Smart Solutions for
Data Centres
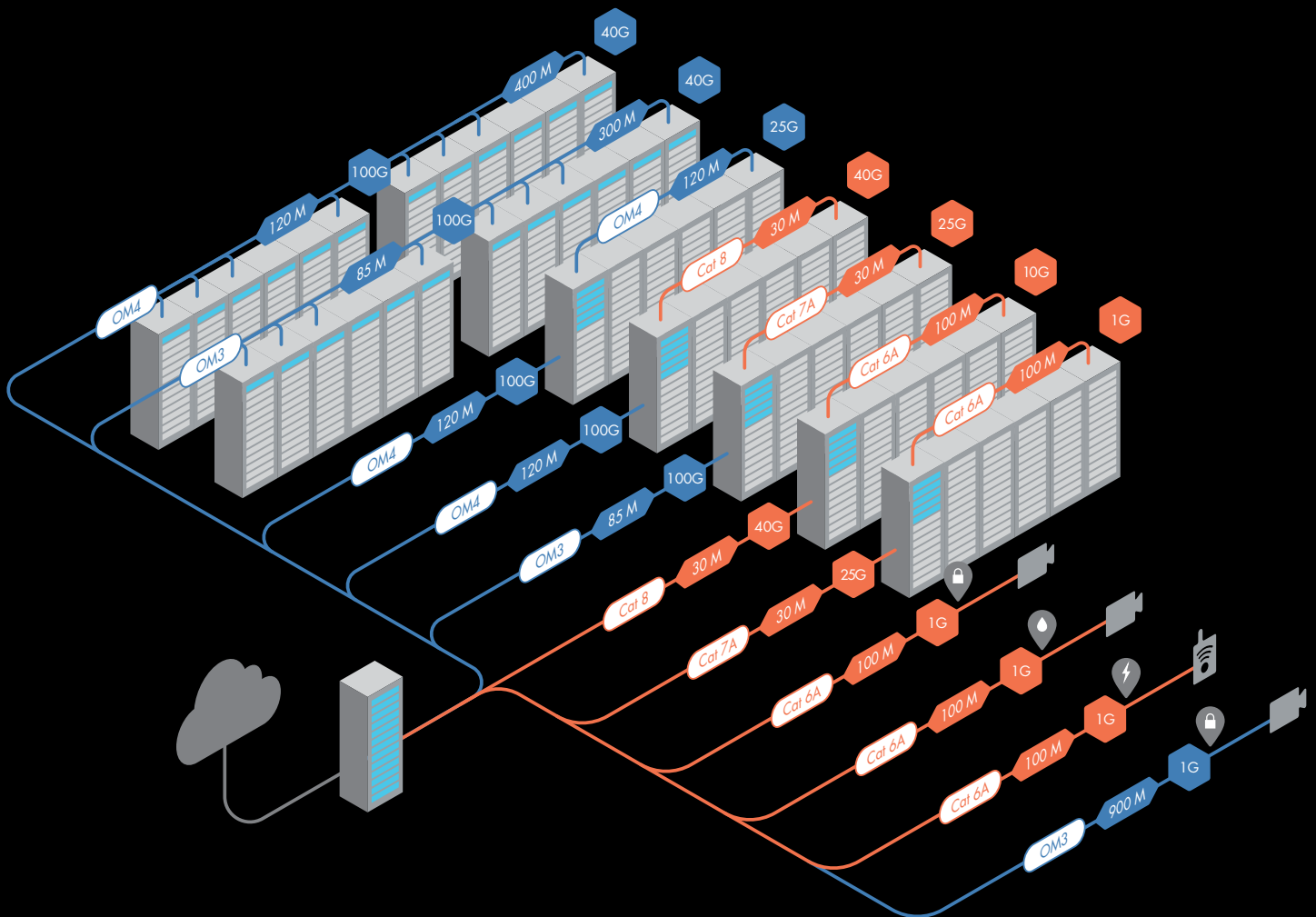

Nexans

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The changing role of the Data Centre

Our society and economy are becoming increasingly mobile, digital and smart. We may not always be aware of it, but the services we use each day run on server racks in Data Centres. These Data Centres have become essential to customer satisfaction and business efficiency and are no longer the data repositories they once were.

The digital transformation means agile, carefully planned IT infrastructure and efficient data access and exchange are vital to success. Cabling systems supporting several consecutive generations of active equipment need to be robust, flexible and scalable to adapt to new requirements.
Data Centre cabling needs to offer more than connectivity between more powerful servers and storage systems. To meet fast-growing bandwidth demands Data Centres, many of which provide connectivity, risk management and recovery services, increasingly rely on 10G/40G and 100G.

Your cabling should be designed with business growth in mind, always ready to accommodate more bandwidth and ports. In today's Data Centres, service utilisation and virtualisation levels are high, availability is key, security is a 'must have' and energy efficiency a common concern. Nexans supports you in making smart choices that will help you build and operate the most efficient and cost-effective digital infrastructure to support your business goals.

Our offering includes:
- Flexible, cost-effective bandwidth architectures
- Optimised space usage
- Performance protection and optimisation
- Faster modular deployment
- 'Planning to use' support services
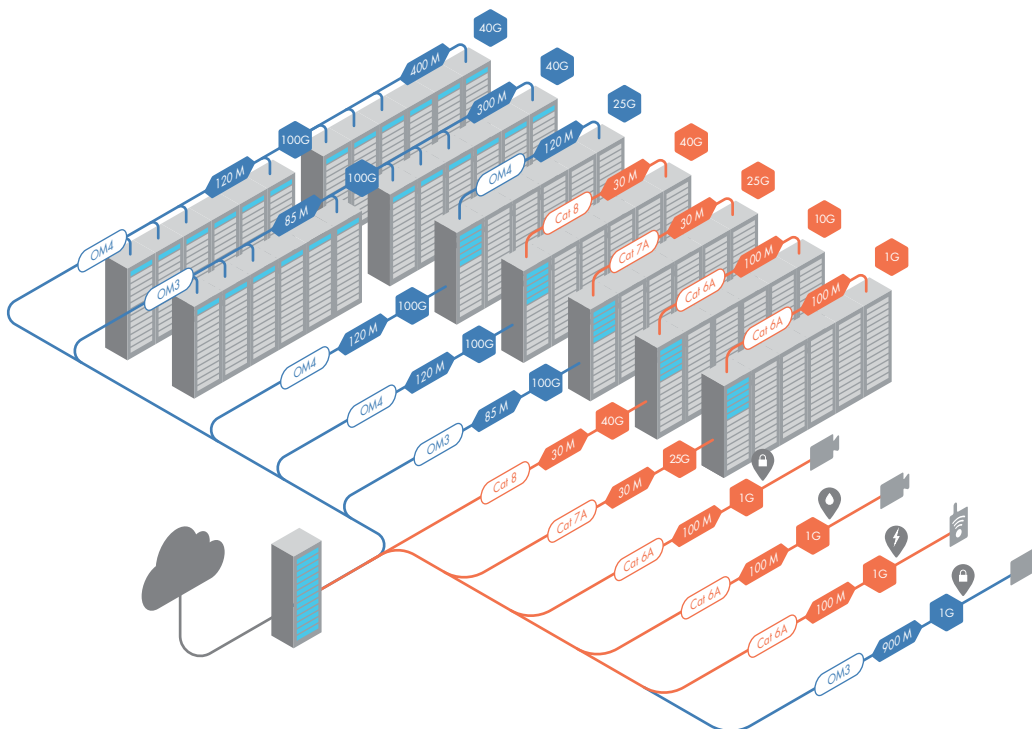
Faster
deployment

Optimised
performance

More room
for scalability

Bandwidth

Class

Length
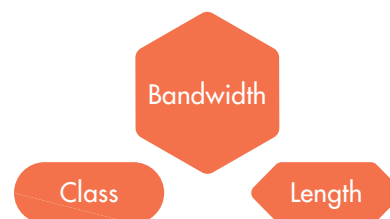
More connections, longer
links and cost-effective
bandwidth

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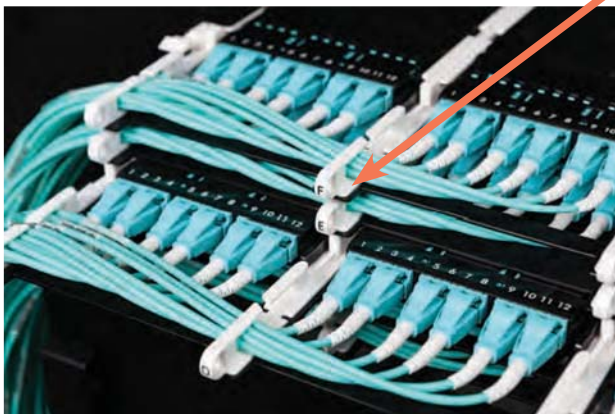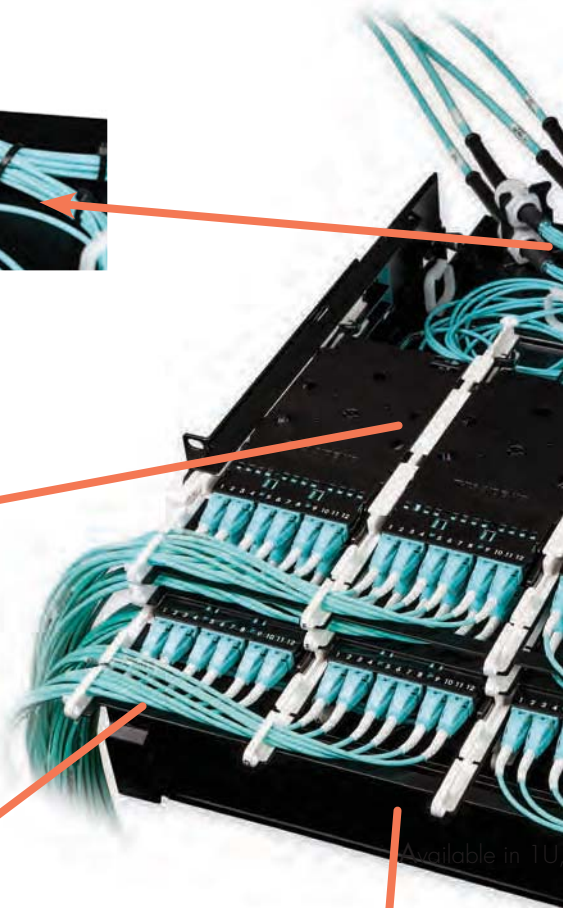
- Finger tip access to patch cords
- Individual sliding tray with 4 modules
- Locking positions when installed, for patching and before removal

