-LC Patch cords

- Uniboot style duplex LC connectors
- Slim 2mm round patch cord cable to reduce required space in dense patching zones
- Improved handling in high-density applications
- Low-loss connectivity enables system design flexibility
- Bend radius reduced to 10 mm with GIGAliteFlex bend insensitive fibre
- Designed to withstand tight bends and challenging cable routes
- Low-smoke and zero-halogen (LSZH)
- Flame retardant
- Reverse polarity uniboot connector

N Number	Description
N122.7UUAx	LANmark-OF ENSPACE Patch Cord DLC-DLC OM4 LSZH xm Aqua
N122.7UUVx	LANmark-OF ENSPACE Patch Cord DLC-DLC OM4 LSZH xm Violet
N122.9UULx	LANmark-OF ENSPACE Patch Cord DLC-DLC OM5 LSZH xm Lime Green
N122.4UUYx	LANmark-OF ENSPACE Patch Cord DLC-DLC Singlemode LSZH xm Yellow

LANmark-OF ENSPACE MTP-MTP Patch cords

- MTP-MTP patch cords
- MTP PRO connectors for easy gendre and polarity change
- Slim round patch cable with 2,5 mm diameter
- Small bend radius of 40mm
- Female-Female patch cord to fit with male MTP connector of MTP Pre-Term or male QSFP+ connector
- Available in OM4 and SM
- Low loss performance: 0,25 dB/MTP connection, typical insertion loss 0,125 dB/MTP connection
- Straight wiring with key up/key up design
- Parallel Optics: 40GBase-SR4 and 100GBase-SR10
- Low-smoke and zero-halogen (LSZH)

MTP is a trademark of UN Conec

N Number	Description
N125.7GGAx	LANmark-OF Patch Cord Female MTP PRO - Female MTP PRO OM4 LSZH xm Aqua
N125.7GGVx	LANmark-OF Patch Cord Female MTP PRO - Female MTP PRO OM4 LSZH xm Violet
N125.4GGYx	LANmark-OF Patch Cord Female MTP PRO - Female MTP PRO SM LSZH xm Yellow

LANmark-OF MTP PRO Tools and Accessories

- Field tool for MTP PRO connectors to change polarity and gender
- Gendre change can be done without opening the connector
- PIN exchangers are required for gendre change
- No accessory required for polarity change: keys already included in MTP PRO connector
- Polarity can be changed from key down to key up and key up to key down

- Sample box to demonstrate MTP PRO connectivity for easy changing gender and polarity in the field
- Sample tool box includes
- LANmark-OF MTP PRO Gendre and Polarity Field Tool
- LANmark-OF MTP PRO Pin Exchanger Female Multimode Aqua 10X
- LANmark-OF MTP PRO Pin Exchanger Male Singlemode Yellow 10X
- LANmark-OF MPO Cleaning Tool
- MTP-MTP patch cord sample

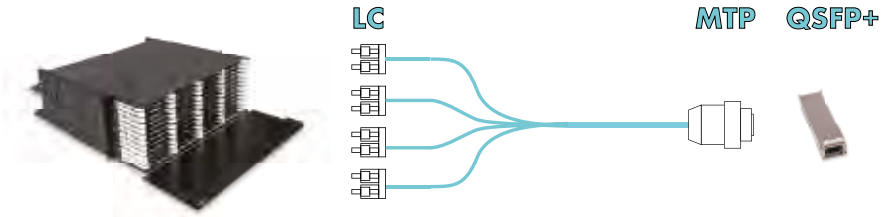
(*) MTP is a Trademark of US Conec

- MTP PRO multimode pin exchangers to change gender from female to male
- The pin exchangers provide the pins to make the female MTP PRO connector male
- One tube contains 10 exchangers

N Number	Description
N890.160	LANmark-OF MTP PRO Sample Box
N890.161	LANmark-OF MTP PRO Pin Exchanger Male Multimode Aqua 10X
N890.163	LANmark-OF MTP PRO Pin Exchanger Male Singlemode Yellow 10X
N890.165	LANmark-OF MTP PRO Gendre and Polarity Field Tool

LANmark-OF Aggregation Assembly

- Factory terminated fibre assembly
- Female MTP towards 4x uniboot DLC connectors
- Female MTP connector for connecting to QSFP+ transceiver on switch
- Uniboot DLC connectors for patching on front of patch panel
- 8 cores
- Aggregation of 4X 10G channels into 1x 40G port on switch
- Fibre type: OM4
- Low loss connectivity performance: Max of 0,3 dB per connection



N127.aFbdex

a: fibre category	7: multimode OM4
F: female MTP connector for insertion in QSFP+ transceiver	
b: duplex connector type on front patch panel	L: DLC-connector P: DLC/APC connector
d: fan-out length patch panel	A: equal length 100cm B: equal length 150cm C: equal length 200cm
e: colour cable jacket	A: Aqua for OM4 V: Violet for OM4
x: length in m	

Guaranteed distances - LANmark-OF OM4

- **Products**

LANmark-OF OM4 cables terminated with LC/SC connectors or pigtails
LANmark-OF OM4 LC/SC Pre-Terms

Ethernet distances						
Applications	Pre-Terminated ST/SC/LC Assemblies			Direct termination or splicing with ST/SC/LC		
# connections	2	4	6	2	4	6
1GBase-SX	970m	960m	940m	930m	880m	820m
10GBase-SR	550m	540m	530m	520m	490m	460m
25GBase-SR	120m	110m	105m	110m	90m	70m
40G BiDi	175m	150m	130m	140m	NA	NA
40G SWDM	350m	350m	350m	350m	NA	NA
100G BiDi	100m	100m	100m	100m	NA	NA
100G SWDM	100m	100m	100m	100m	NA	NA

Fibre Channel Distances						
Applications	Pre-Terminated ST/SC/LC Assemblies			Direct termination or splicing with ST/SC/LC		
# connections	2	4	6	2	4	6
1GFC (PI-4 100-M5F-SN-I)	1250m	1230m	1200m	1140m	1000m	800m
2GFC (PI-4 200-M5F-SN-I)	750m	740m	720m	680m	560m	460m
4GFC (PI-5 400-M5F-SN-I)	500m	475m	450m	470m	420m	370m
8GFC (PI-5 800-M5F-SN-I)	250m	230m	220m	220m	190m	130m
16GFC (PI-5 1600-M5F-SN-I)	170m	150m	145m	150m	125m	60m
32GFC (PI-6 3200-5MF-SN-I)	125m	115m	110m	110m	95m	65m

Guaranteed distances - LANmark-OF OM4 MTP

- **Products**

LANmark-OF OM4 ultra low loss MTP-MTP Pre-Term Assemblies
LANmark-OF OM4 ultra low loss MTP-LC module

Ethernet distances-duplex transmission			
# MTP-LC modules	2	4	6
1GBase-SX	930m	910m	890m
10GBase-SR	520m	510m	500m
25GBase-SR	115m	105m	100m
40G BiDi	165	120	110
40G SWDM	350m	350m	350m
100G BiDi	100m	100m	100m
100G SWDM	100m	100m	100m

Ethernet distances-parallel transmission			
# MTP connections	2	4	6
40GBase-SR4	175	150	130
40GBase-SR4 extended distances*	400m	360m	330m
100GBase-SR4	120m	110m	105m

* Nexans approved transceivers

Fibre Channel Distances-duplex transmission			
# MTP-LC modules	2	4	6
1GFC (PI-4 100-M5F-SN-I)	1150m	1120m	1050m
2GFC (PI-4 200-M5F-SN-I)	680m	660m	620m
4GFC (PI-5 400-M5F-SN-I)	480m	420m	410m
8GFC (PI-5 800-M5F-SN-I)	240m	205m	190m
16GFC (PI-5 1600-M5F-SN-I)	160m	135m	130m
32GFC (PI-6 3200-5MF-SN-I)	120m	105m	100m

MTP is a trademark of UN Conec

Guaranteed distances - LANmark-OF OM5

- **Products**

LANmark-OF OM5 cables terminated with LC/SC connectors or pigtails
LANmark-OF OM5 LC/SC Pre-Terms

Ethernet distances						
Applications	Pre-Terminated ST/SC/LC Assemblies			Direct termination or splicing with ST/SC/LC		
# connections	2	4	6	2	4	6
1GBase-SX	970m	960m	940m	930m	880m	820m
10GBase-SR	550m	540m	530m	520m	490m	460m
25GBase-SR	120m	110m	105m	110m	90m	70m
40G BiDi	175m	150m	130m	140m	NA	NA
40G SWDM	440m	440m	440m	440m	NA	NA
100G BiDi	100m	100m	100m	100m	NA	NA
100G SWDM	150m	150m	150m	150m	NA	NA

Fibre Channel Distances						
Applications	Pre-Terminated ST/SC/LC Assemblies			Direct termination or splicing with ST/SC/LC		
# connections	2	4	6	2	4	6
1GFC (PI-4 100-M5F-SN-I)	1250m	1230m	1200m	1140m	1000m	800m
2GFC (PI-4 200-M5F-SN-I)	750m	740m	720m	680m	560m	460m
4GFC (PI-5 400-M5F-SN-I)	500m	475m	450m	470m	420m	370m
8GFC (PI-5 800-M5F-SN-I)	250m	230m	220m	220m	190m	130m
16GFC (PI-5 1600-M5F-SN-I)	170m	150m	145m	150m	125m	60m
32GFC (PI-6 3200-5MF-SN-I)	125m	115m	110m	110m	95m	65m

Guaranteed distances - LANmark-OF OM5 MTP

- **Products**

LANmark-OF OM5 ultra low loss MTP-MTP Pre-Term Assemblies
LANmark-OF OM5 ultra low loss MTP-LC module

Ethernet distances-duplex transmission			
# MTP-LC modules	2	4	6
1GBase-SX	930m	910m	890m
10GBase-SR	520m	510m	500m
25GBase-SR	115m	105m	100m
40G BiDi	165	120	110
40G SWDM	440m	440m	440m
100G BiDi	100m	100m	100m
100G SWDM	150m	150m	150m

Ethernet distances-parallel transmission			
# MTP connections	2	4	6
40GBase-SR4	175	150	130
40GBase-SR4 extended distances*	400m	360m	330m
100GBase-SR4	120m	110m	105m

* Nexans approved transceivers

Fibre Channel Distances-duplex transmission			
# MTP-LC modules	2	4	6
1GFC (PI-4 100-M5F-SN-I)	1150m	1120m	1050m
2GFC (PI-4 200-M5F-SN-I)	680m	660m	620m
4GFC (PI-5 400-M5F-SN-I)	480m	420m	410m
8GFC (PI-5 800-M5F-SN-I)	240m	205m	190m
16GFC (PI-5 1600-M5F-SN-I)	160m	135m	130m
32GFC (PI-6 3200-5MF-SN-I)	120m	105m	100m

MTP is a trademark of UN Conec

Guaranteed distances LANmark-OF SM

- **Products**

LANmark-OF SM cables terminated with LC/SC connectors or pigtails
LANmark-OF SM LC/SC Pre-Terms

LANmark-OF SM / Direct Termination, Splicing and Pre-Terminated*					
Applications	2 connections	3 connections	4 connections	5 connections	6 connections
100 Base-SX	2000	-	-	-	-
1GBase-LX	5000	4900	4500	4000	3500
10GBase-LR	10 000	9000	7500	6000	4500
10GBase-LW	10 000	9000	7500	6000	4500
10GBase-LX4	10 000	8500	6750	5250	3500
4GBit-FC (PI-5 400-SM-LC-L)	10 000	10 000	7500	6000	4000
8GBit-FC (PI-5 800-SM-LC-L)	10 000	10 000	7500	6000	4000
10GBase-FC (1200-SM-LL-L)	10 000	9000	7500	6000	4500
10GBase-FC (1200-SM-LC4-L)	10 000	8500	6750	5250	3500
16Gbit-FC (PI-5 1600-SM-LC-L)	10 000	10 000	7500	6000	4000
40Gbase-LR4	10 000	10 000	9000	7000	5000
100Gbase-LR4	10 000	10 000	8000	6000	4000

* with one splice every 2 km between 2 connections if required.

