

LANmark-OF Demarcation Box

PRODUCT INSTALLATION GUIDE

June 2019 v1.01



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Product References

Part Number	Description
N521.621	LANmark-OF Demarcation Box 12 Core Multimode White
N521.622	LANmark-OF Demarcation Box 12 Core Singlemode White

Document information

Release	June 2019
Published by	Nexans Cabling Solutions
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General

Installation is to be performed by qualified service personnel.

The installation of the LANmark-OF Demarcation Box must be carried out with care and precision.

Prior to installation, preparation work should be carried out on a clean and level work-surface.

Each demarcation box comes preloaded with 6 duplex LC adaptors and is supplied with:

- 1 loop ring
- 2 nuts

All other ancillaries (e.g. splice trays) must be purchased separately.

The product part numbers are mentioned where applicable in the following.

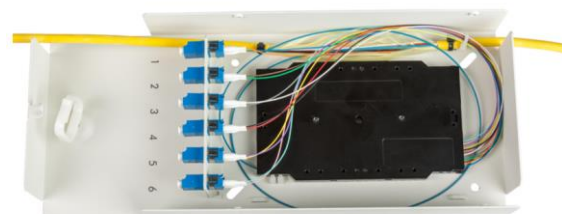


Configuration

Installation with Micro-bundle cable:

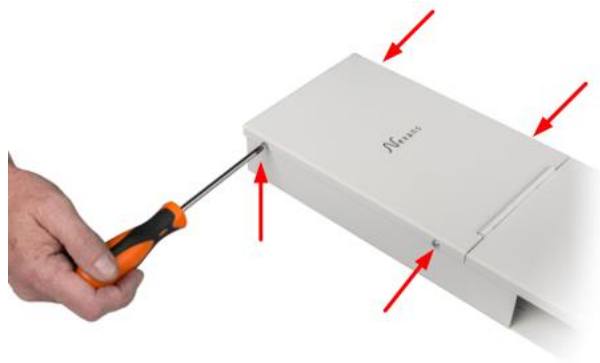
This is selected to create networks based on FTTO ring cabling topology (see LANactive section of the NCS website):

- a bundle is extracted from the cable and is terminated in the Demarcation Box



Phase 1 - Preparation of the Demarcation Box

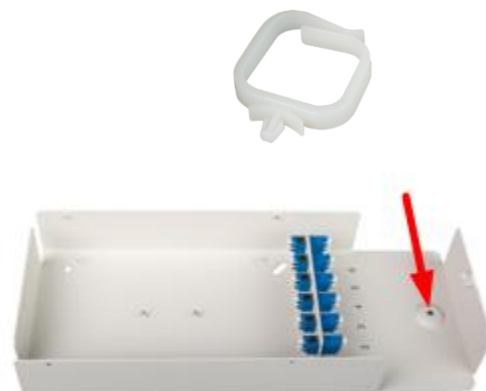
The cover is fastened with 4 screws, 2 on the left and 2 on the right side.



Remove the cover to get access to the plastic bag containing the accessories.



Install the loop ring in the appropriate fixing point.



Phase 2 - Installation with Micro-bundle cable

Micro-bundle cables, having extractable features, are selected to create networks based on FTTO ring cabling topology (see LANactive section of the NCS website).

Note: extraction of Micro-Bundle is possible over a length up to 2 m

1. Description of the extraction process

1 bundle of 12 fibres has to be extracted from the cable and be terminated in the in the Demarcation Box.

First of all, the jacket of the cable has to be opened and a piece of 30 to 40 millimeters removed, at maximum 2 meters away from the box (or in between 2 boxes if the same bundle will be terminated in 2 consecutive boxes).

The OGCL stripping tool (NCS part number: N890.131) shall be used to perform this task to ensure that the bundles and the fibres will not be affected by this process.

The bundle to be terminated in the Demarcation Box will then be cut.



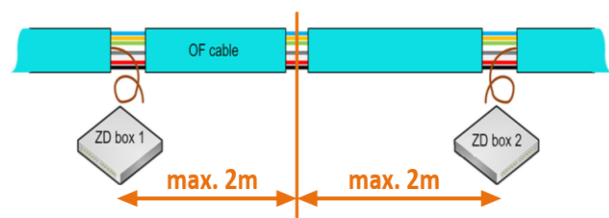
Using the same OGCL stripping tool the cable jacket will also need to be opened at the location where the Demarcation Box will be installed.

A piece of the jacket having the length needed to fully expose the bundle inside the box has to be removed.