- Opens 180° even w

- Internal auto-shutter
- Improved eye safety

- Sliding and tilting rear drawer
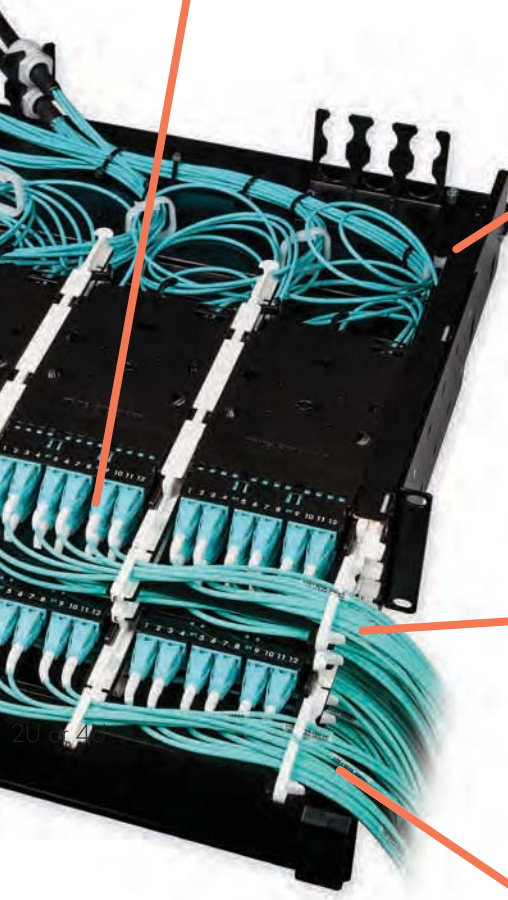
- Integrated patch cord guide
- Side grips for easy tray removal

- Available in 1U, 2U or 4U

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

ith panels below

LANmark-OF ENSPACE 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

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

• 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
• Ultra High Density: 12 x modules fit into 1U
• 144x LC/72x 10G ports into 1U
• 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.
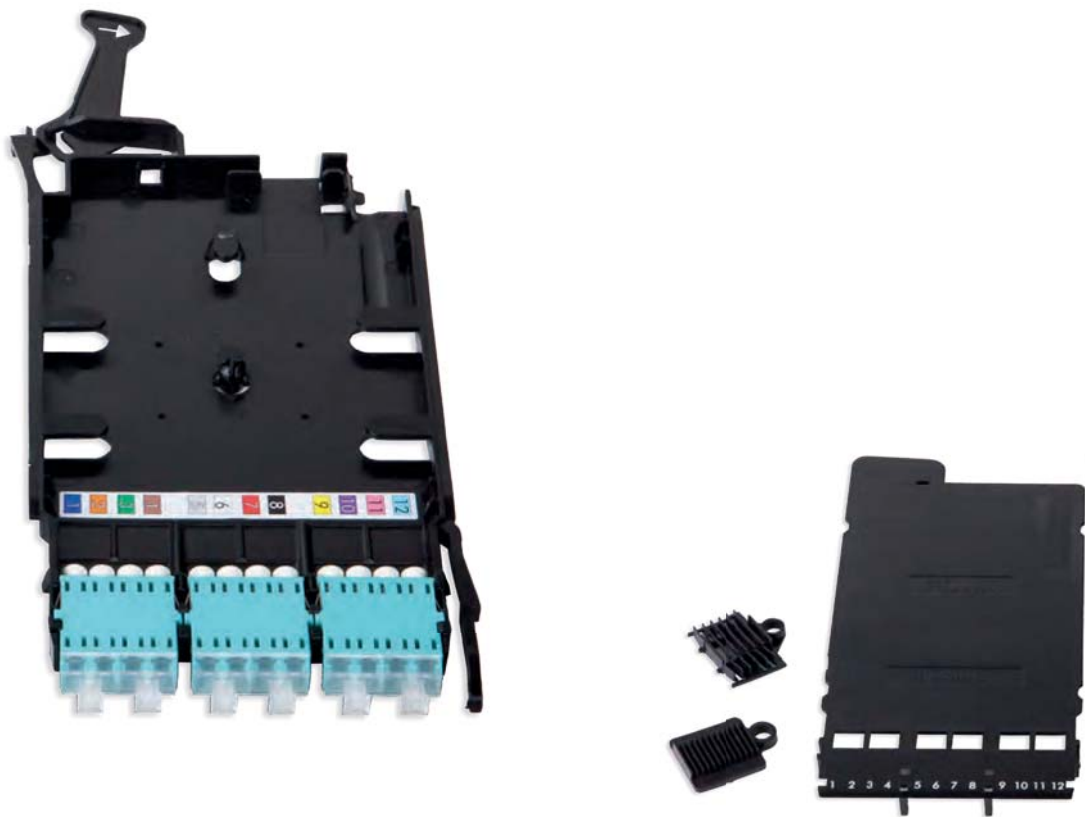
N Number	Description	Color adaptor	Fibre category
NSPACE.PLC12BS	LANmark-OF ENSPACE Adaptor Module 12 LC Singlemode Blue Shutters Integrated	Blue	SM OS2
NSPACE.PLC12AS	LANmark-OF ENSPACE Adaptor Module 12 LC Multimode Aqua Shutters Integrated	Aqua	OM3/OM4

LANmark-OF ENSPACE MTP Adaptor Modules

- ENSPACE module with 2x,4x or 6x MTP 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
- Ultra High Density: 12 modules fit into 1U
- 72x MTP adaptors/ 72x 40-100G ports into 1U
- 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
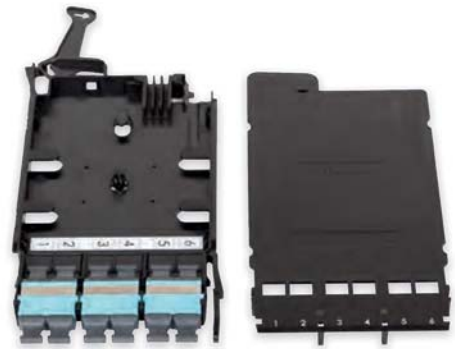
N Number	Description	Fibre Category	Key orientation	# MTP adaptors
NSPACE.PMTP2A	LANmark-OF ENSPACE Adaptor Module 2x MTP Multimode Key Up Key Down Aqua	OM3/OM4	Up / Down	2
NSPACE.PMTP4A	LANmark-OF ENSPACE Adaptor Module 4x MTP Multimode Key Up Key Down Aqua	OM3/OM4	Up / Down	4
NSPACE.PMTP6A	LANmark-OF ENSPACE Adaptor Module 6x MTP Multimode Key Up Key Down Aqua	OM3/OM4	Up / Down	6
NSPACE.PMTP2G	LANmark-OF ENSPACE Adaptor Module 2x MTP Singlemode Key Up Key Down Green	SM OS2	Up / Down	2
NSPACE.PMTP4G	LANmark-OF ENSPACE Adaptor Module 4x MTP Singlemode Key Up Key Down Green	SM OS2	Up / Down	4
NSPACE.PMTP6G	LANmark-OF ENSPACE Adaptor Module 6x MTP Singlemode Key Up Key Down Green	SM OS2	Up / Down	6
NSPACE.PMTP2U	LANmark-OF ENSPACE Adaptor Module 2x MTP Multimode Key Up Key Up Grey	OM3/OM4	Up / Up	2
NSPACE.PMTP4U	LANmark-OF ENSPACE Adaptor Module 4x MTP Multimode Key Up Key Up Grey	OM3/OM4	Up / Up	4
NSPACE.PMTP6U	LANmark-OF ENSPACE Adaptor Module 6x MTP Multimode Key Up Key Up Grey	OM3/OM4	Up / Up	6

- ENSPACE module with 12x LC adaptors in the front and 1 MTP adaptor in the rear
- Low loss performance for singlemode and multimode for fibre assembly inside module: 0,5 dB insertion loss per module
- Ultra High Density: 12x modules fit into 1U
- 144x LC into 1U
- 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.MSLC12BS	LANmark-OF ENSPACE MTP-Module Straight 12 LC Singlemode Blue Shutters Integrated	Blue	SM OS2
NSPACE.MSLC12AS	LANmark-OF ENSPACE MTP-Module Straight 12 LC Multimode Aqua Shutters Integrated	Aqua	OM3/OM4
NSPACE.MCLC12BS	LANmark-OF ENSPACE MTP-Module Crossed 12 LC Singlemode Blue Shutters Integrated	Blue	SM OS2
NSPACE.MCLC12AS	LANmark-OF ENSPACE MTP-Module Crossed 12 LC Multimode Aqua Shutters Integrated	Aqua	OM3/OM4

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 modules or 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 modules and MTP/MTP Pre-Term

- Plug&Play modules can be easily mounted from the front of the panel
- Compatible with ENSPACE MTP/MTP Pre-Terms
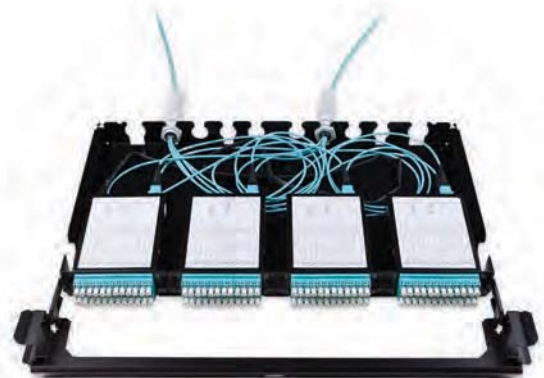
Installation with Plug&Play Adaptor Plates and LC/LC Pre-Terms

- Compatible with LANmark-OF Universal LC/LC Pre-Term
- Compatible with LANmark-OF ENSPACE LC/LC Pre-Term
- Fibre organisers as accessory for fibre management inside patch panel in 4 different loops

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
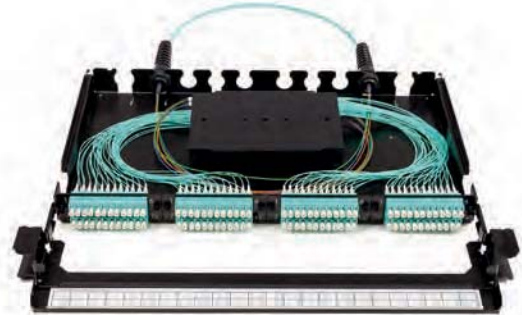
Splice Cassettes