Guaranteed distances LANmark-OF SM MTP

- **Products**

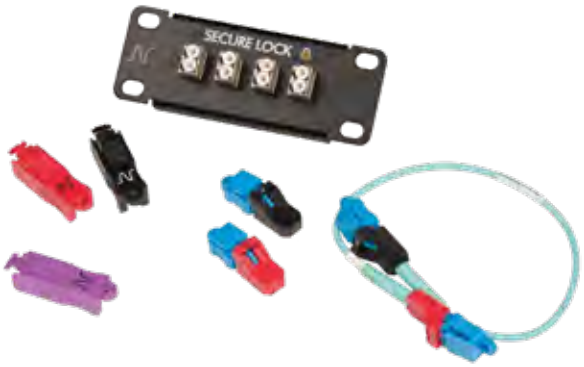
LANmark-OF SM low loss MTP-MTP Pre-Term Assemblies
LANmark-OF SM low loss MTP-LC module

LANmark-OF SM /MTP low loss connectivity*				
Applications	2 MTP modules	4 MTP modules	6 MTP modules	8 MTP modules
1GBase-LX	5000	3000	-	-
10GBase-LR	9000	7000	2500	-
4GBit-FC (PI-5 400-SM-LC-L)	10 000	10 000	6000	3000
8Gbit-FC (PI-5 800-SM-LC-L)	10 000	8000	6000	3000
16GBit-FC (PI-5 1600-SM-LC-L)	10 000	8000	6000	3000
40GBase-LR4	10 000	10 000	7000	4000
100GBase-LR4	10 000	10 000	6500	3500

* with one splice every 2 km between 2 connections if required.

MTP is a trademark of UN Conec

SECURE LOCK LC



Secure Lock LC cords are specifically designed for applications where security is paramount or the removal of patch cords is discouraged such as:

- Military
- Education
- Healthcare
- Data Centres
- CCTV systems

The Secure Lock range from Nexans is compatible with Standard LC adaptors which is a significant advantage over systems which require a keyed adaptor.

Eight coloured boot options are available (Black, Red, Grey, Blue, Green, Yellow, Orange and White).
Red and Black booted cords are available from stock. All other colours are made to order.
Patch cords are stocked in 1, 2, 3 and 5m lengths with other lengths available subject to an MOQ and lead time.

The Secure Lock LC product set comprises:

- Patch cords – Singlemode OS2 (Yellow) and Multimode OM3 (Aqua)
- Coloured Keys to match the patch cord locking boots and the "magic" purple key which unlocks all colours.
- Port locking plugs
- An extension handle for "hard to reach" places
- Dust covers

ACCESSORIES

Overhead Patching Frame 4U or 6U

- 19-Inch 4U or 6U overhead frame
- Ideal in data centres
- Designed to host both copper and fibre cabling
- Metal construction
- Straight or angled position

Angled Blank Panel Black

- 19" Blank Panel to fill empty cabinet space

Angled Panel Cover Black

- Used to close the triangular gap formed at the top of a stack of LANmark or LANsense Angled Panels to prevent items falling behind the panels and to enhance the appearance of the finished installation

N Number	Description
N345.400	LANmark Overhead Patching Frame 4U
N521.672	Angled Blank Panel Black
N521.673	Angled Panel Cover Black

ACCESSORIES

Angled Pass-Through Black

The 2U Angled Pass-Through is designed to match the LANmark and LANsense Angled Panels and to provide a means for patch cables to cross from side to side in a rack whilst maintaining rack aesthetics.

Pair of Patch Cord Management Hooks Black for Overhead Patching Frame 4U

- Required to guide patch cords on both sides of the frame
- Easy to mount with 2 screws and cage nuts
- Up to 3 hooks on each side
- Black flexible plastic

N Number	Description
N521.678	Angled Pass-Through Black
N345.401	Pair of Patch Cord Management Hooks Black for Overhead Patching Frame 4U

ACCESSORIES

1U Universal Patch Guide with front cover, Black

- Allows storage and management of copper and fibre patch cords
- 8 cm depth
- Cover for tidy cabinet look
- Black paint finished metal

1U Patch Guide with rings, Black

- Allows storage and management of copper and fibre patch cords
- Open structure with rings for easy access
- 8 cm depth
- Black paint finished metal

1U Blank Panel, black

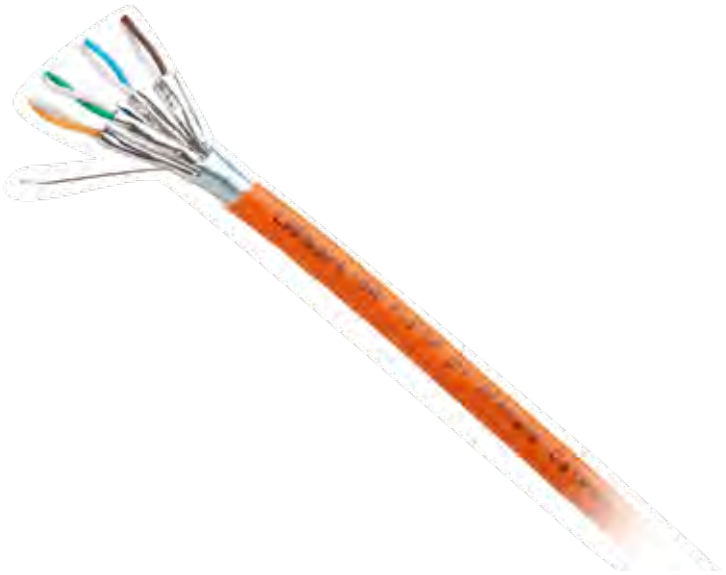
- 19" Blank Panel to fill empty cabinet space

N Number	Description
N102.117BK	1U Universal Patch Guide with front cover, Black
N102.105BK	1U Patch Guide with rings, Black
N109.207BK	1U Blank Panel, black

LANmark-6A for 10Gb/s Ethernet

Nexans LANmark-6A cabling system is today's standard solution for enterprise and Data Centre environments, offering guaranteed bandwidth to 500 MHz and therefore supporting 10G-BaseT, currently the highest widely deployed application over horizontal copper cabling.
LANmark-6A cables and connectivity are manufactured and tested to the latest Cat 6A specifications defined in the International, European and American cable and cabling standards, including ISO 11801, EN 50173-1 and TIA-568-C.2.

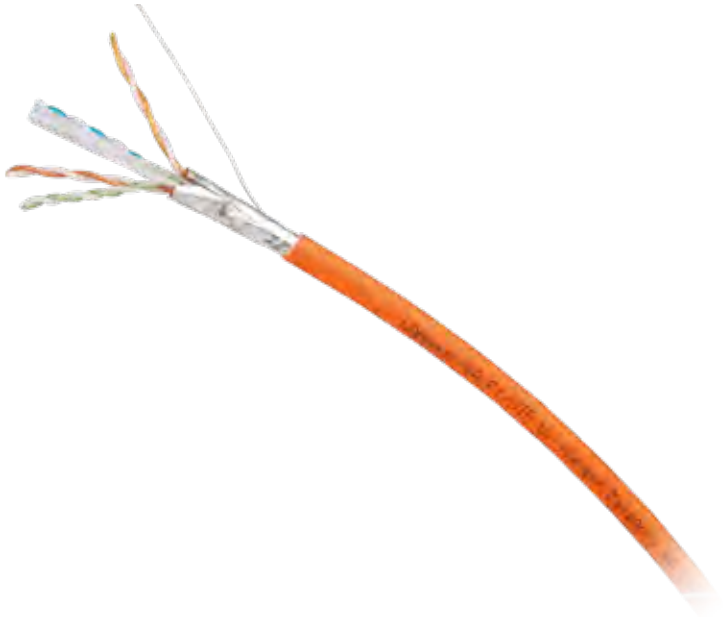
The LANmark-6A range supports short channel lengths down to 9m with 3 connection points (and 12m with 4 connection points). This makes it an ideal solution for modern Data Centres that are already facing severe space problems and where overlength cable is often installed in order to comply with a traditional minimum channel length of 24m. By reducing this minimum length, Data Centres no longer need to install unnecessary excess cable, therefore reducing costs whilst also saving critical space.



- Guaranteed superior channel headroom for: NEXT (2dB) - Return Loss (2dB) - Alien Crosstalk (15dB)
- Interoperability due to Cat 6A component compliance
- Ability to install very short links, crucial in Data Centres

LANmark-6A Cable F/FTP

- Ideal cable for 10Gbase-T applications
- Full compliance to latest standards for Cat 6A and Class EA
- Guaranteed performance up to 500MHz
- Combination of global and individual pair shielding offering ANEXT immunity
- Standard LSZH version meeting IEC 60332-1 and EuroClass D_{ca}
- Available in EuroClass C_{ca}, also meeting IEC 60332-3



LANmark-6A Cable F1/UTP

- Ideal cable for 10Gbase-T applications
- Full compliance to latest standards for Cat 6A and Class EA
- Guaranteed performance up to 500MHz
- Global screen offering ANEXT immunity
- Foil with aluminium side facing outwards providing easy bonding to connector
- Offering same ease of installation as UTP cables, but with full protection against noise
- Standard LSZH version meeting IEC60332-1 and EuroClass D_{ca}
- Available in EuroClass C_{ca}, also meeting IEC 60332-3

LANmark-6A for 10Gb/s Ethernet

LANmark-6A Snap-In Connector

- High bandwidth RJ45 connector supporting 10 Gigabit Ethernet
- Fully compliant with TIA and ISO Cat 6A cabling and connector standards
- Supports very short Cat 6A channel configurations, often required in Data Centres
- 360° shielding offering full ANEXT immunity
- Fast and easy termination without punch down tool
- Wire organiser reduces risk of installation errors and ensures consistent performance
- Allows re-termination
- Version for stranded wire available for CP to TO links
- Supports PoE++ Type 4 applications delivering up to 90W/71W (IEEE 802.3bt)
- An adapter can be added to fit the keystone format
- Certified by independent test lab

LANmark-6A Ultim UniBoot Patch Cords

- High speed RJ45 patch cord to run 10Gbase-T and future Cat 6A applications
- High density support due to slim boot design
- Frequency range up to 500MHz, fully compliant with Cat 6A TIA-568-C.2 and ISO11801:2011
- Individually screened pairs offering internal and external noise immunity (NEXT and ANEXT)
- Certified by Delta independent test lab
- Black removable latch protector, replaceable with 7 other colours, offering possibility of differentiation between services

LANsense AIM LANsense version also available

LANmark-6A Slimflex Uniboot Patch Cord

- Small diameter RJ45 cords with AWG30 stranded copper conductors
- S/FTP cable construction offering internal and Alien Crosstalk immunity for 2.5G, 5G and 10G
- High density support due to slim cable design offering 20% space saving
- High flexibility compared to standard cords
- White LSZH jacket
- Black removable latch protector, replaceable with 7 other colours, offering possibility of differentiation between services