The appropriate bundle will be extracted from the cable.

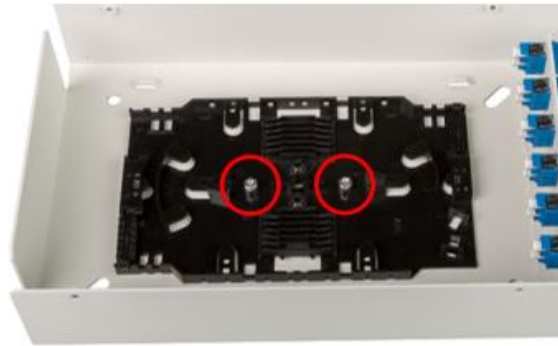
The fibres will then be spliced on LC pigtails and these will be connected to the LC adaptors of the Demarcation Box.

The exposed bundles located between 2 boxes will be covered with a cable protection box. N890.170 LANmark-OF Mini Rootfloor 5mm

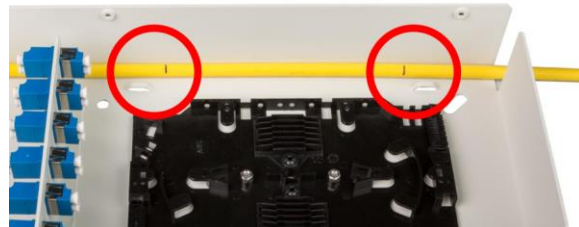


2. Termination process inside the box

1. Install the splice cassette on the base over the 2 threaded studs and fix it with the 2 nuts from the accessories bag.
Arrows indicate cassette fixing points.



2. Using the OGCL stripping tool, remove the jacket of the cable on a length of 110 to max. 130 mm to fully expose the bundle inside the Demarcation Box.
Mark the location of the piece of cable to be removed on the cable jacket.



3. Adjust the blade of the tool according to the thickness of the cable sheath.

We recommend first testing the tool setting on a spare piece of cable.

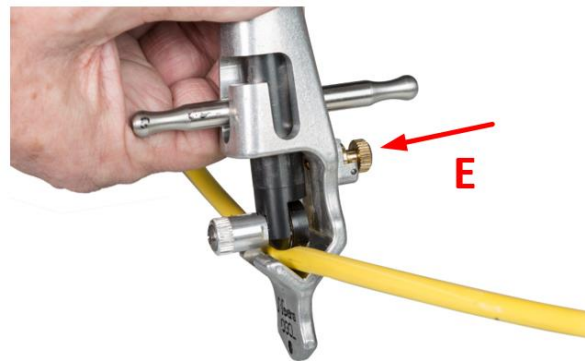


Phase 2 - Installation with Micro-bundle cable

4. Set the tool in longitudinal cutting mode using D (pull + turn).

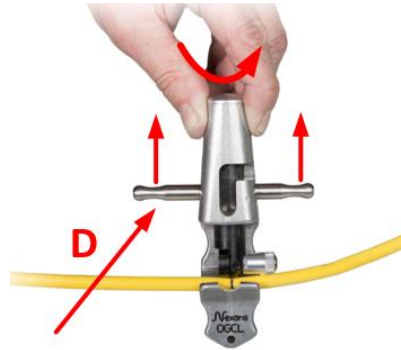


5. Cut the jacket longitudinally between the 2 marks using the part of the tool dedicated to this operation.
First, the blade has to be set into the right position to adjust the penetration into the jacket and then locked using E.



Phase 2 - Installation with Micro-bundle cable

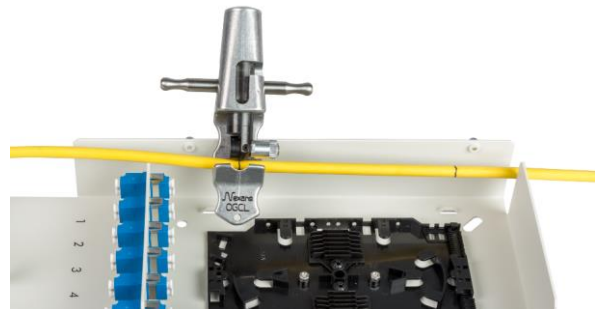
6. Set the tool in the circular cutting mode using D (pull + turn).



7. Place the tool on the cable with the blade located at the end of the longitudinal cut (on the first mark) and rotate the tool around the cable to cut the jacket.