- 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 12 slots

- Only one cover per patch panel

Fibre Organisers

- Support base and 4 fibre rings per support base
- Up to 4 fibre organisers inside Plug&Play Patch Panels
- Allows management of up to 96 fibres inside a patch panel

N Number	Description
N439.3MPP	LANmark-OF Plug&Play Patch Panel Integrated Cord Guide Sliding Black
N890.070	LANmark-OF Fibre Organiser 10X
N890.090	LANmark-OF Splice Cassette Heat Shrink Protectors
N890.091	LANmark-OF Splice Cassette Aluminum Protectors
N890.092	LANmark-OF Splice Cassette Cover

- 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
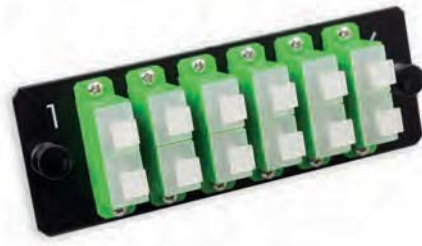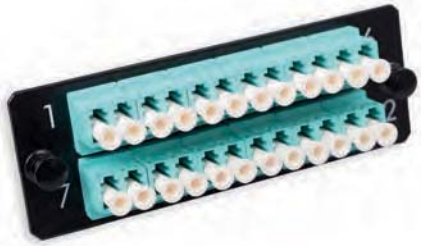
N-number	Description	Adaptor type	Fibre category	Density in 1U
N205.ALC12MMA	LANmark-OF Adaptor Plate 12 LC Multimode Aqua	LC	Multimode	48
N205.ALC24MMA	LANmark-OF Adaptor Plate 24 LC Multimode Aqua	LC	Multimode	96
N205.ALC12SMB	LANmark-OF Adaptor Plate 12 LC Singlemode Blue	LC	Singlemode	48
N205.ALC24SMB	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

- Plug&Play modules with 12SC, 12LC or 24LC
- Up to 4 modules fit into 1U
- High density: up to 48SC or 96LC within 1U
- Available with low loss LANmark-OF Plug&Play connectivity for multimode and singlemode
- Module can be easily mounted into Nexans' Plug&Play patch panel from the front
- Straight or crossed wiring
- Plug&Play modules are pre-installed and 100 % factory tested
- Female MTP-connector inside module
- Compatible with LANmark-OF ENSPACE male MTP-MTP Pre-Term

N Number	Description	Fibre Category	Density in 1U	Connector type	Wiring
N441.5L12LC0FS	LANmark-OF Plug&Play Low Loss Module Female Straight 12 LC SM Blue	SM OS2	48	LC	Straight
N441.5L12LC4FS	LANmark-OF Plug&Play Low Loss Module Female Straight 12 LC OM4 Aqua	OM3/OM4	48	LC	Straight
N441.5L24LC0FS	LANmark-OF Plug&Play Low Loss Module Female Straight 24 LC SM Blue	SM OS2	96	LC	Straight
N441.5L24LC4FS	LANmark-OF Plug&Play Low Loss Module Female Straight 24 LC OM4 Aqua	OM3/OM4	96	LC	Straight
N441.5L12SC0FS	LANmark-OF Plug&Play Low Loss Module Female Straight 12 SC SM Blue	SM OS2	48	SC	Straight
N441.5L12SC4FS	LANmark-OF Plug&Play Low Loss Module Female Straight 12 SC OM4 Aqua	OM3/OM4	48	SC	Straight
N441.5L12LC0FC	LANmark-OF Plug&Play Low Loss Module Female Crossed 12 LC SM Blue	SM OS2	48	LC	Crossed
N441.5L12LC4FC	LANmark-OF Plug&Play Low Loss Module Female Crossed 12 LC OM4 Aqua	OM3/OM4	48	LC	Crossed
N441.5L24LC0FC	LANmark-OF Plug&Play Low Loss Module Female Crossed 24 LC SM Blue	SM OS2	96	LC	Crossed
N441.5L24LC4FC	LANmark-OF Plug&Play Low Loss Module Female Crossed 24 LC OM4 Aqua	OM3/OM4	96	LC	Crossed
N441.5L12SC0FC	LANmark-OF Plug&Play Low Loss Module Female Crossed 12 SC SM Blue	SM OS2	48	SC	Crossed
N441.5L12SC4FC	LANmark-OF Plug&Play Low Loss Module Female Crossed 12 SC OM4 Aqua	OM3/OM4	48	SC	Crossed

LANmark-OF Plug&Play MTP Adaptor Plates

- Adaptor plates for 6MTP
- Key up/key down or key up/key up
- Available in multimode and singlemode APC
- Module can be easily mounted into Nexans' Plug&Play patch panel
- Up 4 plates fit into 1U
- Compatible with LANmark-OF ENSPACE MTP/MTP Pre-term

N Number	Description	Fibre category	Density in 1U
N205.AMTP6MMUD	LANmark-OF Adaptor Plate 6 MTP Multimode Key Up Key Down Aqua	Multimode	24
N205.AMTP6SMUD	LANmark-OF Adaptor Plate 6 MTP Singlemode Key Up Key Down Green	SM/APC	24
N205.AMTP6MMUU	LANmark-OF Adaptor Plate 6 MTP Multimode Key Up Key Up Gray	Multimode	24

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

	Dimension	Weight	Bend radius installation	Bend radius operation	Crush resistance	Max pulling force installation
12F	3,6mm	13,2kg/km	40mm	40mm	500N/10cm	450N
24F	5,4mm	37 kg/km	65mm	80mm	1000N/10cm	450N
48F	5,4mm	37 kg/km	65mm	80mm	1000N/10cm	450N
96F	6,4mm	50 kg/km	65mm	80mm	1000N/10cm	450N

High cable density in trays
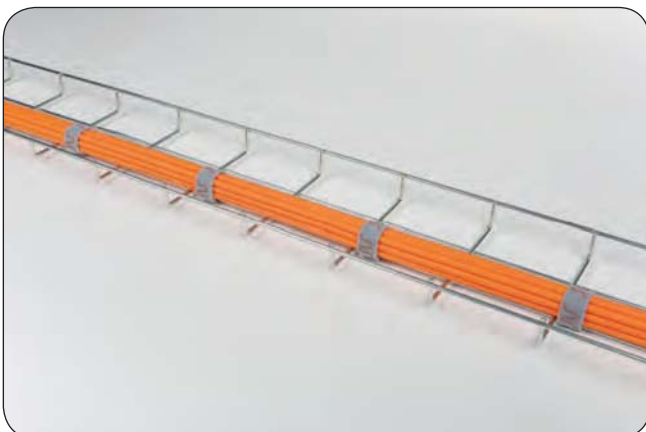
**427 cables of 48 fibres
in 500 mm x 50 mm
=
20496 fibres**

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

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
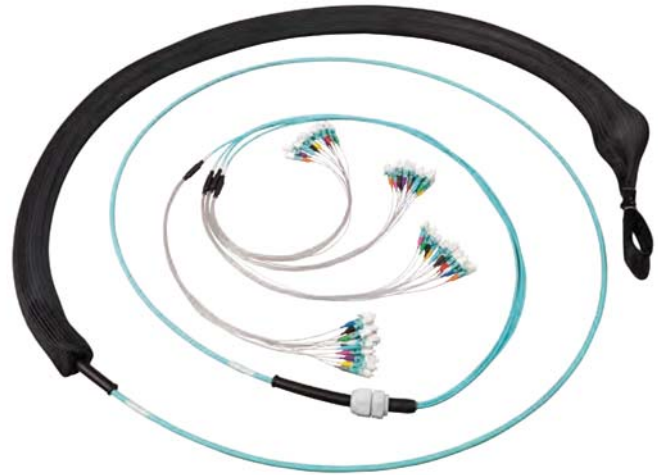
Optical performance

- All connection types have low loss performance for both singlemode and multimode
- Allows for more connections and longer length

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

- 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
- Fibres identified with coloured boots
- Fibre pair flip to maintain transmit-receive polarity implemented in manufacturing
- Low loss insertion loss performance: max 0,3 dB per LC connection
- Fibre count: 12x, 24x, 48x and 96x
- Fibre type: OM3, OM4 and singlemode (OS2)
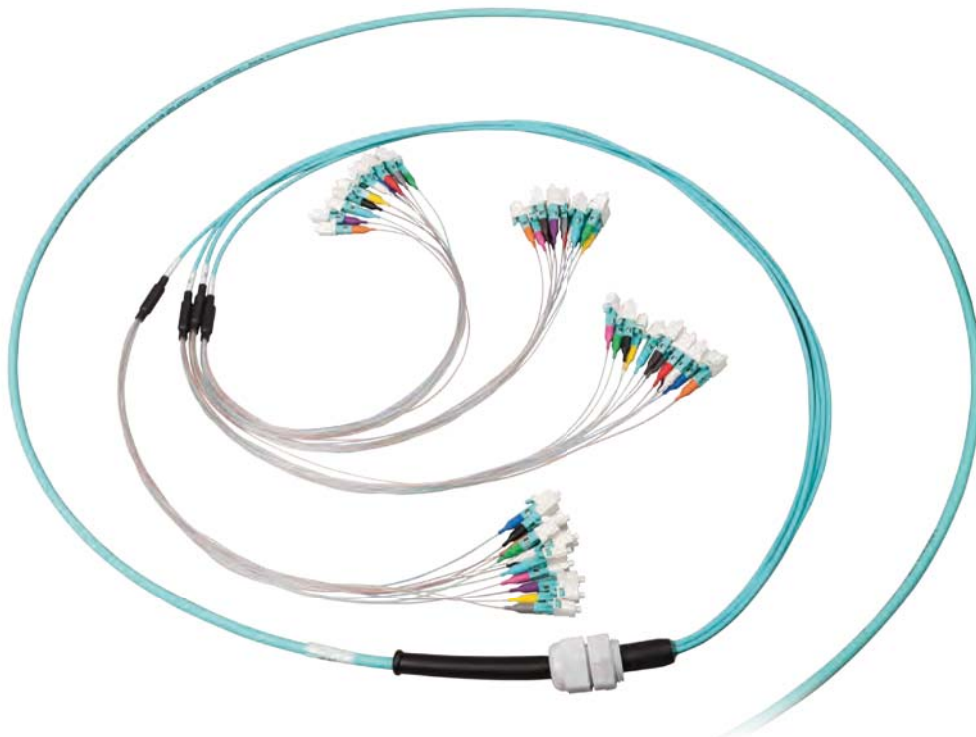
N15a.DnnbcExxxe:
ENSPACE LC/LC Pre-Term

a: fibre category	4: Singlemode OS2 5: Multimode OM3 7: Multimode OM4
D: ENSPACE LC/LC Pre-Term	
nn: 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 : singlemode A : OM3 or OM4