LANmark-6A for 10Gb/s Ethernet & PoE

N Number	Description
N100.624G-OD	LANmark-6A F1/UTP AWG23 Cat 6A LSZH D_{ca} s2 d1 a1 Orange 500m reel
N100.622G-OD	LANmark-6A F1/UTP AWG23 Cat 6A LSZH D_{ca} s2 d1 a1 Orange 1000m reel
N100.623G-OD	LANmark-6A F1/UTP Dual AWG23 Cat 6A LSZH D_{ca} s2 d2 a1 Orange 500m reel
N100.622G-OC	LANmark-6A F1/UTP AWG23 Cat 6A LSZH C_{ca} s1a d1 a1 Orange 1000m reel
N100.694G-OD	LANmark-6A F/FTP AWG23 Cat 6A LSZH D_{ca} s2 d1 a1 Orange 500m reel
N100.692G-OD	LANmark-6A F/FTP AWG23 Cat 6A LSZH D_{ca} s2 d1 a1 Orange 1000m reel
N100.693G-OD	LANmark-6A F/FTP Dual AWG23 Cat 6A LSZH D_{ca} s2 d1 a1 Orange 500m reel
N100.692G-OC	LANmark-6A F/FTP AWG23 Cat 6A LSZH C_{ca} s1a d1 a1 Orange 1000m reel
N100.694G-OC	LANmark-6A F/FTP AWG23 Cat 6A LSZH C_{ca} s1a d1 a1 Orange 500m reel
N420.66A	LANmark-6A Evo Snap-In Connector Cat 6A Screened
N420.66A-ECO24	LANmark-6A Evo Snap-In Connector Cat 6A Screened ECO
N420.66A-BULK100	LANmark-6A Evo Snap-In Connector Cat 6A Screened BULK
N420.67A	LANmark-6A Evo Snap-In Connector Cat 6A Screened Stranded Wire
N1SA.P1HxxxWK	LANmark-6A Slimflex Patch Cord S/FTP LSZH White ("xxx" denoting length: 010 = 1m, 020 = 2m...)
N11A.U1FxxxOK	LANmark-6A Ultim Patch Cord Cat 6A Screened LSZH Orange
N11A.U1FxxxDK	LANmark-6A Ultim Patch Cord Cat 6A Screened LSZH Grey ("xxx" denoting length: 010 = 1m, 020 = 2m, ... 100 = 10m)
N11A.S1F200OK	LANmark-6A Solid Cord Cat 6A Screened LSZH 20m Orange
N11A.S1F300OK	LANmark-6A Solid Cord Cat 6A Screened LSZH 30m Orange
N110.LPX	LANmark Latch Protector 50x ("X" denoting colour: K = Black, B = Blue, D = Dark Grey, G = Green, O = Orange, R = Red, Y = Yellow, W = White)
N420.567	Universal Comfort Tool
N420.110	Cable Stripper 25x

LANmark-7A for 10/25 Gb/s Ethernet & High Power PoE

Nexans LANmark-7A is a unique twisted pair cabling solution which supports the 25Gbase-T application over at least 30m, is fully compliant to the Class FA/Cat7A Cabling Standard and at the same time fully compatible to the RJ45 Interface.
LANmark-7A is built around the GG45 connector interface which was invented by Alcatel and was standardised as Class F interface in 2002 and Class FA interface in 2008. Although already 8 years old now, LANmark-7A components have proven to fulfill not only the requirements for 10Gbase-T (defined in 2008), but also for 25 Gbase-T (defined in 2016).

	25Gbase-T	Class F_A 30m / Cat 7A	Class F_A 40m Cat 7A
PSACR at 1000MHz (Minimum)	- 3.4dB	+22.5dB	+16.4dB
Positive ACR (Minimum)	1-900MHz	1- >2500 MHz	1- >2000 MHz
IL (Maximum)	22.55dB@1000MHz	22.35dB@1000MHz	28.54dB@1000MHz*
PSNEXT (Minimum)	19dB@1000MHz	45dB@1000MHz	45dB@1000MHz
Salz SNR (Minimum)	~32dB	~38dB	~35dB
Delay (Maximum)	185ns	125ns	165ns

*10Gbase-T operates with ~43dB attenuation at 430MHz

Nexans LANmark-7A solution is specified up to 1250 MHz at least. Higher frequency support is possible as Nexans offers multiple cables with various frequency ranges and the GG45 connector supports high frequencies up to 2GHz.

While 25Gbase-T LOM or NIC Cards will be build to support at least 30m, LANmark-7A cabling will potentially support some additional length of 10-20%. LANmark-7A offers additional ACR and clearly reduced Electrical Delay, so that some extended length is likely. For example, LANmark-7A supports 10Gbase-T up to 120m instead of 100m. A similar extension for 25Gbase-T can be expected.

LANmark-7A therefore is ideal for Data Centres which currently use 10 Gbps line speed at server ports. LANmark-7A can be installed in cost effective End or Middle of Row Architectures and offers cabling for 2 performance steps ahead of today: 10Gbase-T and 25Gbase-T.

LANmark-7A for 10/25 Gb/s Ethernet & High Power PoE

LANmark GG45 Connector

LANmark GG45 is a screened RJ45-compatible cable jack specified up to 2000 MHz. It is designed specifically to support the high frequencies required for applications beyond 10 Gigabit Ethernet.

- Combined with LANmark-7A Cable and Patch Cords, GG45 offers support for 25Gbase-T
- Combined with a LANmark-8 2GHz cable, GG45 offers support for 40Gbase-T

LANmark GG45 uses 12 contacts: 8 contacts for the 2000MHz transmission (GG-mode) and 4 additional contacts to ensure RJ45 compatibility (RJ Mode). Thanks to its 360° screening and a fully closed rear cover, the connector allows excellent coupling attenuation and ensures immunity from alien crosstalk and other external interference. The LANmark GG45 connector fits in all structural hardware designed for the Snap-In Connectors and can be used in all positions of a 4 connector twisted pair cabling channel (PP, CC, CP, TO).

LANmark-7A Cable AWG23

LANmark-7A S/FTP AWG23 is a 4 pair cable with individual pair foils and an overall braid offering superior performance up to 1250 MHz. The cable is fully compliant with Category 7A standards for Enterprise and Data Centre use cases. It supports 10Gbase-T over 100m and 25 Gbase-T over 30m. In combination with GG45 connectivity also extended drive distances can be supported.

- Largely reduced noise levels to support high Signal to Noise Ratios
- Double Screening makes cables immune against Alien Crosstalk
- Energy Savings of 2.5Watts/100m using POE++ are possible

LANmark-7A 1600 Cable AWG22

LANmark-7A 1600 S/FTP AWG22 is a 4 pair cable with individual pair foils and an overall braid offering superior performance up to 1600 MHz. The cable is fully compliant with Category 7A standards for Enterprise and Data Centre use cases. It supports 10Gbase-T over 100m and 25Gbase-T over 30m. In combination with GG45 connectivity also extended drive distances can be supported.

- Largely reduced noise levels to support high Signal to Noise Ratios
- Double Screening makes cables immune against Alien Crosstalk
- Energy Savings of 3 Watts/100m using POE++ are possible

LANmark-7A for 10/25 Gb/s Ethernet & High Power PoE

LANmark-6A RJ45 Patch Cord

To connect a LANmark-7A Permanent Link to a RJ45 Server Port normal RJ45 can be used (see LANmark-6A Range).
This reduces the investment cost during the time of 1Gb/s and 10Gbase-T networking.

LANsense AIM LANsense version also available

LANmark-7A GG45 to RJ45 Patch Cord

Nexans LANmark-7A GG45 to RJ45 cords with GG45 8C Plug on one side and a 1250 MHz RJ45 plug on the other end can be used to upgrade the network to 25Gbase-T, when NIC cards become available. These cords connect a GG45 based permanent link with 25G active equipment. The protruding part on the plug activates the switch within the GG45 "2in1" jack and terminates the not used contacts of RJ45 to ground.
Using the contacts in the extreme outer corners of the GG45 interface for transmission, excellent NEXT and Return Loss performances are achieved.

LANmark-7A for 10/25 Gb/s Ethernet & High Power PoE

GG45 Measurement Cord

Nexans GG45 to GG45 Measurement Cords with GG45 8C Plug on both sides support verification testing in Field installations using Channel adaptors.

LANmark-7A Patch Cord

- High bandwidth patch cord for 25 Gigabit applications and beyond
- Runs the GG45 '2in1' Connector in its high speed GG-Mode
- Use GG45 8 Contact Plugs according IEC61076-3-110
- Allow full 4-connector Class FA channels
- Compatible with High Density requirements in Data Centres

LANsense AIM LANsense version also available

LANmark-7A for 10/25 Gb/s Ethernet & High Power PoE

Table of Products

N Number	Description
N100.371-OB	LANmark-7A 1250 S/FTP AWG23 Cat 7A 1250MHz LSZH B2ca s1a d1 a1 Orange 1000m reel
N100.371-OC	LANmark-7A 1250 S/FTP AWG23 Cat 7A 1250MHz LSZH Cca s1a d1 a1 Orange 1000m reel
N100.371-OD	LANmark-7A 1250 S/FTP AWG23 Cat 7A 1250MHz LSZH Dca s2 d1 a1 Orange 1000m reel
N100.372-OD	LANmark-7A 1250 S/FTP AWG23 Cat 7A 1250MHz LSZH Dca s2 d1 a1 Orange 500m reel
N100.373-OD	LANmark-7A 1250 S/FTP Dual AWG23 Cat 7A 1250MHz LSZH Dca s2 d1 a1 Orange 500m reel
N100.381-OD	LANmark-7A 1600 S/FTP AWG22 Cat 7A 1600MHz LSZH Dca s2 d1 a1 Orange 1000m reel
N100.383-OD	LANmark-7A 1600 S/FTP Dual AWG22 Cat 7A 1600MHz LSZH Dca s2 d1 a1 Orange 500m reel
N420.735	LANmark-7A GG45 12C Snap-In Connector Cat 7A 1000MHz Screened
N420.736	LANmark-7A GG45 12C Snap-In Connector Cat 7A 1000MHz Screened for stranded wire
N420.738	GG45 Right angle 8 contact jack for PCB mount
N101.2D7O100	LANmark-7A Patch Cord 1250MHz GG45 8C to RJ45 Screened LSZH Orange 1.0m
N101.2D7O200	LANmark-7A Patch Cord 1250MHz GG45 8C to RJ45 Screened LSZH Orange 2.0m
N101.2D7O300	LANmark-7A Patch Cord 1250MHz GG45 8C to RJ45 Screened LSZH Orange 3.0m
N101.23ACO	LANmark-7A Patch Cord GG45 8C Cat 7A Screened LSZH 1m Orange
N101.23AEO	LANmark-7A Patch Cord GG45 8C Cat 7A Screened LSZH 2m Orange
N101.23AFO	LANmark-7A Patch Cord GG45 8C Cat 7A Screened LSZH 3m Orange
N900.67A	GG45 8C Measurement Cord Cat 7A Screened LSZH 2m Orange

LANmark-8 for 40 Gb/s Ethernet

Nexans LANmark-8 is a cabling solution which supports the 40Gbase-T application as well as 25Gbase-T, is fully compliant to the Class I/II Cabling Standards and is at the same time fully compatible to the RJ45 Interface. LANmark-8 is build around the GG45 Connector Interface which supports 2GHz.

	40Gbase-T	LANmark-8 30m	LANmark-8 35m *for information*
PSACR at 1600MHz (Minimum)	- 16.5dB	+6.9dB	+0.5dB
Positive ACR (Minimum)	1-900MHz	1- >1975 MHz	1- >1620 MHz
IL (Maximum)	29.43dB@1600MHz	27.20dB@1600MHz	31.20dB@1600MHz*
PSNEXT (Minimum)	9.9dB@1600MHz	34dB@1600MHz	34dB@1600MHz
Salz SNR (Minimum)	~32dB	~36dB	~34dB
Delay (Maximum)	185ns	125ns	145ns

*Note: 10Gbase-T operates with ~43dB attenuation at 430MHz

Nexans LANmark-8 solution is specified up to 2000 MHz and offers plenty of additional headroom above the application requirements.

While 40Gbase-T LOM or NIC Cards will be build to support at least 30m, LANmark-8 cabling will potentially support some additional length of ~10%. LANmark-8 offers additional ACR and clearly reduced Electrical Delay, so that some extended length is likely. For example, LANmark-7A supports 10Gbase-T up to 120m instead of 100m. A 10% extension for 40Gbase-T can be expected.

LANmark-8 therefore is ideal for Data Centres which currently use 10 Gbps at server ports. LANmark-8 can be installed in cost effective End or Middle of Row Architectures and offers cabling for 2 performance steps ahead of today: 25Gbase-T and 40Gbase-T.