8. Repeat the process to cut the jacket at the other end of the longitudinal cut (on the second mark).

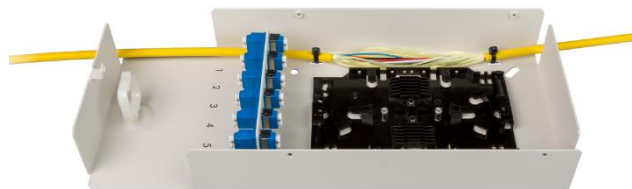
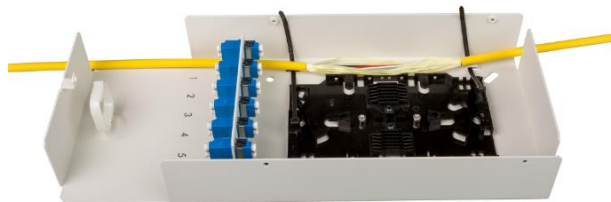


Phase 2 - Installation with Micro-bundle cable

9. Gently remove the jacket.

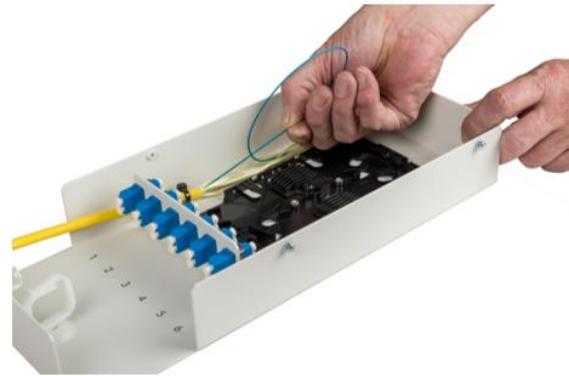


10. Install the cable in the Demarcation Box and fix it on both sides using tie-wraps (not provided). Do not over-tighten the tie-wraps.

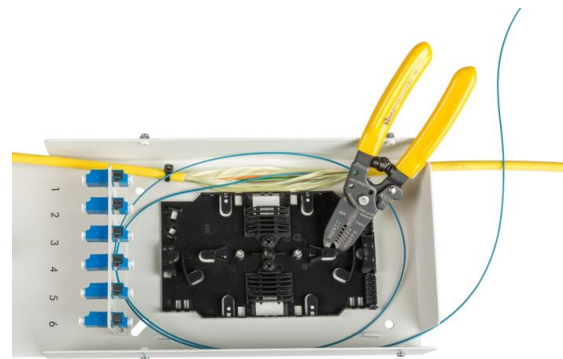


Phase 2 - Installation with Micro-bundle cable

11. Pull the appropriate bundle out of the cable.



12. Guide the bundle to the splice tray leaving at least one loop of slack bundle around the tray and cut off the surplus length leaving at least 2 loops of slack fibres in the splice tray.
Strip the bundle using the appropriate tool (Multi-Wire stripper 821 – Ripley / Miller or equivalent).

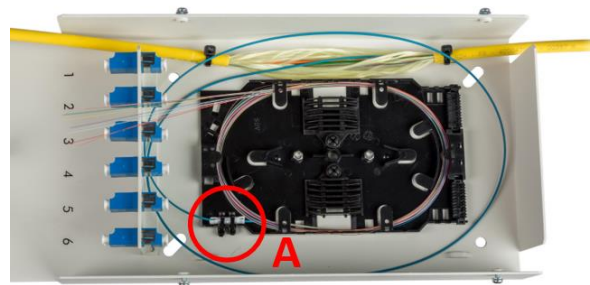


13. Clean the fibres with an appropriate and suitable solvent to remove the gel.

Fix the end of the remaining bundle on the splice tray (A) by means of tie-wraps (not provided).

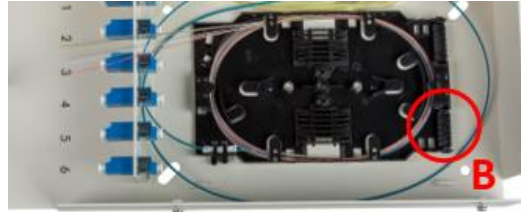
Do not over-tighten the tie-wraps on the bundle / tube as they are not used for strain relief but to keep the bundle in the right position.

The fibres from the pigtails should make 2 loops inside the splice cassette.



Phase 2 - Installation with Micro-bundle cable

For Tight Buffer pigtails measure the length of the 900 μ buffer needed on the splice tray and fix the fibre in the comb (B) of the splice tray.