- 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
- 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 0,3 dB per MTP connection for singlemode and multimode
- Fibre count: 12x, 24x, 48x and 96x
- Fibre type: OM3, OM4 and singlemode (OS2)

N15a.PnnMMExxxe:
ENSPACE MTP/MTP fibre asssembly

a: fibre category	4: Singlemode OS2
	5: Multimode OM3
	7: Multimode OM4
P: polarity for MTP/MTP Pre-Term	B: method B polarity
	C: method C polarity
nn: 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: singlemode
	A: OM3 or OM4

- 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
- Low loss insertion loss performance: max 0,3 dB per LC connection
- Fibre count: 12x, 24x, 48x and 96x
- Fibre type: OM3, OM4 and singlemode (OS2)

LC   SFP+
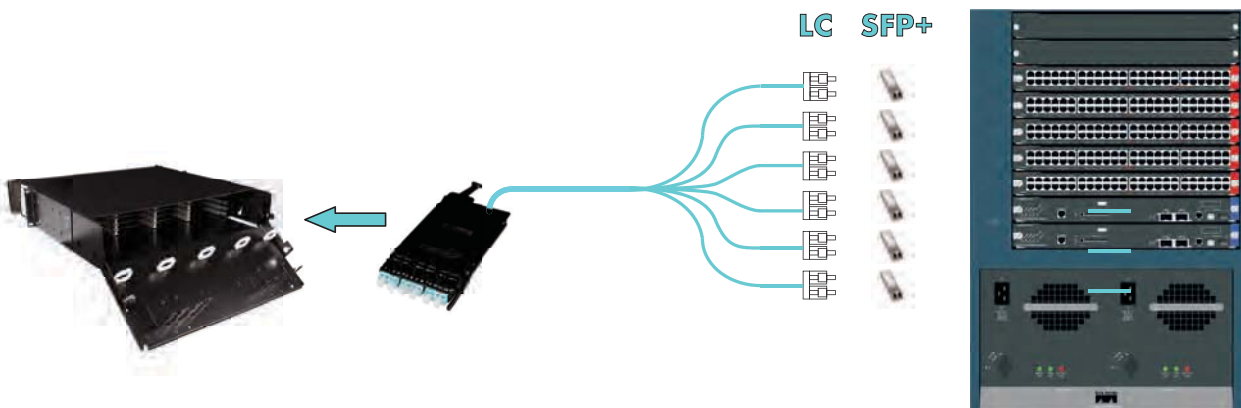
N15a.Snnbbccdxxxe

a: fibre category	4: Singlemode OS2, 5: multimode OM3, 7: multimode OM4	
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: singlemode A: OM3 or OM4	

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

Polarity with MTP-LC modules and MTP-MTP Pre-Term for 10G
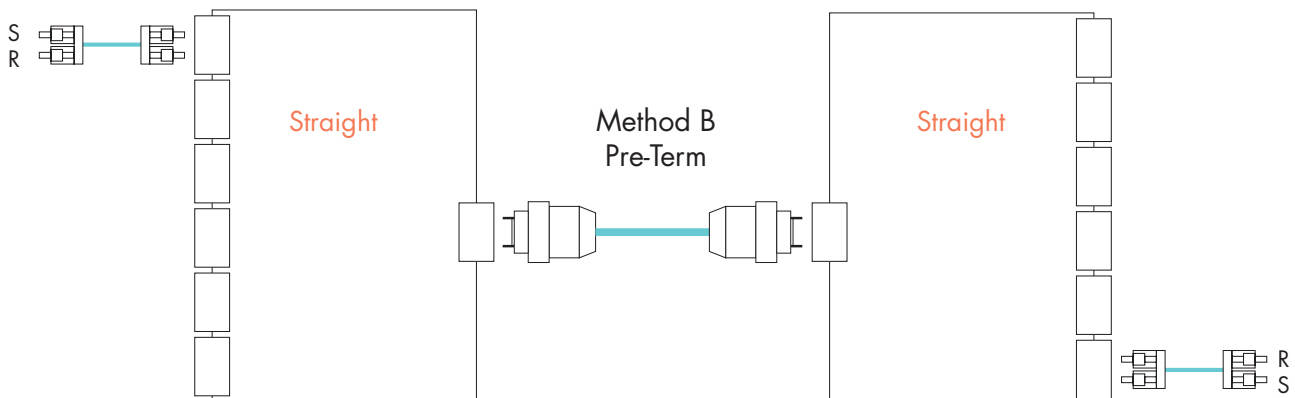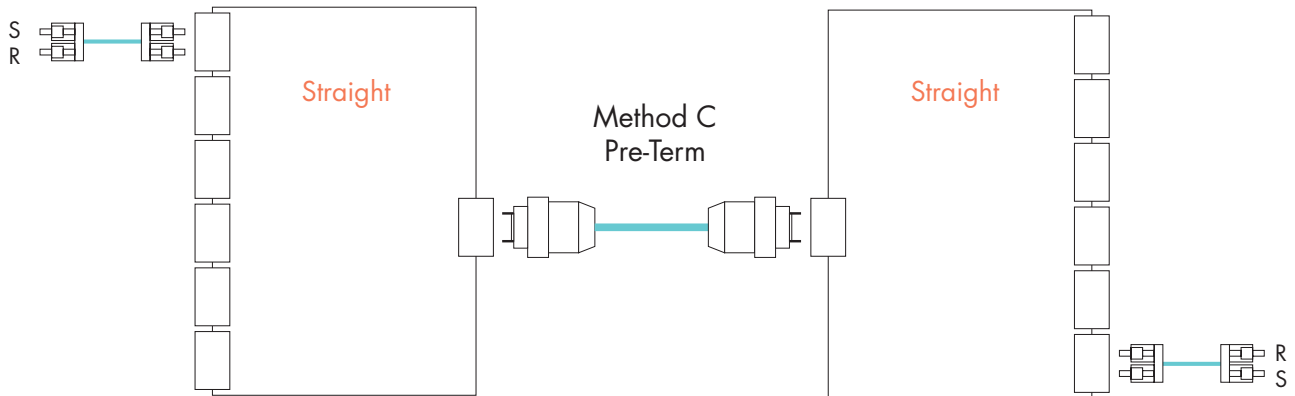
Polarity with with MTP adaptors and MTP-MTP Pre-Terms for 40G/100G

40G / 100G

Method C
MTP Pre-Term

S
R
KEY
Up /Down
KEY
Up /Up
R
S

Method B
MTP Pre-Term

S
R
KEY
Up /Down
KEY
Up /Down
R
S

- Factory terminated SC/LC fibre assembly

- Pre-Term based on Tight Buffer cable: rodent retardant, watertight and UV resistant

- Universal Pre-Term for installation indoor in a building, Data Centres and outdoor in a duct

- Ruggedized tube protects connectors during transport and installation

- Optimised for installation inside Plug&Play Panel with adaptor plates

- Pulling eye on one side

- Insertion loss performance: low loss of max 0,3 dB per SC/LC connection

- Fibre count: 12F and 24F

- Fibre type: OM3, OM4 and singlemode (OS2)
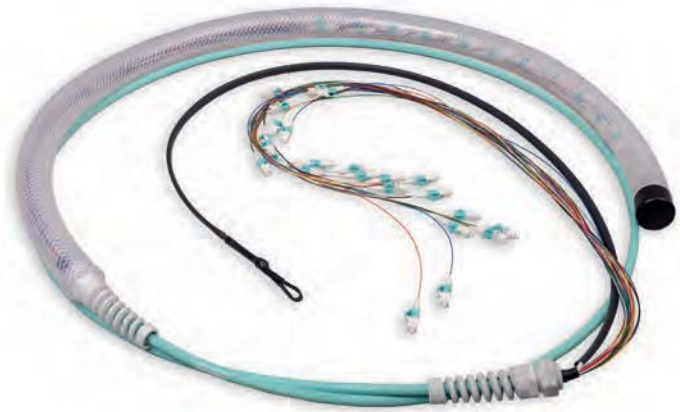
N15a.TnnbcAxxxe: Universal SC/LC Pre-Term

a: fibre category	4: singlemode OS2 5: multimode OM3 7: multimode OM4
T: Universal SC/LC Pre-Term	
nn: fibre count (12,24,48,96)	
b: connector type	L:LC-connector P: LC/APC connector C: SC-connector D: SC/APC-connector
c: connector type	L:LC-connector P: LC/APC connector C: SC-connector D: SC/APC-connector
A: fan-out optimised for Universal Pre-Term	
xxx: length in m	
e: colour cable jacket	Y: singlemode A: OM3 or OM4

• 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
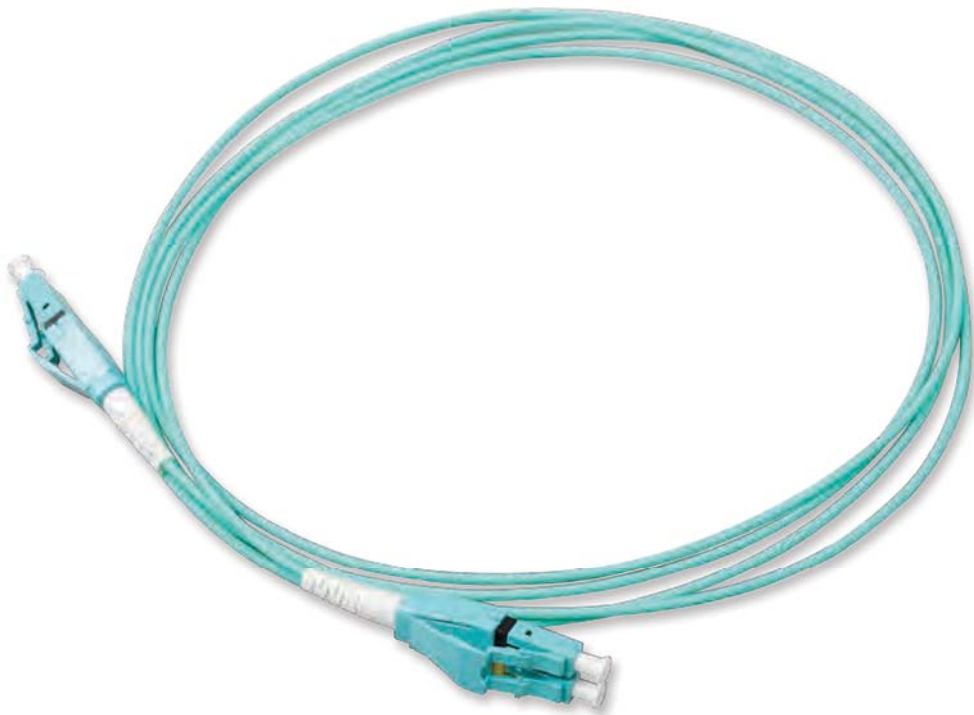
N Number	Description
N122.5UUAx	LANmark-OF ENSPACE Patch Cord DLC-DLC OM3 LSZH xm Aqua
N122.7UUAx	LANmark-OF ENSPACE Patch Cord DLC-DLC OM4 LSZH xm Aqua
N122.4UUYx	LANmark-OF ENSPACE Patch Cord DLC-DLC Singlemode LSZH xm Yellow