LANmark-8 for 40 Gb/s Ethernet

LANmark GG45 Connector

LANmark GG45 is a screened RJ45-compatible cable jack specified up to at least 2000 MHz. It is designed specifically to support the high frequencies required for applications beyond 10 Gigabit Ethernet.

- Combined with LANmark-7A Cable and Patch Cords, GG45 offers support for 25Gbase-T.
- Combined with a LANmark-8 2GHz cable, GG45 offers support for 40Gbase-T.

LANmark GG45 uses 12 contacts: 8 contacts for the 2000MHz transmission (GG-mode) and 4 additional contacts to ensure RJ45 compatibility (RJ Mode). Thanks to its 360° screening and a fully closed rear cover, the connector allows excellent coupling attenuation and ensures immunity from alien crosstalk and other external interference. The LANmark GG45 connector fits in all structural hardware designed for the Snap-In Connectors and can be used in all positions of a 4 connector twisted pair cabling channel (PP, CC, CP, TO).

LANmark-8 Cable

LANmark-8 S/FTP are 4 pair cable with individual pair foils and an overall braid offering superior performance up to 2000 MHz. The cables are fully compliant with the new Category 8 standards for Data Centres and remain to be Cat7A compliant for Enterprise use. Due to their excellent electrical performance and very low Noise levels the cables support applications like 10Gbase-T over 100m and 25/40Gbase-T over 30m and beyond.
Energy Savings of 3 Watts/100m using POE++ are possible.

LANmark-6A RJ45 Patch Cords

To connect a LANmark-8 Permanent Link to a RJ45 Server Ports/ normal RJ45 can be used (see LANmark-6A Range). This reduces the investment cost during the time of 1GBps and 10Gbase-T networking.

LANsense AIM LANsense version also available

LANmark-8 for 40 Gb/s Ethernett

LANmark-8 GG45 to RJ45 Cord

Nexans LANmark-8 GG45 to RJ45 cords with GG45 8C Plug on one end and a 2GHz RJ45 plug on the other end a GG45 based permanent link can be connected to 40G active equipment. The protruding part on the plug activates the switch within the GG45 "2in1" jack and terminates the non used contacts of RJ45 to ground. Using the contacts in the extreme outer corners of the GG45 interface for transmission, excellent NEXT and Return Loss performances are achieved.

GG45 Measurement Cord Cat.8

Nexans GG45 to GG45 Measurement Cords with GG45 8C Plugs on both sides support verification testing in Field installations when using Channel adaptors.

Table of Products

N Number	Description
N100.481-OD	LANmark-8 S/FTP AWG22 Cat 8.2 2000MHz LSZH $D_{cas2d2a1}$ Orange 1000m reel
N420.735	LANmark GG45 12C Snap-In Connector Cat 7A Screened
N420.736	LANmark GG45 12C Snap-In Connector Cat 7A Screened Stranded Wire
N521.667BK	LANmark 8 Patch Panel 24 GG45 Staggered Black
N900.680	GG45 8C Measurement Cord Cat 8 Screened LSZH 2m Orange
N11A.U1F100OK	LANmark-6A Ultim Patch Cord Cat 6A Screened LSZH 1m Orange
N11A.U1F200OK	LANmark-6A Ultim Patch Cord Cat 6A Screened LSZH 2m Orange
N11A.U1F300OK	LANmark-6A Ultim Patch Cord Cat 6A Screened LSZH 3m Orange
N101.2D8O100	LANmark-8 Patch Cord GG45 to RJ45 Cat 8 Screened LSZH 1m Orange
N101.2D8O200	LANmark-8 Patch Cord GG45 to RJ45 Cat 8 Screened LSZH 2m Orange
N101.2D8O300	LANmark-8 Patch Cord GG45 to RJ45 Cat 8 Screened LSZH 3m Orange
N101.238O100	LANmark-8 Patch Cord GG45 8C Cat 8 Screened LSZH 1m Orange
N101.238O200	LANmark-8 Patch Cord GG45 8C Cat 8 Screened LSZH 2m Orange
N101.238O300	LANmark-8 Patch Cord GG45 8C Cat 8 Screened LSZH 3m Orange

Pre-Term Copper Assemblies

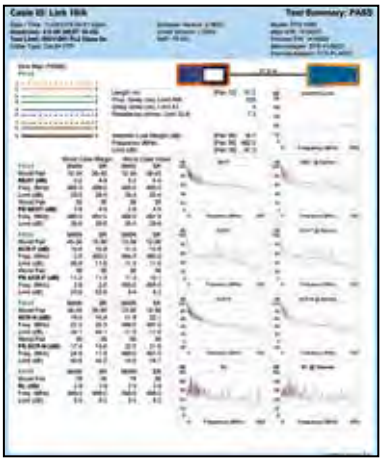
Definition

Pre-Terminated Copper assemblies can be Jacks to Jack or Jack to Plug assemblies of single cables, but most of the time are actually assemblies of multiple cables, what we call Pre-Term bundles. Instead of Multicables (3x4pair or 6x4pair), which often have instable performance on higher frequencies during installation, LANmark assemblies are using sophisticated bundling technology in the assembly house and keep full installation flexibility and multiside bending capability in combination with stable electrical performance. We offer bundles with 6, 12 and 2x12 cables, but also other sizing can be made on request.

Installation and time saving

Nexans LANmark Pre-Term Units help reduce the installation time and risks as field connector termination is eliminated. Connectors are mounted and assemblies are tested in our factory.
These features drastically reduce on-site installation time enabling massive cabling deployments in Data Centres within very short time periods.
Each assembly is labeled with a traceability number and a link reference specified by the customer.
All modular structural hardware items designed for the Snap-In range can be used in all positions of a 4 connector twisted pair cabling channel (PP, CC, CP, TO).

- Fast and straightforward installation
- No on-site termination
- Reduce installation time
- No risk linked to field termination
- Supports the 4 connectors channel configuration
- Labelling on each assembly (customisable)
- Factory tests in electronic format available on request



Example of Test report

Performance

Cat 6A/Class EA, Cat 7A/Class FA headroom and bandwidth above the given category requirements according to the international, European and American standards especially for NEXT/FEXT, Power Sum NEXT/FEXT, Alien Crosstalk and Return Loss parameters are guaranteed . When used in combination with LANmark patch cords of the same category the full connector channel is guaranteed as well.
All assemblies are created in a controlled manufacturing environment. This ensures that all termination and bundling procedures are consistent, repeatable and reliable. All assemblies are individually tested and test reports are stored for traceability purposes.

Guarantees

Nexans LANmark Pre-Term Units are covered by a 25 year parts and labour warranty as described in the Nexans Certified System Warranty. When installed in combination with LANmark patch cords of the same category, a channel warranty can be obtained. Nexans Design Guidelines for length calculations and limitations according to the standards must be respected.

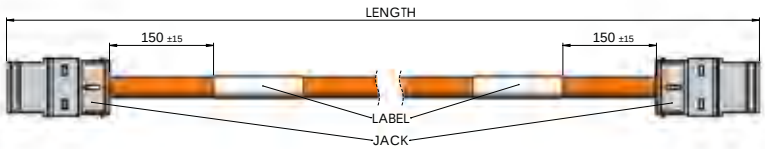
Product description

The range of pre-terminated copper assemblies includes single units in Category 6A and 7A:

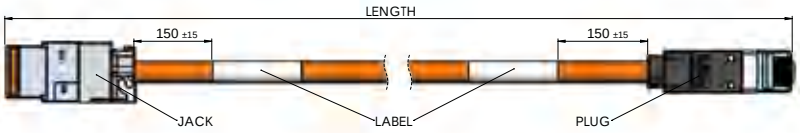
- Jack-Jack assemblies: 4 pair cable terminated with LANmark Snap-In jacks at both ends
- Jack-Plug assemblies: 4 pair cable terminated with a LANmark Snap-In jack at one end and a LANmark plug at the other end
- Long length Plug-Plug assemblies: 4 pair cable terminated with LANmark plugs at both ends

These units can then be further assembled to form bundles of 3, 4, 6, 8, 12 or 2x12 units

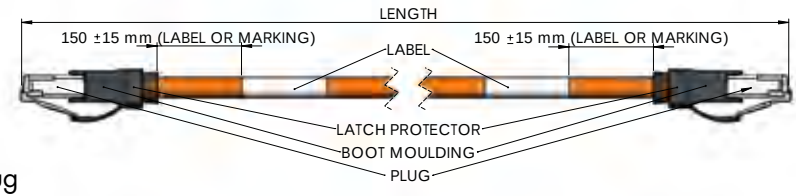
Single unit assemblies



Jack-Jack

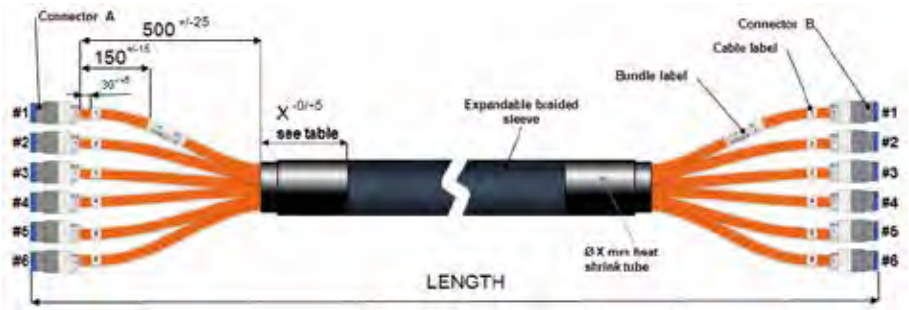


Jack-Plug



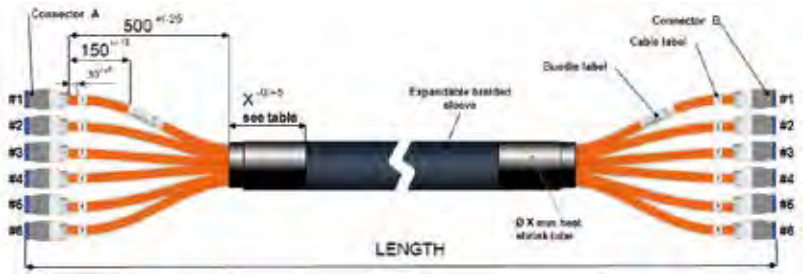
Plug-Plug

Bundles of Jack-Jack, Jack-Plug or Plug-Plug assemblies



Pre-Term Copper Assemblies

Bundles



Description

LANmark Pre-Term bundles are assemblies of 6, 12 or 2x12 pre-terminated single units. These can be Jack-Jack, Jack-Plug or Plug-Plug units. These units are maintained together as a bundle with a braided sleeve. LANmark Pre-Term bundles are well suited for areas where installation time is limited. Bundles of shielded units ensure immunity against Alien Crosstalk and other external interferences. Bundles of shielded units do not require on-site testing for Alien Crosstalk since this parameter is met by design.

Performance

Cat 6A/Class EA, Cat 7A/Class FA assemblies can be produced. Headroom and bandwidth over and above the given category requirements according to the international, European and American standards especially for NEXT/FEXT, Power Sum NEXT/FEXT and Return Loss parameters are guaranteed. When used in combination with horizontal cabling and LANmark patch cords of the same category the full four-connector channel is guaranteed as well.