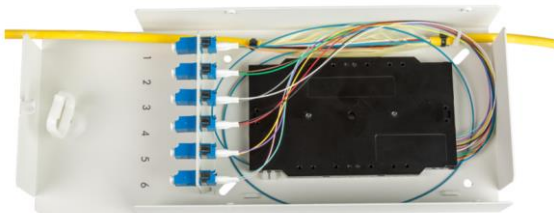
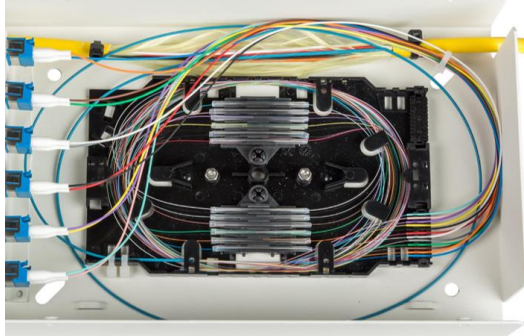
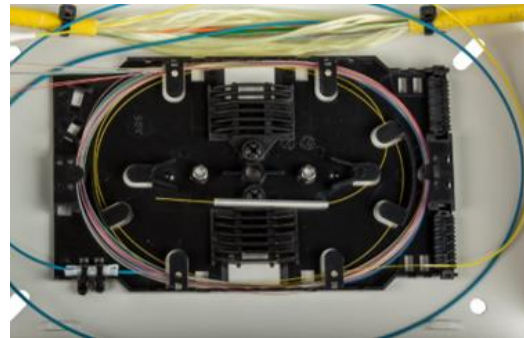


For Maxistrip pigtails, measure the length of 250 μ m buffered fibre needed on the splice tray, strip the 900 μ buffer and fix the end of 900 μ buffer in the comb (B) of the splice tray.

- Slide the heat shrink protection tubes onto the fibres and joint them by fusion splicing with pigtails following the correct colour sequence.

The "Recommendations to maintain duplex OF channel polarity" technical paper, which is available from our NCS website (under the File Library), should be considered when choosing the colour order (see Annex B).

When all pigtails are spliced and installed, close the splice cassette with the cover (N890.097).



Important note

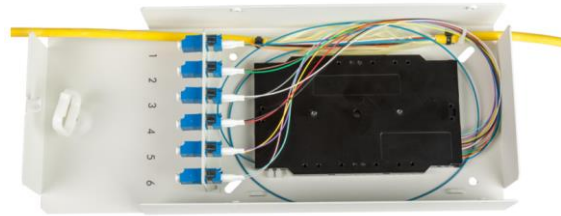
The inspection and appropriate cleaning of all the optical fibre connectors (pigtails, patch cords etc) prior to mating is a critical process that needs to be followed at all times.

Latest applications have stringent link loss requirements and in order to ensure that the required performances levels are achieved during commissioning and operation, the cleanliness of all fibre interfaces needs to be maintained.

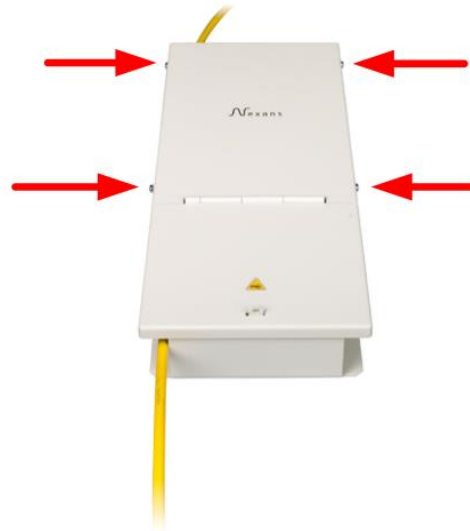
See Annex A

Phase 3 - Finalisation of the installation

The Demarcation Box can now be gently closed.



Fix the cover with the 4 screws.



Label the ports and the cable conform to the site labeling scheme.



Phase 3 - Finalisation of the installation

The Demarcation Box installation is now completed.

Spare / slack cable should then be appropriately secured depending on the installation requirements of the site.



Testing must be carried out in accordance with client requirements and Nexans requirements for warranty submission.

Patch cords can now be installed. To connect patch cords, open the front lid and connect the cords. It is recommended to guide the cords through the loop ring.



On completion the installation must be handed over to the customer with all dust caps fitted to unpatched adaptors. Any dust caps that have been removed must be stored appropriately for potential re-use. Optical Power / Safety levels warning labelling, and security procedures must have been implemented on completion of the installation. If needed, the front lid can be secured by means of a lock (not provided).