LANmark-OF ENSPACE MTP-MTP Patch cords

- MTP-MTP patch cords
- Slim round patch cable with 3,6 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 OM3 and OM4
- Low loss performance: 0,3 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)
- Flame and fire retardant

N Number	Description
N125.5FFAx	LANmark-OF Patch Cord Female MTP - Female MTP OM3 LSZH xm Aqua
N125.7FFAx	LANmark-OF Patch Cord Female MTP - Female MTP OM4 LSZH xm Aqua

- 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:OM3 and OM4
- Low loss connectivity performance: max of 0,3 dB per connection

LC   MTP QSFP+

N127.aFbdex

a: fibre category	5: multimode OM3
	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: OM3 or OM4
x: length in m	

Guaranteed distances - LANmark-OF OM3

- **Products**
  LANmark-OF OM3 cables terminated with LC/SC connectors or pigtails
  LANmark-OF OM3 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	8	2	4	6	8
1GBase-SX	940m	930m	920m	900m	900m	860m	800m	750m
10GBase-SR	350m	350m	340m	330m	340m	320m	300m	280m
25GBase-SR	85m	80m	80m	75m	75m	70m	60m	50m
40G BiDi	130m	125m	120m	115m	115m	110m	100m	90m

Fibre Channel Distances								
Applications	Pre-Terminated ST/SC/LC Assemblies				Direct termination or splicing with ST/SC/LC			
# Connections	2	4	6	8	2	4	6	8
1GFC (PI-4 100-M5E-SN-I)	1200m	1180m	1140m	1100m	1100m	940m	800m	700m
2GFC (PI-4 200-M5E-SN-I)	700m	680m	660m	640m	640m	540m	440m	350m
4GFC (PI-5 400-M5E-SN-I)	440m	435m	430m	420m	420m	380m	340m	300m
8GFC (PI-5 800-M5E-SN-I)	200m	195m	185m	180m	180m	150m	125m	100m
16GFC (PI-5 1600-M5E-SN-I)	135m	130m	125m	120m	120m	95m	70m	40m
32GFC (PI-6 3200-5ME-SN-I)	85m	85m	80m	75m	75m	65m	50m	35m
10GFC (10GFC 1200-M5E-SN-I)	350m	350m	340m	330m	340m	320m	300m	280m

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	8	2	4	6	8
1GBase-SX	970m	960m	940m	930m	930m	880m	820m	780m
10GBase-SR	550m	540m	530m	520m	520m	490m	460m	440m
25GBase-SR	120m	115m	110m	105m	105m	90m	70m	50m
40G BiDi	155m	150m	145m	140m	145m	140m	125m	115m

Fibre Channel Distances								
Applications	Pre-Terminated ST/SC/LC Assemblies				Direct termination or splicing with ST/SC/LC			
# Connections	2	4	6	8	2	4	6	8
1GFC (PI-4 100-M5F-SN-I)	1250m	1230m	1200m	1150m	1140m	1000m	800m	700m
2GFC (PI-4 200-M5F-SN-I)	750m	740m	720m	680m	680m	560m	460m	360m
4GFC (PI-5 400-M5F-SN-I)	500m	490m	480m	470m	470m	420m	370m	330m
8GFC (PI-5 800-M5F-SN-I)	250m	245m	225m	220m	220m	190m	160m	130m
16GFC (PI-5 1600-M5F-SN-I)	165m	160m	155m	150m	150m	125m	95m	50m
32GFC (PI-6 3200-5MF-SN-I)	120m	115m	110m	100m	100m	90m	70m	50m
10GFC (10GFC 1200-M5F-SN-I)	550m	540m	530m	520m	520m	490m	460m	440m

● **Products**

LANmark-OF OM3 low loss MTP-MTP Pre-Term Assemblies
LANmark-OF OM3 low loss MTP-LC module

Ethernet distances-duplex transmission				
# MTP-LC modules	2	4	6	8
1GBase-SX	900m	880m	860m	810m
10GBase-SR	340m	330m	320m	300m
25GBase-SR	75m	70m	65m	55m
40G BiDi	115m	110m	105m	95m

Ethernet distances-parallel transmission				
# MTP connections	2	4	6	8
40GBase-SR4	135m	125m	120m	115m
40GBase-SR4 extended distances*	300m	260m	230m	200m
100GBase-SR4	85m	85m	80m	75m

* Nexans approved transceivers

Fibre Channel Distances-duplex transmission				
# MTP-LC modules	2	4	6	8
1GFC (PI-4 100-M5E-SN-I)	1100m	1050m	1000m	900m
2GFC (PI-4 200-M5E-SN-I)	640m	620m	580m	500m
4GFC (PI-5 400-M5E-SN-I)	420m	410m	390m	350m
8GFC (PI-5 800-M5E-SN-I)	180m	170m	160m	130m
16GFC (PI-5 1600-M5E-SN-I)	120m	115m	105m	75m
32GFC (PI-6 3200-5ME-SN-I)	75m	70m	65m	55m
10GFC (10GFC 1200-M5E-SN-I)	340m	330m	320m	300m

• **Products**

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

Ethernet distances-duplex transmission				
# MTP-LC modules	2	4	6	8
1GBase-SX	930m	910m	890m	830m
10GBase-SR	520m	510m	500m	470m
25GBase-SR	105m	95m	85m	65m
40G BiDi	145m	140m	135m	125m

Ethernet distances-parallel transmission				
# MTP connections	2	4	6	8
40GBase-SR4	170m	160m	150m	150m
40GBase-SR4 extended distances*	400m	360m	330m	300m
100GBase-SR4	120m	110m	110m	110m

* Nexans approved transceivers

Fibre Channel Distances-duplex transmission				
# MTP-LC modules	2	4	6	8
1GFC (PI-4 100-M5F-SN-I)	1150m	1120m	1050m	950m
2GFC (PI-4 200-M5F-SN-I)	680m	660m	620m	550m
4GFC (PI-5 400-M5F-SN-I)	470m	450m	430m	380m
8GFC (PI-5 800-M5F-SN-I)	220m	215m	200m	160m
16GFC (PI-5 1600-M5F-SN-I)	150m	145m	130m	100m
32GFC (PI-6 3200-5MF-SN-I)	100m	95m	90m	75m
10GFC (10GFC 1200-M5F-SN-I)	520m	510m	500m	470m

- **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.

- **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.

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 performing 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 up to three connection points within a 9m link or a 10m channel. 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 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 flame retardant LSZH sheath according to IEC 60332-1
- LSZH fire retardant version according to IEC 60332-3 available

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 flame retardant LSZH sheath according to IEC 60332-1
- LSZH fire retardant version according to IEC 60332-3 available
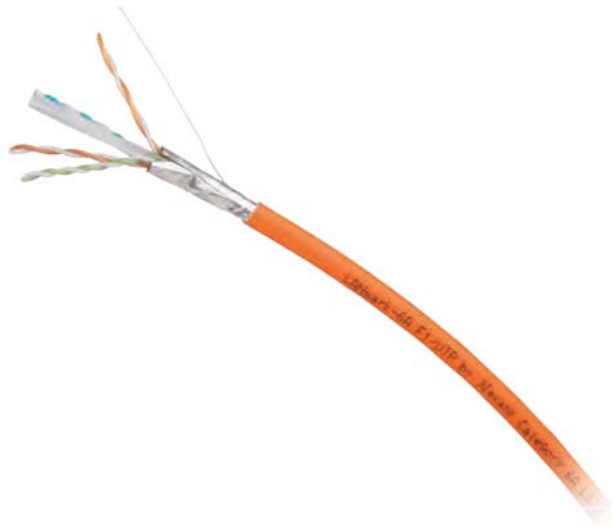
LANmark-6A Snap-In Connector

- 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
- Possible to re-terminate
- Version for stranded wire available for CP to TO links
- Supports POE Plus applications (15 Watts per pair)
- An adapter can be added to fit the keystone format
- Certified by Delta independent test lab

N420.66A

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

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 1 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 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).

N420.735
N420.736

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.

N100.371
N100.373

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.

N100.381
N100.383

LANmark-7A PLUS Cable AWG22

LANmark-7A PLUS S/FTP AWG22 is a 4 pair cable with individual pair foils and an overall braid offering superior performance up to 1800 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 3.5 Watts/100m using POE++ are possible.

N100.395

LANmark-6A RJ45 Patch Cord

To connect a LANmark-7A 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 1Gb/s and 10Gbase-T networking.

LANsense AIM   LANsense version also available

N11A.U1FxxxOK

LANmark-7A GG45

to RJ45 Patch Cord
In development

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.

N101.2D7O100
N101.2D7O200
N101.2D7O300

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.

N900.67A

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 GG45 Tools
Easy Termination Tool

This tool is designed to facilate a simple and consistant preparation of S/FTP cable for the termination of GG45. It cuts all 4 pair foils simultaneously at the same length and holds the GG45 Wire organizer during pair insertion.
Set of Blades for N422.117: N422.118

N422.117

Comfort Tool
Snap-In Comfort Tool

This tools helps to crimp the wire organizer with cable pairs inserted into a Snap-In connector.