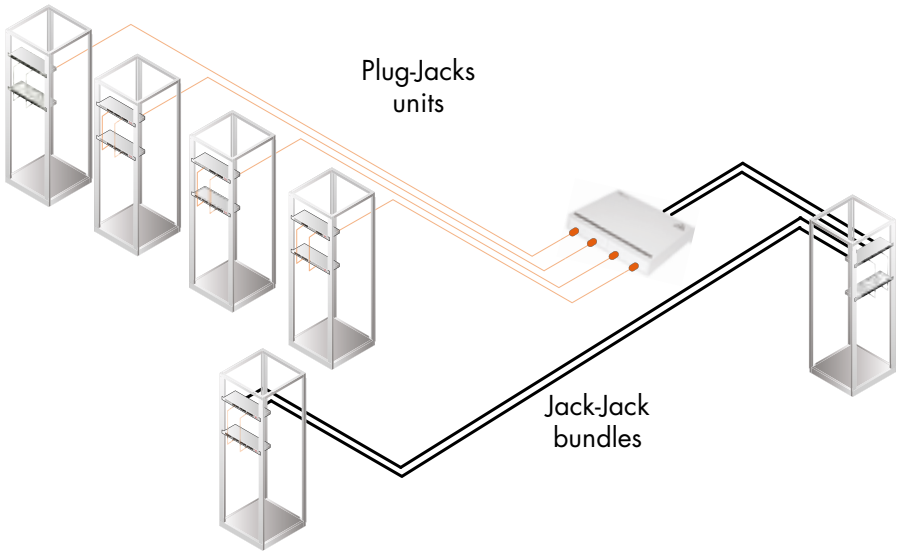
Topology

This type of assembly is ideal in Data Centres and for horizontal distribution.

Unique from Nexans : Laid up bundles

Bundles are usually made of single units running parallel. The negative effect of this is that the units slide against one another during winding and unwinding. The alignments of the connectors can't be maintained.

Single units from Nexans are cabled to form laid up bundles. This makes sure that connectors' alignment is maintained. This also makes the bundle more flexible and easier to install.



Bundled units between server racks or patch panels and consolidation points

Installation

Nexans LANmark Pre-Term bundles help reduce installation time. Only a single assembly needs to be laid instead of 3, 4, 6, 8, 12 or 24 individual cables. Furthermore connector termination is simply eliminated thus eliminating field termination risks. Connectors are mounted and tested in our factory.

Nexans LANmark Pre-Term Bundles are designed to be laid and are not suitable for pulling.
All modular structural hardware items designed for the Snap-In range can be used in all positions of a 4 connector twisted pair cabling channel (PP, CC, CP, TO).

- Field testing required after installation
- Numbering on each leg
- Labels on first leg of each assembly (customisable)
- Factory tests in electronic format on request

Outer dimensions of bundles

Cable	F1/UTP Cat.6A 7.3mm	F/FTP Cat.6A 7.6mm	S/FTP Cat.7A 7.7mm	U/FTP Cat.6A Stranded 6.0mm	S/FTP Cat.7A Stranded 6.35mm
3 units	16mm	16.5mm	17mm	13mm	14mm
4 units	18mm	18.5mm	19mm	14.5mm	15.5mm
6 units	22mm	23mm	23.5mm	18.5mm	19.5mm
8 units	24.5mm	25.5mm	25.5mm	20mm	21mm
12 units	29.5mm	30.5mm	31.5mm	24.5mm	26mm

MODULAR PATCH PANELS

Patch Panel 24 Snap-In Fixed Black

- Compatible with all LANmark Snap-In connectors
- 24 Snap-In ports with shutters
- Clip-on mechanism avoiding the use of cable ties, gaining installation time
- Exclusive Auto-Connect earthing system
- Universal design supporting unscreened and screened connectors
- Also available in white

Patch Panel 24 Snap-In Sliding Black

- Sliding mechanism
- Compatible with all Snap-In connectors
- 24 Snap-In ports with shutters
- Clip-on mechanism avoiding the use of cable ties, gaining installation time
- Exclusive Auto-Connect earthing system
- Universal design supporting unscreened and screened connectors
- Fully painted design

LANsense AIM LANsense version also available

Patch Panel 24 Snap-In Black

- Compatible with all LANmark Snap-In connectors
- 24 Snap-In ports with shutters
- Exclusive Auto-Connect earthing system
- Universal design supporting unscreened and screened connectors
- Tie Wrap features for cable strain relief

LANsense AIM LANsense version also available

N Number	Description
N521.661BK	Patch Panel 24 Snap-In Fixed Black
N521.663BK	Patch Panel 24 Snap-In Sliding Black
N521.664BK	Patch Panel 24 Snap-In Black

MODULAR PATCH PANELS

Angled Patch Panel 24 Snap-In Black

- Supports high density patching - ideal for Data Centres
- Eliminates the need for additional cable management
- Up to double density achievable
- Compatible with all Snap-In connectors
- Exclusive Auto-Connect earthing system
- Universal design supporting unscreened and screened connectors
- Also available in white

LANsense AIM LANsense version also available

Staggered Patch Panel Black

- 24 numbered ports
- Staggered port layout for enhanced ANEXT performance
- Designed for Screened GG45 connectors
- Exclusive rear cable management facilities
- Robust construction
- Printed numbering for port labelling

High Density Patch Panel 48 Snap-In 1U Black

- 48 ports on 1U saving 50% rack space
- Dedicated for LANmark-6A connectors
- Connectors in latch-up/latch-down position for ease of patching
- Port numbering on opposite side of latch for readability
- Robust construction to hold 48 cables
- Integrated cable management bar with cable tie slots
- Panel supplied as kit including 2 x 24 connectors

N Number	Description
N521.671	Angled Patch Panel 24 Snap-In Black
N521.667BK	LANmark-8 GG45 Staggered Patch Panel 24 Port Black
N521.668KIT	LANmark Patch Panel 48 EVO 1U Black Kit with 48 Connectors

MODULAR PATCH PANELS

Angled Blank Panel 1U Black

- 19″ Blank Panel to fill empty cabinet space

Angled Panel Cover Black

- Used to close the triangular gap formed at the top of a stack of LANmark or LANsense Angled Panels to prevent items falling behind the panels and to enhance the appearance of the finished installation

Angled Pass-Through 2U Black

- The 2U Angled Pass-Through is designed to match the LANmark and LANsense Angled Panels and to provide a means for patch cables to cross from side to side in a rack whilst maintaining rack aesthetics

MODULAR PATCH PANELS

Universal Patch Guide with front cover, 1U Black

- Allows storage and management of copper and fibre patch cords
- 8cm depth
- Cover for tidy cabinet look
- Black paint finished metal

Patch Guide with rings, 1U Black

- Allows storage and management of copper and fibre patch cords
- Open structure with rings for easy access
- 8cm depth
- Black paint finished metal

Blank Panel, 1U Black

- 19" Blank Panel to fill empty cabinet space

N Number	Description
N521.672	Angled Blank Panel Black
N521.673	Angled Panel Cover Black
N521.678	Angled Pass-Through Black
N102.117BK	1U Universal Patch Guide with front cover, Black
N102.105BK	1U Patch Guide with rings, Black
N109.207BK	1U Blank Panel, black

TOOLS & ACCESSORIES

Hook & Loop Cable Strap 25m Roll

- High quality self gripping cable tie
- Grey strap with orange Nexans logo
- Reusable multiple times
- Recommended to bundle and tie both copper and optical fibre data cables
- Reduces strain on cables compared to traditional cable fasteners
- 20mm width
- 25m roll

Comfort Tool

- Facilitates smooth termination of all LANmark Snap-In connectors
- Allows re-opening of all LANmark connectors (except GG45) allowing retermination

Easy Termination tool

- Prepares S/FTP cable for connection to LANmark-7A GG45 connector
- makes LANmark-7 GG45 installation fast, easy and consistent
- first in the industry and patent pending

Set of spare blades for Easy Termination tool

N Number	Description
N100.100	Hook & Loop Cable Strap 25m Roll
N420.567	Tool - Universal Comfort tool for Snap-In connector
N422.117	Tool - LANmark-7 Easy Termination tool
N422.118	Tool - Set of spare knives for LANmark-7 Easy Termination tool

TOOLS & ACCESSORIES

LANmark Coloured Shutters and Latch Protectors

- Available in 8 colours: white, black, blue, red, dark grey, green, yellow, orange
- Coloured shutters can be used to replace standard black or white versions on LANmark Snap-In patch panels, outlet modules and zone distribution boxes
- Coloured latch protectors can be used to replace pre-fitted standard black versions on LANmark patch cords
- Suitable for differentiation between various services or applications by colour coding, throughout the entire channel
- Packed in bags of 100

Keystone Clips

- Adapter allowing LANmark Snap-In connectors to fit the Keystone format
- Metal clip for LANmark-7A GG45 connector only
- Plastic clips for all LANmark connectors including GG45 connector
- 3 different plastic clips available for different keystone aperture dimensions (height and wall thickness)

N Number	Description
N421.701XXX	LANmark Shutter 100x ("XXX" denoting colour: BLA = Black, BLU = Blue, DGR = Dark Grey, GRE = Green, ORA = Orange, RED = Red, YEL = Yellow, WHI = White)
N110.LPX	LANmark Latch Protector 50x ("X" denoting colour: K = Black, B = Blue, D = Dark Grey, G = Green, O = Orange, R = Red, Y = Yellow, W = White)
N429.620	LANmark Keystone Clip GG45/Essential-5 24x
N429.625	LANmark Keystone Clip Evo (Wall Thickness 1.5-1.75) Red 24x
N429.626	LANmark Keystone Clip Evo (Wall Thickness 2.0-2.25) Blue 24x
N429.627	LANmark Keystone Clip Evo (Wall Thickness 2.0-2.25 Height 19.7) Yellow 24x

SECURE LOCK RJ45 CORDS

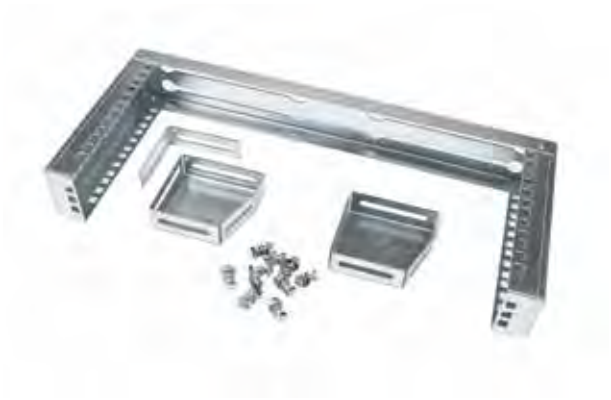
The range of Secure Lock copper cords is designed to meet the needs of applications such as:

- PoE connector protection (damage caused by de-mating under load)
- Theft prevention (hotels/schools/libraries)
- Critical circuit protection
- Patch cord availability (meeting rooms)
- Redundant copper links
- Connection of IP security cameras

Each cord comes preassembled with two locking boots. Once installed the cord is locked in place with the latch inaccessible. The cord can only be disconnected when the key is used to unlock the boot.
Available in LANmark-6 unscreened and LANmark-6A screened versions.

Standard cords have an orange LSZH jacket and are stocked in lengths of 1, 2, 3 & 5m - other lengths and cord colours are available on demand.

ACCESSORIES



Overhead Patching Frame 4U and 6U

- 19-Inch 4U and 6U overhead frame
- Ideal in data centres
- Designed to host both copper and fibre cabling
- Metal construction
- Straight or angled position

Angled Blank Panel Black

- 19″ Blank Panel to fill empty cabinet space

Angled Panel Cover Black

- Used to close the triangular gap formed at the top of a stack of LANmark or LANsense Angled Panels to prevent items falling behind the panels and to enhance the appearance of the finished installation

N Number	Description
N345.400	LANmark Overhead Patching Frame 4U
N521.672	Angled Blank Panel Black
N521.673	Angled Panel Cover Black

ACCESSORIES

Angled Pass-Through Black

The 2U Angled Pass-Through is designed to match the LANmark and LANsense Angled Panels and to provide a means for patch cables to cross from side to side in a rack whilst maintaining rack aesthetics.