IMPORTANT NOTE – INSPECTION, CLEANING & TESTING

The inspection and appropriate cleaning of all the optical fibre connectors (pigtailed, patch cords etc) prior to mating is a critical process that needs to be followed at all times.

Latest applications have stringent link loss requirements and in order to ensure that the required performances levels are achieved during commissioning and operation, the cleanliness of all fibre interfaces needs to be maintained.

The Nexans **OF connector Inspection, Cleaning & Testing general guidelines** can be downloaded from the Nexans website.

In addition, there is also a General Installation guide (for both copper and fibre) which includes further information.

Please note: The Nexans warranty may be invalidated if the cables have not been properly stored or handled according to Nexans Cabling Solutions (NCS) requirements. When logged into the NCS site, all these documents and also others relating to design and installation testing etc.

can be found [here](#)

The screenshot shows the 'Support & Documentation' page on the Nexans website. The page is divided into several sections:

- Navigation Menu (Left):** Includes 'BUILDING', 'LAN SYSTEMS (PASSIVE)', 'Products', 'Support & Documentation', 'Case Studies', 'Warranty', 'Cable the Future', 'Business Environment', 'Partners', 'Global Activities', 'LAN Systems News', and 'Current Issues'.
- Central Content Area:**
 - Support & Documentation:** Features a '25 year Warranty' badge and a 'LANsystems Library' link with the text 'Click here to access the documentation'.
 - SUCCESS STORIES:** Includes 'Examples of previous projects'.
 - PRODUCT INFORMATION:** Includes 'For DATA SHEETS see PRODUCTS' and 'LAN Catalogue (Jan 2017) pdf'.
 - TRAINING & PROJECT SUPPORT:** Includes 'Training' and 'Software Design Tools'.
 - 'CABLE THE FUTURE' MAGAZINE:** Includes 'Download or join the mailing list'.
 - WARRANTIES:** Includes 'Different warranty options', 'Certified Solution Warranty', 'Link Warranty', 'Flood Policy', and 'Cable Storage & Handling'.
 - INSTALLER TOOLS:** Includes 'Test procedures', 'Installation & Design Guidelines', 'Termination Videos', 'Labelling Systems', and 'Become a Partner'.
- Right-Hand Sidebar:**
 - LANsystems Library:** A dropdown menu listing various resources: 'Library Technical contents (28/10/2015), Information (84 kB)', 'Become a Partner', 'Software', 'Brochures & Catalogues', 'Magazines & News', 'Success stories', 'Technical Literature' (circled in red), 'Press cuttings', 'White papers', 'Test procedures', 'Installation & Design Guidelines' (circled in red), 'Data Sheets', 'Tender Books', '3rd Party Certificates', 'Multimedia', 'Presentations', 'Warranty', 'Archive', 'Documentation en Français', 'Biblioteca (Sp)', and 'Bibliothek (De)'.
 - File Library:** A section with a search engine and directory. It lists 'Installation & Design Guidelines', 'Design Guidelines', 'Installation guides' (circled in red), and 'Product Installation Sheets'.

Note: if the Nexans 25 year system warranty is required, testing and submission of results for certification is a mandatory requirement.

Testing has to be performed according to the Nexans OF field testing procedure which is available from our website.

OF system polarity

The only way to automatically maintain the duplex polarity without having to think about it, is to include a crossover into all the OF link segments.

In other words, fibres pairs have to be swapped over (interchanged) into the patch panel on one side of every link segment.

Reverse-pair wiring - OF Cable termination scheme					
OF Patch Panel - Side A			OF Patch Panel - Side B		
FTTO: FD side			FTTO: CP side (Demarcation Box)		
Fibre coding		Front panel position	Fibre coding		Front panel position
Colour	Pair	LC (*)	Colour	Pair	LC
Blue	1	1a	Orange	1	1a
Orange		1b	Blue		1b
Green	2	2a	Brown	2	2a
Brown		2b	Green		2b
Grey	3	3a	White	3	3a
White		3b	Grey		3b
Red	4	4a	Black	4	4a
Black		4b	Red		4b
Yellow	5	5a	Violet	5	5a
Violet		5b	Yellow		5b
Pink	6	6a	Turquoise	6	6a
Turquoise		6b	Pink		6b

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The user should review the information to ensure conformity to the current applicable codes and regulations and to the project requirements.

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Edition 26.06.2019

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