N420.567

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LANmark-7A for 25 Gb/s Ethernet

Table of Products

N Number	Description
N100.371	LANmark-7A S/FTP AWG23 Cat 7A LSZH Orange 1000m reel
N100.372	LANmark-7A S/FTP AWG23 Cat 7A LSZH Orange 500m reel
N100.373	LANmark-7A S/FTP Dual AWG23 Cat 7A LSZH Orange 500m reel
N100.382	LANmark-7A 1200 S/FTP AWG22 Cat 7A LSZH Orange 1000m reel
N100.386	LANmark-7A 1200 S/FTP Dual AWG22 Cat 7A LSZH Orange 500m reel
N100.395	LANmark-7A PLUS 1800 S/FTP AWG22 Cat 7A 1500MHz LSZH 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
N420.738	LANmark GG45 8C PCB Mount Jack Cat 7A 1500MHz Screened
N11A.U1F010OK	LANmark-6A Ultim Patch Cord Cat 6A Screened LSZH 1m Orange
N11A.U1F020OK	LANmark-6A Ultim Patch Cord Cat 6A Screened LSZH 2m Orange
N11A.U1F030OK	LANmark-6A Ultim Patch Cord Cat 6A Screened LSZH 3m Orange
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
N422.117	LANmark-7 Easy Termination Tool
N422.118	5 x set of new blades for LANmark-7 Easy Termination Tool
N420.567	Universal Comfort Tool
N420.110	Cable Stripper 25x

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 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).

N420.735
N420.736

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.

N100.481-O5

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

N11A.U1FxxxOK

LANmark-8 GG45 to RJ45 Cord
In development

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.

N101.2D8O100
N101.2D8O200
N101.2D8O300

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.

N900.680

Table of Products

N Number	Description
N100.481-O5	LANmark-8 S/FTP AWG22 Cat 8 2000MHz LSZH-FRT 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

Definition

LANmark pre-terminated copper assemblies can be Jack-Jack or Jack-Plug units in Category 6A, 7A or 8.
Individual units can be assembled, to form bundles of 3, 4, 6, 8, 12 or 2x12 units.

Performance

Cat6A/Class EA, Cat7A/Class FA or Cat8 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.
Cables are terminated in a controlled environment by trained installers. This ensures that termination procedures are consistent and reliable.
Once terminated, assemblies are individually tested and test reports are stored for traceability purposes.

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 dramatrically reduce the on-site installation time enabling massive cabling deployments such as Data Centres to be realised 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
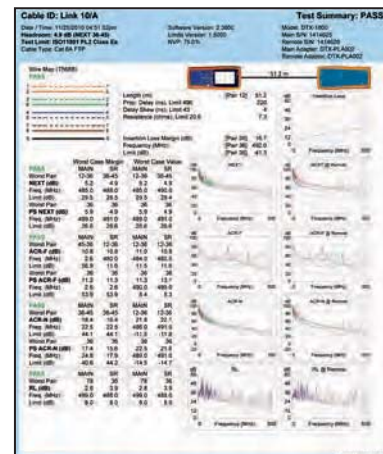
Example of Test report

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, 7A and Cat 8:

- 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
- 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
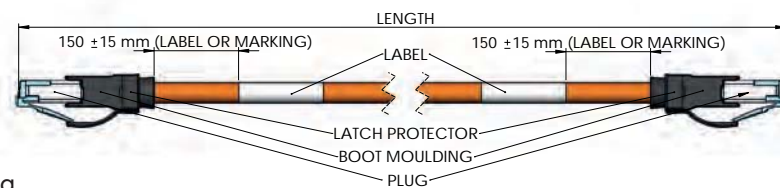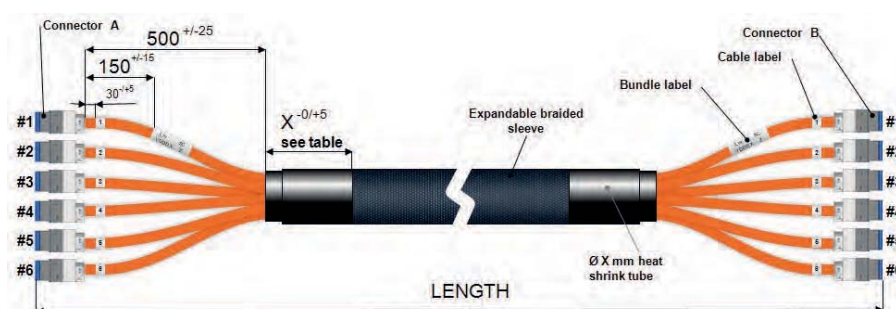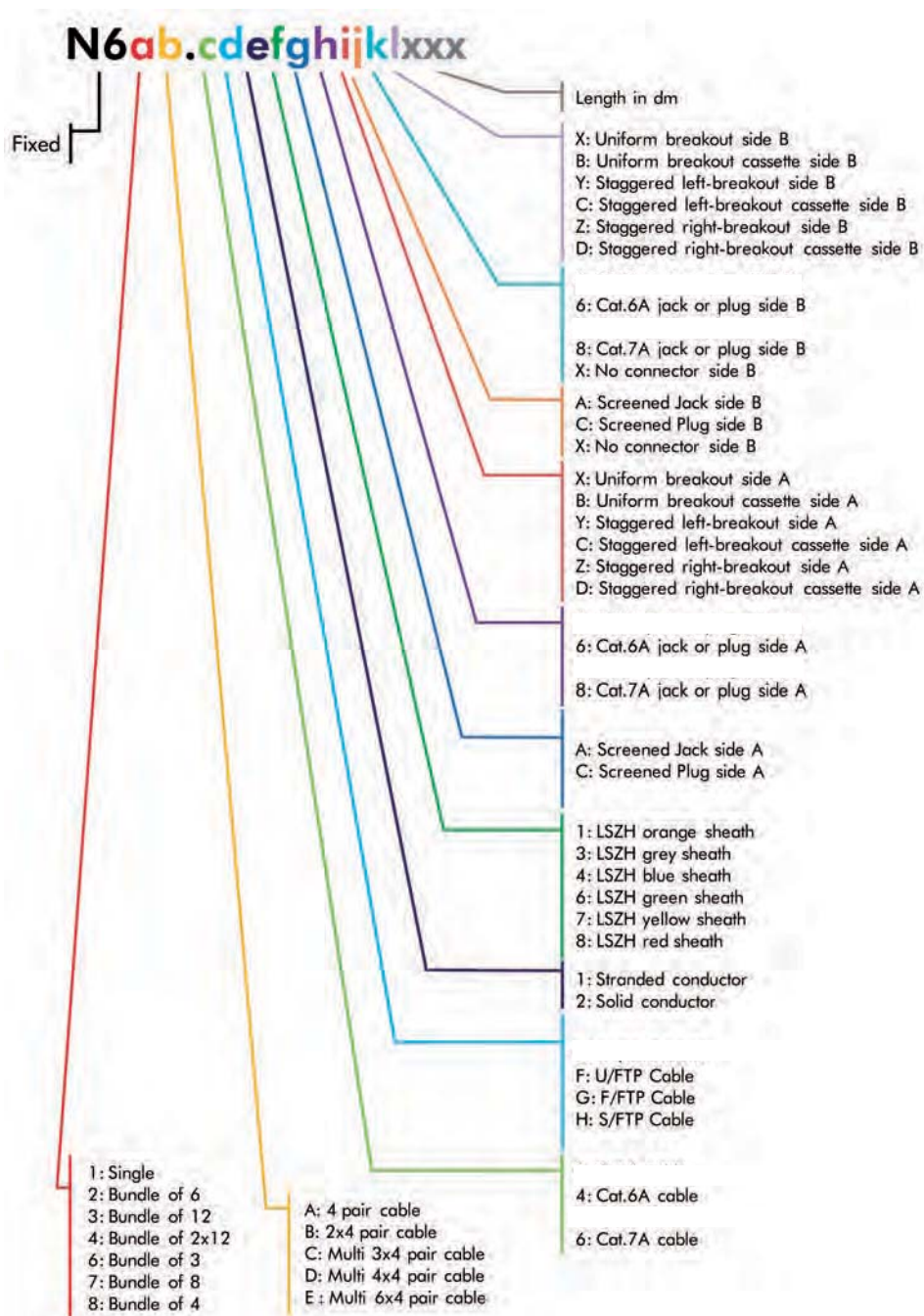
Single unit assemblies
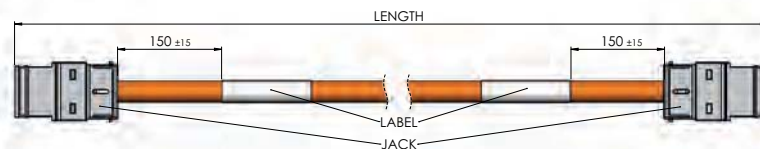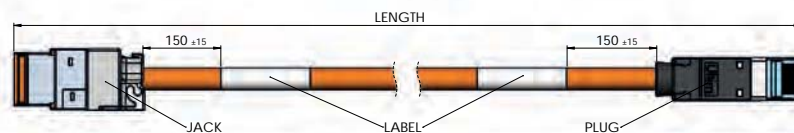
Jack-Jack

Jack-Plug

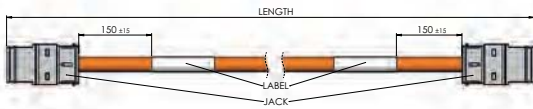Plug-Plug

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

Structure of codification

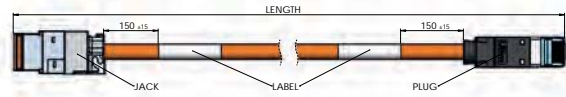(Please see assembly tables for available combinations – ALWAYS Jack first and then second Jack or Plug)

N6ab.cdefghijklxxx

Fixed

Length in dm

X: Uniform breakout side B
B: Uniform breakout cassette side B
Y: Staggered left-breakout side B
C: Staggered left-breakout cassette side B
Z: Staggered right-breakout side B
D: Staggered right-breakout cassette side B

6: Cat.6A jack or plug side B

8: Cat.7A jack or plug side B
X: No connector side B

A: Screened Jack side B
C: Screened Plug side B
X: No connector side B

X: Uniform breakout side A
B: Uniform breakout cassette side A
Y: Staggered left-breakout side A
C: Staggered left-breakout cassette side A
Z: Staggered right-breakout side A
D: Staggered right-breakout cassette side A

6: Cat.6A jack or plug side A

8: Cat.7A jack or plug side A

A: Screened Jack side A
C: Screened Plug side A

1: LSZH orange sheath
3: LSZH grey sheath
4: LSZH blue sheath
6: LSZH green sheath
7: LSZH yellow sheath
8: LSZH red sheath

1: Stranded conductor
2: Solid conductor

F: U/FTP Cable
G: F/FTP Cable
H: S/FTP Cable

1: Single
2: Bundle of 6
3: Bundle of 12
4: Bundle of 2x12
6: Bundle of 3
7: Bundle of 8
8: Bundle of 4

A: 4 pair cable
B: 2x4 pair cable
C: Multi 3x4 pair cable
D: Multi 4x4 pair cable
E: Multi 6x4 pair cable

4: Cat.6A cable

6: Cat.7A cable

Single unit assemblies

| Jack-Jack Units | Jack-Plug Units |

Description

LANmark pre-terminated Jack-Jack units are assemblies made of a solid copper cable terminated at both ends by jacks. These are well suited for areas where installation time is limited. Nexans LANmark Pre-Term units help reduce the installation time and risks since connector termination is simply eliminated. Connectors are mounted and assemblies tested in our factory.