Pair of Patch Cord Management Hooks Black for Overhead Patching Frame 4U

- Required to guide patch cords on both sides of the frame
- Easy to mount with 2 screws and cage nuts
- Up to 3 hooks on each side
- Black flexible plastic

N Number	Description
N521.678	Angled Pass-Through Black
N345.401	Pair of Patch Cord Management Hooks Black for Overhead Patching Frame 4U

ACCESSORIES

1U Universal Patch Guide with front cover, Black

- Allows storage and management of copper and fibre patch cords
- 8 cm depth
- Cover for tidy cabinet look
- Black paint finished metal

1U Patch Guide with rings, Black

- Allows storage and management of copper and fibre patch cords
- Open structure with rings for easy access
- 8 cm depth
- Black paint finished metal

1U Blank Panel, black

- 19" Blank Panel to fill empty cabinet space

N Number	Description
N102.117BK	1U Universal Patch Guide with front cover, Black
N102.105BK	1U Patch Guide with rings, Black
N109.207BK	1U Blank Panel, black

FIBREROUTE Trunking System

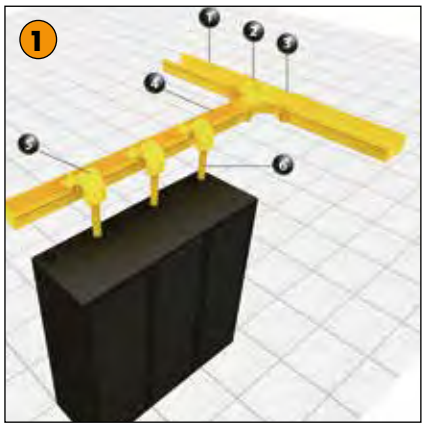
The FIBREROUTE range offers the possibility to build a modular and well organised tray system to support the cable infrastructure.

Application 1:

The Fibre Optic Trunking System system provides a variety of adaptors and downward junction to cabinets:

Product description:

1. Main channel
2. In-Line Connector
3. Tee Reducer
4. Branch
5. Waterfall
6. Flex tube used for Waterfall

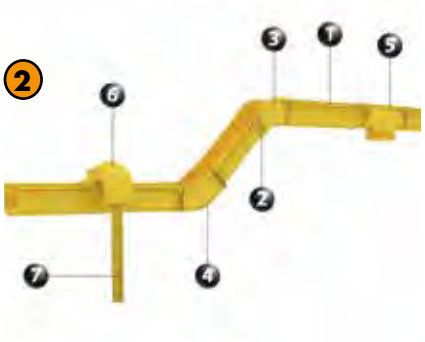


Application 2:

In Data Centre environment, pathway systems are complex and there are obstacles in the path. Vertical angle fitters could be used to bypass those existing pathways.

Product description:

1. Main Channel
2. In-line Connector
3. Vertical Internal Bend
4. Vertical External Bend
5. Vertical Unequal Tee
6. Waterfall
7. Flex tube used for Waterfall

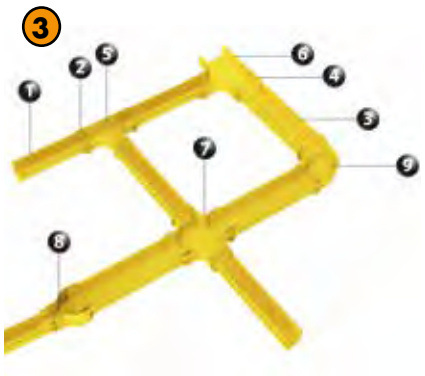


Application 3:

The Fibre Optic Trunking System provides a variety of adaptors for interconnection between Main Channels and Sub Channels.

Product description:

1. Branch
2. In-line Connector
3. Main Channel
4. In-line Connector
5. Equal Tee
6. Tee reducer
7. Unequal Cross
8. Reducer
9. Elbow



Application 4:

A variety of fixing methods are provided such as cabinet/rack support, cable tray suspension, trapeze suspension from ceiling.

FIBREROUTE Trunking System

Available in various width 120 or 240mm

Channel 2m/pcs yellow

Horizontal 90 degree elbow

Equal Tee

Equal cross

45° Vertical External bend

45° Vertical Internal bend

End cap

In-line Connector

N-Number and description

120 System	
N350.120FC00P	FIBREROUTE 120mm Channel
N350.120FA01A	FIBREROUTE 120mm Elbow
N350.120FA02A	FIBREROUTE 120mm Equal Tee
N350.120FA03A	FIBREROUTE 120mm Equal Cross
N350.120FA11A	FIBREROUTE 120mm Elbow Cover
N350.120FA12A	FIBREROUTE 120mm Equal Tee Cover
N350.120FA13A	FIBREROUTE 120mm Equal Cross Cover
N350.120FA21A	FIBREROUTE 120mm 45° Vertical Internal Bend
N350.120FA22A	FIBREROUTE 120mm 45° Vertical External Bend
N350.120FA31A	FIBREROUTE 120mm 45° Vertical Internal Bend Cover
N350.120FA32A	FIBREROUTE 120mm 45° Vertical External Bend Cover
N350.120FC01A	FIBREROUTE 120mm In-line Connector
N350.120FC02A	FIBREROUTE 120mm Trumpet
N350.120FC03A	FIBREROUTE 120mm End-cap
N350.120FC10P	FIBREROUTE 120mm Channel Cover

240 System	
N350.240FA01A	FIBREROUTE 240mm Elbow
N350.240FA02A	FIBREROUTE 240mm Equal Tee
N350.240FA03A	FIBREROUTE 240mm Equal Cross
N350.240FA11A	FIBREROUTE 240mm Elbow Cover
N350.240FA12A	FIBREROUTE 240mm Equal Tee Cover
N350.240FA13A	FIBREROUTE 240mm Equal Cross Cover
N350.240FA21A	FIBREROUTE 240mm 45° Vertical Internal Bend
N350.240FA22A	FIBREROUTE 240mm 45° Vertical External Bend
N350.240FA31A	FIBREROUTE 240mm 45° Vertical Internal Bend Cover
N350.240FA32A	FIBREROUTE 240mm 45° Vertical External Bend Cover
N350.240FC00P	FIBREROUTE 240mm Channel
N350.240FC01A	FIBREROUTE 240mm In-line Connector
N350.240FC03A	FIBREROUTE 240mm End-cap
N350.240FC10P	FIBREROUTE 240mm Channel Cover

Reducers and Adapters	
N350.003SD01A	FIBREROUTE Waterfall Assembly 90mm
N350.003SD02A	FIBREROUTE Waterfall Assembly 130mm
N350.003SD10A	FIBREROUTE Waterfall Flexible tube, 50mm, 0.8M
N350.240FT01A	FIBREROUTE 240mm-120mm Reducer
N350.240FT11A	FIBREROUTE 240mm-120mm Reducer Cover
N350.240FT21A	FIBREROUTE 240mm–120mm Vertical Unequal Tee
N350.240FT41A	FIBREROUTE 240mm-120mm Tee reducer
N350.240FT51A	FIBREROUTE 240mm-120mm Tee reducer Cover
N350.240FT61A	FIBREROUTE 240mm-120mm Unequal Cross
N350.240FT71A	FIBREROUTE 240mm-120mm Unequal Cross Cover
N350.240FA04A	FIBREROUTE 240mm Universal Transition
N350.120FA04A	FIBREROUTE 120mm Universal Transition

Mounting Hardware & Accessories	
N350.003SMC1	FIBREROUTE 120mm Cable Tray Mounting Kit
N350.003SMC2	FIBREROUTE 240mm Cable Tray Mounting Kit
N350.003SMR1	FIBREROUTE 120mm Cabinet/Rack Mounting Kit
N350.003SMR2	FIBREROUTE 240mm Cabinet/Rack Mounting Kit
N350.003SMT1	FIBREROUTE 120mm Trapeze Mounting Kit
N350.003SMT2	FIBREROUTE 240mm Trapeze Mounting Kit
N350.003SS00S	FIBREROUTE Screw Kit T Type x100
N350.003SS01S	FIBREROUTE Screw Kit Round Type x100

FIBREROUTE PLANNER

Design Software

FREE DESIGN SOFTWARE

Nexans FIBREROUTE Planner tool is a Visio template and add-in that provides the ability to create layouts of FIBREROUTE trunking system to scale and export a Bill of Materials to Excel, which can then be used for pricing calculations. It enables system designers, installers and integrators to create professional data centre layout drawings showing the row of racks and the trunking design quickly and efficiently.

AUTOMATED INFRASTRUCTURE MANAGEMENT

LANsense AIM

A well-controlled, reliable LAN infrastructure is a critical business enabler. This need comes against a backdrop of increased complexity and accelerated change which is becoming almost impossible to manage manually. LANsense is Nexans' Automated Infrastructure Management (AIM) solution. Also, referred to as Intelligent Infrastructure Management (IIM).

Why LANsense in Data Centres?

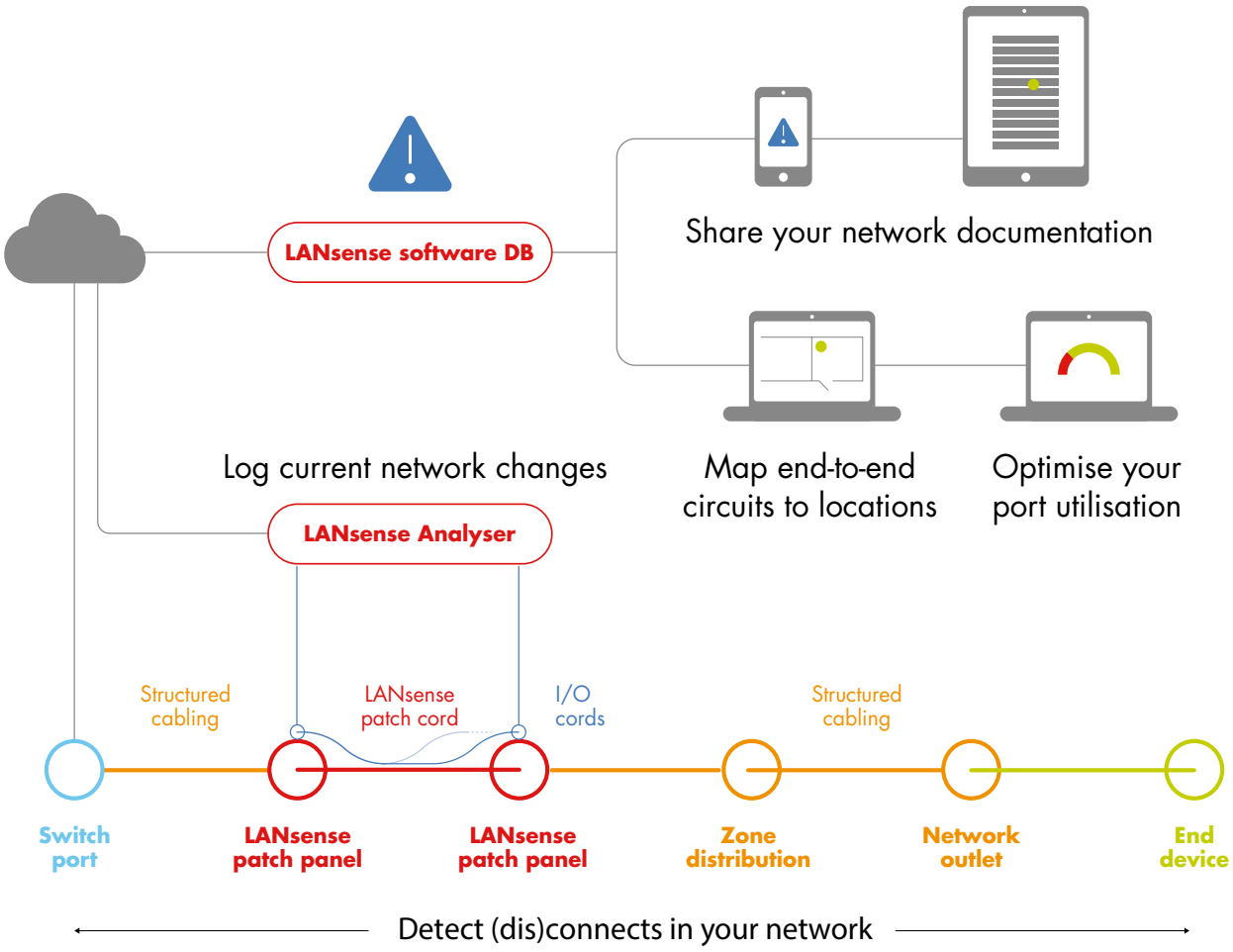
There is an increase in infrastructure and network complexity in data Centres. In todays, dynamic data centre environment, control and monitoring is an increasing challenge.