LANmark pre-terminated Jack-Plug units are assemblies made of a stranded copper cable terminated with a Jack on one end and a plug on the other end. These are well suited for presentation panels in Data Centres and horizontal cabling with consolidation points. Nexans LANmark Pre-Term units help reduce the installation time and risk of failure since connector termination is simply eliminated. Connectors are mounted and assemblies tested in our factory.

Performance

Cat6A/Class EA, Cat7A/Class FA or Cat8 Class I units can be produced. Headroom and bandwidth 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 LANmark patch cords of the same category the full four-connector channel is guaranteed as well.

Topology

Jack-Jack assemblies are suited for horizontal distribution typically from the floor distributor to the outlets.

Jack-Plug assemblies are suited to populate presentation panels and connect to the active equipment. They are also required when horizontal cabling is deployed from the floor distributor to a consolidation point. These assemblies link the telecom outlets to the consolation point.
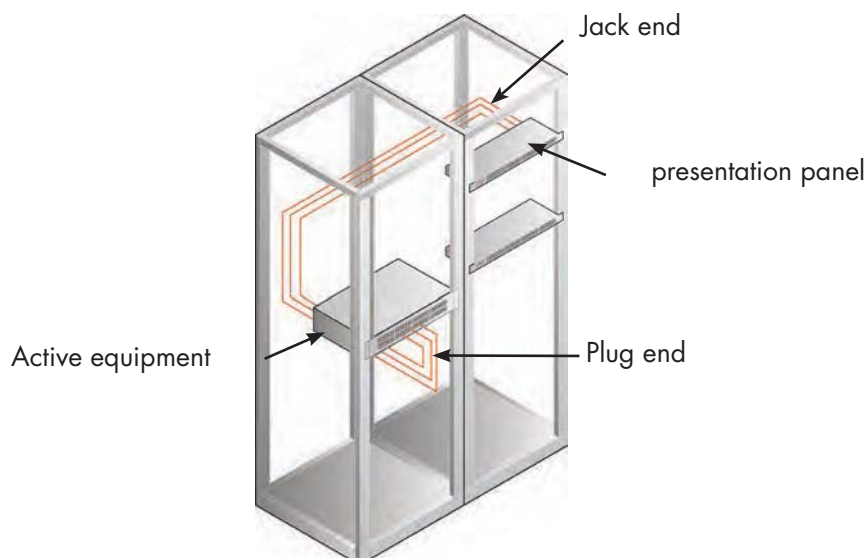
Jack-Plug assemblies in presentation panel

Pre-Term Copper

Installation

Nexans LANmark Pre-Term Units are designed to be laid and are not suitable for pulling.

- Field testing required after installation
- Labels on each unit (customisable)
- Factory tests in electronic format on request

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).

Applications and standards

LANmark pre-terminated copper assemblies will support all present and future technologies designed to operate over the given performance Class.

Labels

Labels will be positioned on the cable sheath at both ends of the assembly. (See drawings for exact position). The following details will be printed:

- Traceability Number
- If required: customer number: 10 characters maximum (3mm high)

```
TraceCode
Custom code
```

Order details and limitations

Length:

- See assembly table for minimum and maximum length
- Steps of 0,5m from 1m to 30m
- Steps of 1m above 30m
- Tolerance on final length: -0 / +10% with a maximum of 20cm
- Please refer to Nexans Design Guidelines for length calculations and limitations according to the standards.

Pre-termination:

- Pre-termination on both sides with LANmark Snap-In connectors or one side terminated with a LANmark plug
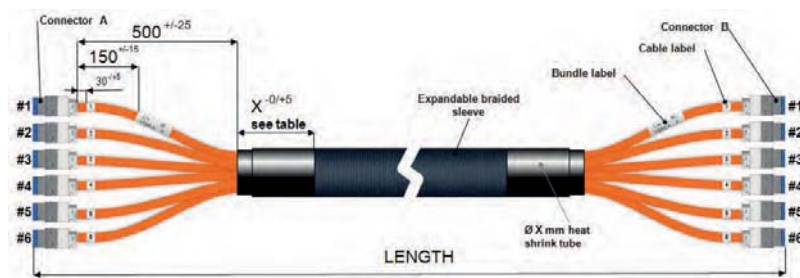- Single end units up to 25m
- Pin assignment T568-B

Packaging:

- Individual bags in cardboard box
- Label with part number, product description and length

Factory testing:

- Factory tests in electronic format are available on demand
- Partial test for single end assemblies

Bundles

Description

LANmark Pre-Term bundles are assemblies of 3, 4, 6, 8, 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 new parameter is met by design.

Performance

Cat6A/Class EA, Cat7A/Class FA or Cat8/Class I 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.

Pre-Term Copper
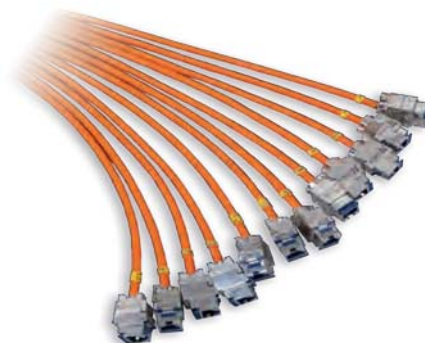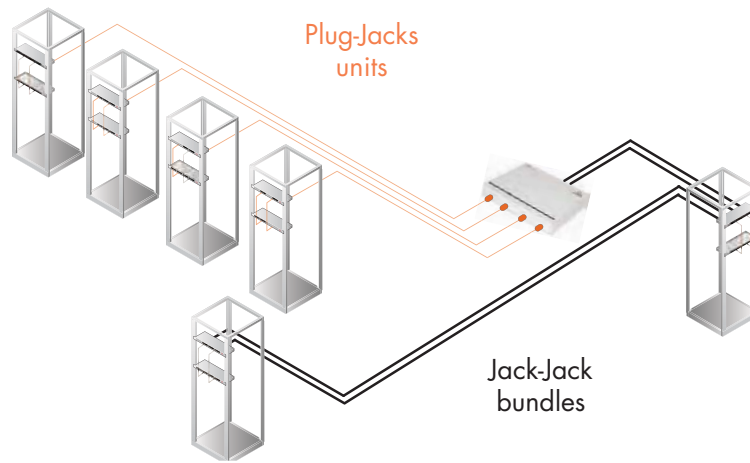
**Bundled units between server racks
or patch panels and consolidation points**

Installation

Nexans LANmark Pre-Term bundles help reduce the installation time. A single assembly needs to be laid instead of 3, 4, 6, 8, 12 or 24 single 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

Labels and Numbering

Labels will be positioned on the sheath of the first cable at both ends of the assembly. (See drawings for exact position). The following details will be printed:

- Traceability Number
- Length of the assembly and identification of the end "A" or "B" of the assembly **or** customer number: 10 characters maximum (3mm high)

TraceCode Lm A	**or**	TraceCode Custom code

Numbering: Each unit will be individually numbered from 1 to 4, 6, 8, 12 or 24.

- Yellow Ring, width 5mm, number printed in black (3,5mm high)
- For bundles of 2x12, the first assembly will be numbered from 1 to 12 and the second from 13 to 24

Order details and limitations

Packaging:

- Protective bubble-lined pouch for the connectors at both ends
- For lengths below 20 or 30m depending on overall diameter: Cardboard boxes
- For lengths above 20 or 30m depending on overall diameter: One way drum
- Label with part number, product description and length

Factory testing:

- Factory tests in electronic format are available on demand

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
- Exclusive Auto-Connect earthing system
- Universal design supporting unscreened and screened connectors
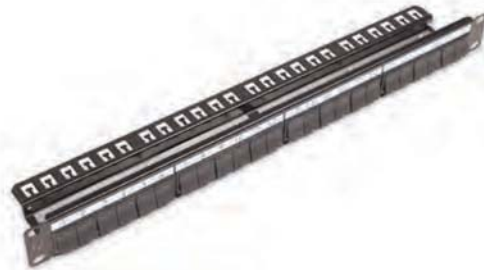- Also available in white

LANsense AIM LANsense version also available

N521.661BK

Patch Panel 24 Snap-In Black

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

N521.664BK

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

N521.671BK

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

N521.667BK

LANmark Coloured Shutters

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

N421.701

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

N100.100

Comfort Tool

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

N420.567

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

N422.117

Set of spare blades for Easy Termination tool

N422.118

Letterbox Patch Guide 1U Black

- Allows storage and management of copper and fibre patch cords
- Open structure with rings for easy access
- 8cm depth
- Central "letterbox" holes allow excess cordage to be 'posted' inside the rack
- Black paint finished metal

N102.115BK

Angled Blank Panel Black

- 19" Blank Panel to fill empty cabinet space

N521.672BK

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

N521.673BK

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

N521.678BK

1U Universal Patch Guide with front cover, Black

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

N102.117BK

1U Patch Guide with rings, Black

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

N102.105BK

1U Blank Panel, Black

- 19" Blank Panel to fill empty cabinet space

N109.207BK

ZD box 12 Snap-In White

- For use as consolidation point
- Compatible with all LANmark Snap-In connectors
- 12 numbered Snap-In ports with shutters
- Cable entry knock-outs
- Easy to install

N521.600

ZD box 6 Snap-In White

- For use as consolidation point
- Compatible with all LANmark Snap-In connectors
- 6 numbered Snap-In ports with shutters
- Cable entry from the back
- Cable fixing features
- Multiple mounting facilities

N521.606

Ruggedized Lockable ZD Box White

- For use as consolidation point
- Compatible with all LANmark Snap-In connectors
- 12 numbered Snap-In ports with shutters
- Easy to install
- Ruggedized design for industrial and secure environments
- Lockable with key (supplied)
- Designed to support installations with extractable fibre bundles

N521.612

Ruggedized Lockable ZD Box Foot White

- Foot for LANmark Ruggedized ZD Box
- Raises ZD box to 50mm
- Rugged steel construction

N521.6121

Secure Lock

Copper

The new range of LANmark-6 lockable UTP 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 colour matched to a key. Once installed the cord is locked in place with the latch inaccessible. The cord can only be disconnected when the matching key is used to unlock the boot. The standard boot is an attractive clear moulding matching the clear RJ 45 plug. There are 5 other colours available.

The standard cord colour is orange with grey as an option.
Standard cords are stocked in lengths of 1, 2, 3 & 5m - other lenghts are available on demand.

Cable colour, boot colour and length options are subject to MoQ and lead-time.

Fibre

Secure Lock LC cords are purpose 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 booted cords 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

High Density Rack

- 19-Inch mounting equipment for high-density cross-connect
- Designed to host both copper and fibre cabling
- Robust metal construction
- Enhanced access and cord management

N345.000

Overhead Patching Frame 4U

- 19" 4U overhead frame
- Ideal in Data Centres
- Designed to host both copper and fibre cabling
- Metal construction
- Straight or angled position

N345.400

Pair of Patch Cord Management Hooks 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
- Black flexible plastic

N345.401

Cabinet & Fibre Optic Trunking System

Nexans Fibre Optic Trunking System is intended to be implemented as a dedicated fibre optic pathway to protect fibre cable from damage and maintain high speed transmission.

Comprehensive Protection

A specially designed rigid surface along the pathway protects fibre optic links. Adaptors provide connection between channels and/or fittings, thus control bend radius of fibre optic patch cords and MPO trunks.

Fast installation

Installation is flexible using different channels connected by fittings and adaptors. No plastic welding is needed with all parts joined together using toolless fasteners.
Fixing and supporting devices are available for wall mounting, ceiling hanging, under floor and rack mounting within Data Centres.

Easy Access

Moves/Adds/Changes of fibre optic patching are made easy when separated from bunches of copper horizontal cables. Future expansion and interconnection with channels of different sizes is easily accomplished using fittings and tees available in various sizes.

Various channel sizes are available to meet different capacity demands in MD, ID, ZD or EO cabling sub-systems.
The Nexans Installation toolkit makes it easy to calculate cable tray fill rates, check Nexans Cabling Solution website for the latest version.

|	Fibre Optic Trunking System Branch	Fibre Optic Trunking System Main channel
Applied Environment	EO/ZD	ZD/ID/MD
Channel Size	100/120 mm	240/300 mm
Channel Capacity	>400 LC Patch cords**	>1000 LC Patch cords**
	>350 40G MPO Patch cords**	>800 40G MPO Patch cords**
	>58 Conventional 96 core MPO trunk cables	>140 Conventional 96 core MPO trunk cables
	>110 LANmark-OF 96 core MPO trunk cables**	>280 LANmark-OF 96 core MPO trunk cables**

** Supported quantity based on Nexans LANmark-OF products.

Application 1:

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

Product description:

1. Main channel
2. Horizontal Adaptor
3. Horizontal Tee transit for Main Channel to Sub Channel
4. Branch
5. Downward Junction
6. Flex tube used for downward junction
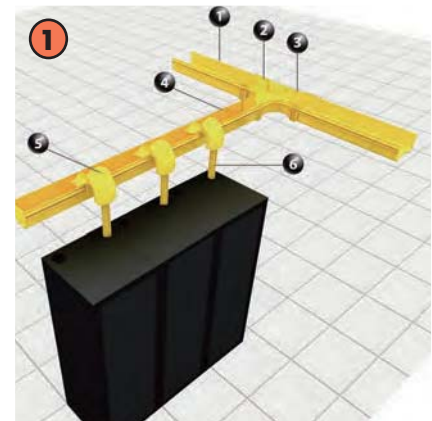
Application 2:

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. Horizontal Adaptor
3. Vertical Down angled fitter
4. Vertical Up angled fitter
5. Horizontal Tee transit for Main Channel to Sub Channel
6. Downward Junction
7. Flex tube used for downward junction
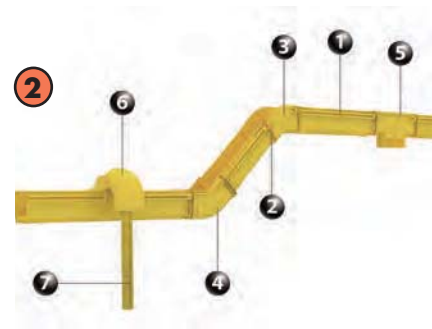
Application 3:

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

Product description:

1. Branch
2. Horizontal Adaptor
3. Main Channel
4. Horizontal Adaptor
5. Horizontal Tee
6. Horizontal Tee transit for Main Channel to Branch
7. 4Way Cross transit for Main Channel to Branch
8. Horizontal reduced fitter for Main Channel to Branch
9. Horizontal 90 angled fitter
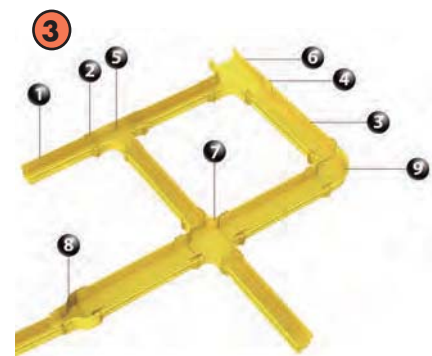
Application 4:

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

Available in various width
(100-300mm)

Channel 2m/pcs yellow

Horizontal 90 degree angled fitter

Horizontal Tee

Horizontal 4-Way cross

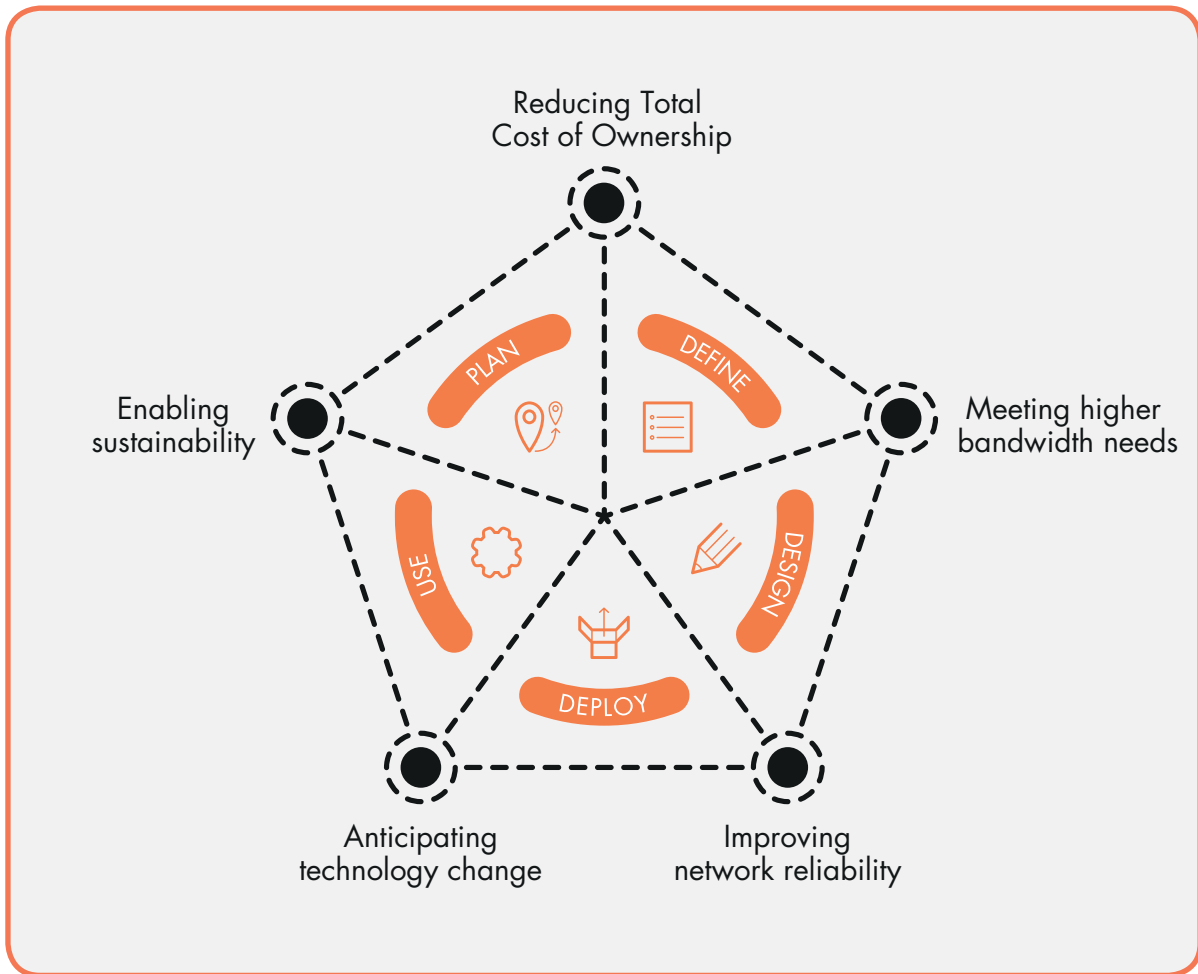45° Vertical upward junction

45° Vertical downward junction

Channel end cover

Horizontal adaptor

HOW TO CONNECT THE DOTS IN A RELIABLE WAY

ANTICIPATING CHANGE IN THE Data Centre

- Meeting higher bandwidth needs
  Bandwidth needs in Data Centres are on the increase. 10G speeds as currently implemented will soon prove to be insufficient, demanding 25G and 40G for server links and 100G for switch to switch. Thinking ahead and having an easy migration path with LANmark will be a key advantage.

- Improving network reliability
  Real-time tracking and evaluating environmental parameters is possible through Nexans' EMAC (Environmental Monitoring and Access Control) that provides feedback to help manage power and cooling levels, and alerts staff when pre-set thresholds are exceeded.

- Reducing Total Cost of Ownership
  Making cabling solutions easy to upgrade ensures a long lifetime of cabling, which minimizes the need to re-cable and also reduces costs of removal of cabling and downtime of the network.

'engage' is Nexans' commitment to assist customers in every step of building an agile IT infrastructure.

With the digital transformation of business, efficient data access and exchange becomes ever more determinant for your company's success. As cabling systems survive different generations of active equipment, they need to be at the same time robust, flexible and scalable to adapt to new digital business requirements. Your IT infrastructure needs to be agile, well-planned ahead for accurate and efficient deployment and proactively designed for future changes.

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 labelling 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

NOTES

NOTES

OFFICES

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