The initial cost of cabling and its related infrastructure represents a fraction of all the cost in a data centre, but given its lifetime in comparison to other active equipment, it is by far the most complex and costly infrastructure to be replaced.

With the increase in Managed Service providers for client and cloud data centres, the need to manage the physical installation and control Moves Adds and Changes (MAC's) has increased. Initial documentation of the installed and tested infrastructure may be correct at hand over, but keeping it up to date is a critical task, and must be well managed to ensure that it remains reliable and accurate for planning future growth, energy efficiency, flexibility, availability and security.

How does LANsense help?

Nexans LANsense is an intelligent management system combining intelligent hardware and software. It is a platform that combines information about physical and network layer connections providing a complete traceable path between core, edge and end devices. Software instantly updates the management database when moves, or unauthorised connects or disconnects are detected. It also establishes a reliable audit trail to satisfy compliance and legal requirements.
LANsense provides additional level of security by detecting the connection of unauthorized devices on the network and tracing the physical circuit route of these devices and locating them on the floor plan.
LANsense also helps in making informed decisions on better utilization of assets and resources like available space in racks, which patch panel ports are free, different VLAN's, recoverable switch ports and much more.
The system automatically updates the documentation from day one and is 100% accurate.



LANsense Hardware

LANsense NGA: A LANsense analyser is required to monitor all network ports, record changes in the events log, and continuously update and maintain the connectivity database. It connects to the equipment presentation panel or integration strip and the horizontal distribution panel using I/O cables, and is in turn connected to the LANsense cable management SQL database.

LANsense Copper Patch Panels and Cords

LANsense patch panels and cords incorporate sensor circuits to detect the insertion or removal of cords.

LANsense Modular Patch Panels

Patch Panel 24 Snap-In Fixed Black

- Compatible with all LANmark Snap-In Connectors
- 24 Snap in ports
- Clip on Mechanism
- Universal design supporting unscreened and screened connectors

Angled Patch Panel 24 Snap-In Black

- Supports high density patching - ideal for Data Centres
- Eliminates the need for additional cable management
- Up to double density achievable
- Compatible with all Snap-In connectors
- Exclusive Auto-Connect earthing system
- Universal design supporting unscreened and screened connectors
- Also available in white

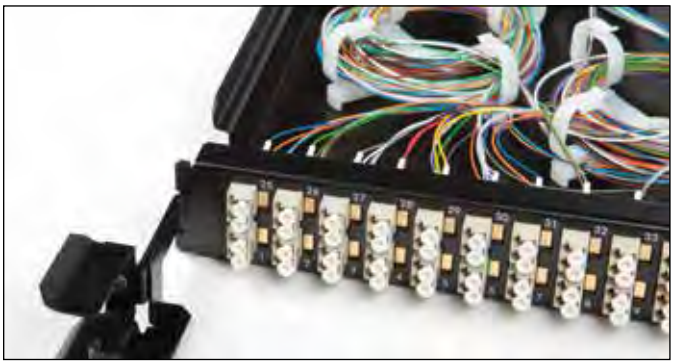
LANsense Copper Patch Cords

- 9th pin for port detection
- Ensures maximum channel performance
- Available for Cat 6, Cat 6A & Cat 7A
- Screened & Unscreened
- Low-smoke and zero-halogen (LSZH)
- Available in different lengths

N Number	Description
N881.311	LANsense Panel 24 Snap-In
N881.671	LANsense Angled Panel 24 Snap-In
N886.P1A0X0OK	LANsense Patch Cord Cat 6 Unscreened LSZH Orange (x =1m, 2m, 3m)
N88A.P1F0X0OK	LANsense Patch Cord Cat 6A Screened LSZH Orange (x = 1m, 2m, 3m, 5m)
N887.P1H0X0OK	LANsense Patch Cord Cat 7A Screened LSZH Orange (x = 1m, 2m, 3m)

LANsense Fibre Patch Panels and Cords

LANsense Sliding Fibre Panels



- Preloaded patch panels with adaptors for fast installation in data centres
- High density connectivity: up to 48 LC or 96 LC.
- Sliding and tilting patch panel for ease of installation, upgrade and maintenance
- Optimised for installation of Pre-Term with advanced fibre management features
- Improved splice cassettes with hinged trays for ease of installation and inspection
- Labelling facility for port identification and patch cord management within 1 U

LANsense Fibre Patch Cords

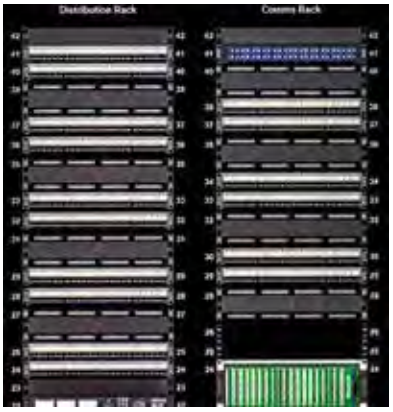
- Additional copper pin for port detection
- Available in High bandwidth OS2, OM3 & OM4 fibre
- Available with LC connectors
- Low-smoke and zero-halogen (LSZH)
- Available in different lengths

N Number	Description
N883.2B48LCMM	LANsense Pre-Loaded Patch Panel 48 LC Multimode Sliding Black
N883.2B48LCSM	LANsense Pre-Loaded Patch Panel 48 LC Singlemode Sliding Black
N883.2B96LCMM	LANsense Pre-Loaded Patch Panel 96 LC Multimode Sliding Black
N883.2B96LCSM	LANsense Pre-Loaded Patch Panel 96 LC Singlemode Sliding Black
N884.4LLYx	LANsense Patch Cord DLC DLC OS2 LSZH Yellow (x = 1m, 2m, 3m, 5m, 10m)
N884.7LLOx	LANsense Patch Cord DLC DLC OM4 LSZH Orange (x = 1m, 2m, 3m)
N884.5LLPx	LANsense Patch Cord DLC DLC OM3 LSZH Purple (x = 1m, 2m, 3m, 5m, 10m)

LANsense Software

The new LANsense software Is 64 Bit safe and secure web based application. It communicates with the LANsense analyser, which monitors physical change, over TCP/IP and update the database providing real time, 100% reliable and accurate automated documentation of physical infrastructure.

Graphical View



Real time updated graphical view of Cabling infrastructures in Data Centres and Equipment Rooms like:

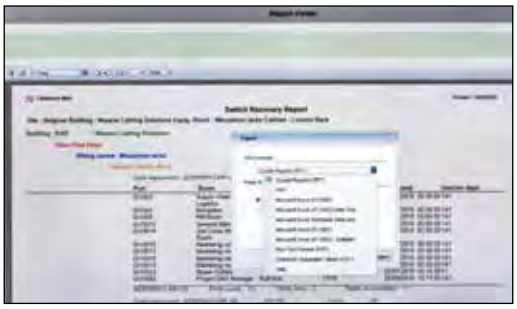
- Cabinets/Racks
- Networking Switches
- LANmark and LANsense Patch Panels
- Patch Connectivity information
- Live Switch port and connectivity information

Circuit Trace

LANsense provides real time circuit trace between Servers and End devices and the switch ports like:

- Information about the switch port, VLAN, IP/MAC address of the switch
- Information on the Location of the physical infrastructure like Patch Panels, Rack/Cabinets, Patch Panels, Networking Equipment's, Servers, End Devices
- Information on the Networking Equipment's, Servers, End Devices -IP/MAC address, VLAN and DNS name

Reports



LANsense comes with pre-defined set of useful reports that can be generated on:
- Locations
- Connectivity
- Work orders
- Logs

LANsense reports are customizable and can also be configured by the user depending on his needs.

Floor Planners

LANsense floor planners is an interactive tool used for locating physical assets or devices on the floor plan.
Floor plans of the Data centres or small Equipment rooms or of a building floor can be used the tool:

Shows information on Available U space in the Racks/ Cabinets and the total cabinet power usage.
Other items critical to the Data Centres like UPS and HVACs can be documented in the floor drawings even though they are not part of the LANsense system

Work order

LANsense work orders are used for maintenance and management of network providing:
- Service Level Agreements
- Automatic Email configurations at different work order stages
- History of work orders and reporting

Dashboards, Email Notification and Logs

- LANsense software provides a quick and simplified overview on the status of the network
- Immediately alerts users via email notification on occurrence pre-defined activities and events.
- Logs about various events and activities are maintained which are useful for monitoring and audit purpose

Integration Capabilities:

LANsense allows you to integrate and communicate with third party software's and Hardware.

TRAINING

In order to provide end users with maximum confidence, Nexans Certified Solution Partners (CSP) must pass training to ensure they are competent to install LANmark solutions to the required standard and are able to offer the full Certified Solution Warranty.
Courses are typically based on the following formats although training may vary slightly by country depending on local requirements and needs. These programmes are all based on standardised Training Modules to ensure consistency of standards around the globe.

Contact us to get details of training courses in your region: info.ncs@nexans.com

TRAINING PROGRAM													
Qualification	Duration	Modules											
		1	2	3	4	5	6	7	8	9	10	11	12
Supervisor Cu & FO	3 day course	•	•	•	•	•		•	•	Optional		•	
Supervisor Cu	2 day course	•	•	•	•	•							
Supervisor Cu & GG45	2 1/2 day course	•	•	•	•	•	•						
Supervisor Cu	1 day course	*NOTE		•	•	•							
Supervisor FO	2 day course	•						•	•	Optional		•	
Supervisor FOSupervisor FO & FTTO	2 1/2 day course	•						•	•	Optional		•	•
		* Participants require existing knowledge of topics covered by Modules 1 & 2 which will be included as part of final assessment											

Certified Solutions Partner - LANmark Warranty Requirements													
Copper Cat 5e-6-6A		•	•	•	•	•							
Cat 7/7A/8		•	•	•	•		•						
Optical fibre		•						•	•	Optional		•	

Training Modules Overview

Module 1 Premises Cabling Standards *
Module 2 Parameters for Copper Cabling *
Module 3 Nexans LANmark Copper Cabling Solutions *
Module 4 Installation Rules and Guidelines *
Module 5 Installation Practice & Testing Class D-E-EA Links *
Module 6 Installation Practice & Testing Class F-FA Links
Module 7 Optical Fibre Theory and Principles *
Module 8 Nexans LANmark Optical Fibre Cabling Solutions *
Module 9 Fibre Installation Practice with Direct Termination
Module 10 Fibre Installation Practice on Fusion Splicing
Module 11 Testing Optical Fibre Links *
Module 12 Fibre To The Office (FTTO)

* Module part of the 3 Day Supervisor/Expert Training Program

e-Learning

Nexans will be introducing E-learning modules during the year in order to provide more flexible learning options for our partners.

E-learning will enable partners to follow parts of the Nexans training online and receive certifications which will reduce the amount of in-class training required.

Visit the website and check the news for announcements on availability in your region by selecting your country at www.nexans.com/LANsystems

WARRANTY

Fully Comprehensive or Self Certification options

Link Warranty

On-line Self Certification

Nexans provide a unique 25 year self certification link warranty for standard Cat 5e, Cat 6 and Cat 6A installations which is available for all installers.

- Instant - no waiting while application is processed
- Customised - certificate includes details of end customer and installer
- Easy - simply complete the short online form, generate and print the pdf certificate

Certified Solution Warranty

Complete confidence

Nexans Certified Solution Warranty is the most comprehensive guarantee on the market covering:

- Copper and Fibre
- Channel Performance - Horizontal, Campus and Backbone
- Application support
- Labour*

*Nexans take liability for Labour when installation is made by a full Certified Solution Partner

What is included	Link Warranty Certificate	Certified Solution Warranty
Brands covered: LANmark Essential	 ✓ ✓	 ✓ -
Copper categories covered: Cat 5e Cat 6 Cat 6A Cat 7A	 ✓ ✓ ✓ -	 ✓ ✓ ✓ ✓
Fibre	-	✓
Parts	✓	✓
Link performance	✓	✓
Full end-to-end channel	-	✓ *
Application guarantee	-	✓ *
Extended distance support	-	✓ *
Installation liability	-	✓ **
Nexans Checked & Validated Validity	- 25 years	✓ 25 years

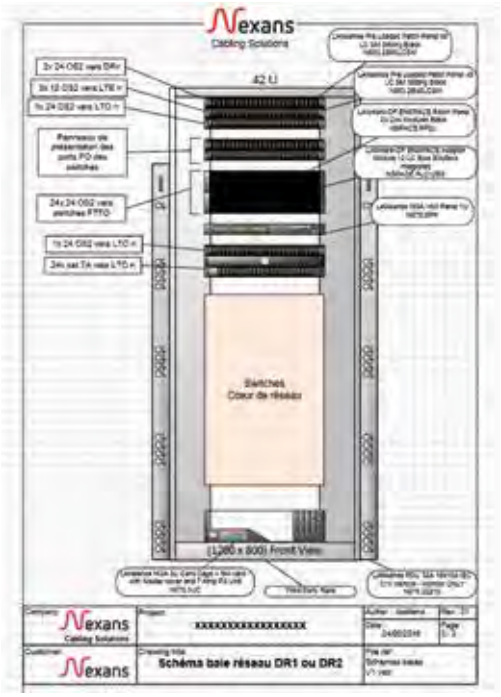
* with Nexans patch cords

** when installed by Certified Solutions Partner

SUPPORT

Nexans Visio Template (NVT) Software

Nexans Visio Templates can be used to create professional control cabinet layout designs. From the created network design, a parts list can be generated, which can then be converted to XLS format for easy editing. This can, in turn, serve as a basis for quoting. Version 4.0 includes 3D drawings of Nexans products, which can be used, for example, for presentations.



This useful software tool provides a simple and fast way to create professional drawings of the entire network cabling system. Submit these drawings along with your offers. This will greatly increase your chances of orders!

Features:

- Product selection tool
- Export of parts list to Excel
- Customisable title block (...your companyname/ project name)
- Intelligent master shapes
- "Auto-Fill" options
- Direct hyperlinks of the shapes with the data sheets
- NVT 3D patterns and templates

Nexans LAN Calculation Toolkit

The LAN Calculation Toolkit provides a number of useful features that you need to consider when planning passive data networks, such as

- Current distance calculations from data cables according to the standard and depending on the type of cable trays
- Horizontal link length calculation
- Cable trays filling quantity calculation
- Cable trays filling height calculation
- FO selection guide
- NVP Delta calculation

INSTALLER PROGRAMS

ENGAGE

'Engage' is Nexans' commitment to assist at every step of building an agile IT infrastructure: from planning, defining, designing to deploying and using the network.
Our Engage partners are our premier tier, exclusively selected to help deliver this commitment to our final clients.

Certified Solution Partner (CSP)

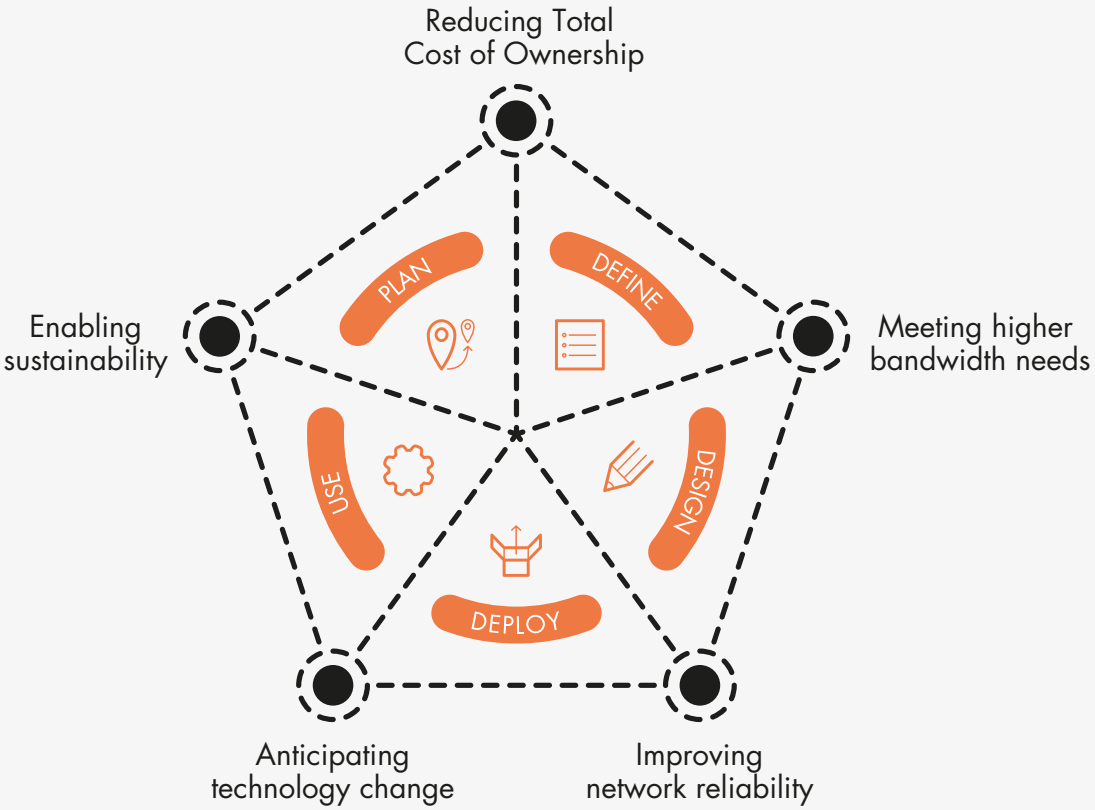
CSP's are fully approved and validated by Nexans and are qualified to offer the fully comprehensive Certified Solutions Warranty.

Registered Installer (RI)

Available to all applicants, RI's benefit from latest updates and can offer the self certified online Link Warranty.

	ENGAGE	CSP	RI
Enhanced commercial benefits	●	☒	☒
Joint Business Plan	●	☒	☒
Logistics support	●	☒	☒
Access to tech support team	●	☒	☒
Co-op marketing	●	☒	☒
Dedicated 'ENGAGE' events	●	☒	☒
Dedicated training	●	☒	☒
Supervisor training	●	●	☒
Warranty - Full Certified Solution Warranty	●	●	☒
Warranty - Link Warranty (Cat5e/Cat6/Cat6A)	●	●	●
Product alerts and standards updates	●	●	●

ENGAGE


Reducing Total
Cost of Ownership
Meeting higher
bandwidth needs
Improving
network reliability
Anticipating
technology change
Enabling
sustainability
PLAN
DEFINE
DESIGN
DEPLOY
USE

PLAN

Keeping you up-to-date on latest innovations, helping you to plan ahead for future changes.

- Technology updates & insights
- NTN and Decoding Standards newsletters
- Peer-to-peer network
- Strategy support / specialist knowledge /outlook
- International roll-out

DEFINE

Sharing our expertise in defining state-of-the-art specifications and solutions.

- Solution specifications
- Cabling categories and grades, standards and systems
- Project outlines
- Scope of Work, project planning and certified partner selection
- Bill of materials
- Requirements review, product catalogue and stock listing
- Customer catalogue

DESIGN

Supporting you in designing robust, flexible and scalable systems.

- Infrastructure design support
- Floor, room, cabinet and patching diagrams
- Proof of concepts
- Starters kits and simulated installation mockups in Lab
- Product customisation and development
- End-user training

DEPLOY

Blueprinting your infrastructure for cost-effective and accurate installation, assisting you on-site and ensuring warranties.

- Preconfigurations
- Pre-terminated assembly, tailor-made labeling and detailed deployment guidelines
- Logistics
- Contractor distribution channel management
- Single point of contact
- On-site assistance
- Toolkit training, surveys, partner training and support
- On-site audits
- Parts & applications warranty and labour warranty

USE

Offering training, monitoring and fast repair, replacement and third-level support.

- System monitoring
- MACs
  - Repair Services
  - Hardware Replacement Services
  - Third-Level Support Service incl.
    - Software update services
    - Local support service
- Support portal

Nexans Data Centre Solutions

Three steps to empower your data centre

Nexans Data Centre Solutions (NDS) was launched in 2017 to specifically position Nexans global offerings to the global data centre customer.

The NDS product line includes several relevant product families:

- Fibre assemblies
- Fibre Optic and Copper Patch Panels
- Fibre Optic Cable
- Copper Cable
- DAC's
- AOC's
- Optical Transceivers
- Cable Pathway

The overall product strategy is guided by the "Own the Link" (OTL) philosophy.
The direct tangible output of OTL is a cost calculator which compares various components needed to complete a Layer 1 optical link. For example, it can show the total cost of a 100G-CWDM installation as compared to a 100G-PSM4.

It can also be used to compare four 25GBASE-SR links versus one 100GBASE-LR4. The cost of all the components (transceivers, cabling, patch panels, connectivity) are summed and divided into the data rate.
The result is a Layer 1 value normalized to $/Gb. This allows for a direct comparison between the design options.

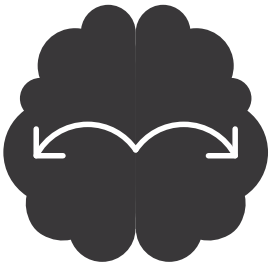
NDS captures all the global capabilities of Nexans and delivers them to our customers through a single point of contact. These capabilities include:

- Manufacturing in key global regions
- Regionally compliant products that meet various local regulations, particularly in Europe where the rules for deployment are highly variable
- Relationships with installation partners that are certified with our products in all regions
- Distribution relationships to ensure stable inventory/supply

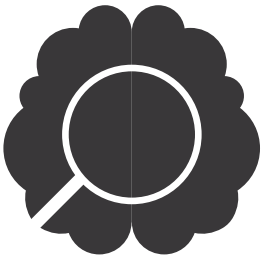
Complete Coverage for All of Your Needs

We can support you in scaling up your hyperscale data centre, fixing your problems and industrialising your new concepts.

Scale up your capacity when and where you need
We understand that you're not just adding nodes to corporate infrastructure. You're developing an innovation platform that's expanding rapidly. Refresh cycles happen in weeks, and scalability and resilience are key to support current solutions and enable fast-paced innovations on a global scale.



Fix your problems as soon as they occur
We know that you're a pioneer in what you're doing, and you're piloting new approaches. We can support you in fixing any of your physical-layer- related network problems that crop up, as quickly as possible.



Industrialize your new concepts
We understand that a hyperscale data centre is the core of a fast-evolving, massive, and distributed computing network. We know how to turn an idea into a concept, and turn a concept into an industrialized solution that makes you more productive – and that can scale up quickly to keep pace with the IoT.

Capable of serving you anywhere in the world
With nine data communications manufacturing plants and warehouses worldwide, we can deliver the complete portfolio of physical layer infrastructure products anywhere in the world: from data cabling, connectivity and pre-terminated assemblies, to transceivers and fibre containment systems.

As a geo-resilient operation, we know you need services around the globe. With more than 30 sales offices worldwide and more than 1,000 certified partners and value added resellers, we can provide service and support wherever you're located.

We offer savvy cabling logistics
We don't just deliver the cabling, we speed up deployment: we understand that cabling is only one component of your data centre, and we know from experience that deploying the cabling is more expensive and cumbersome than the cabling itself. Our logistics services go beyond delivering cable to a warehouse.
We deliver pre-terminated, tested and custom-labeled cabling, enclosures, transceivers, pathways, etc., on time and ready for deployment.

Collaborating with customers to improve performance
We have four competence centres worldwide (USA, UK, Belgium and Germany). Our TEK Centre in New Holland, PA, USA, features two world-class R&D labs focused on applications and new materials development as well as showcases for data centre and enterprise networks. Our competence centres provide insight on how to solve network challenges by allowing you to experience the latest technology, learn about emerging applications and access world class research and development.

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