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For Engineers installing Fibre network

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NOKIA DF-I6 install

*Installation practice of the Nokia Subtended Head
End (SHE) PCP side pod*

About this document ...

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1 **Introduction**

This document details installation of the Nokia Subtended Headend (SHE) PCP side pod with Power (-48VDC) and Fibre supplied fed by donor DSLAM cabinets. The SHE side pods are like G.fast side pods and use the same installation techniques.

2 **Pre-requisites**

- All sites will have been fully surveyed.
- PCP will be CCC 6 (with special adapter plate) or 7 type.
- Before starting work, Installation teams must have attended the appropriate training courses and use suitable PPE.
- Safe isolation of power circuits for new connections or maintenance procedure shall be followed where appropriate.
- Before accessing DSLAM cabinets contact the AOC. In H100A cabinets with EPS30 PSU, if alarm cable is removed to replace fuse, intermittent door and temperature alarms may be seen.
- Before accessing cabinets carry out risk assessment – normal risk assessment – any issues escalate to manager (see **EPT/PPS/B062** - Cabinets Cross-Connection and Other Extnl Cabinets).

Note: Installation of the Side Pod requires 2 persons it must not be attempted by a single person.

3 **Safety.**

During **ALL** operations, the appropriate safety precautions must be followed to safeguard yourself & the public. Care should also be taken not to damage any equipment i.e. PCP, side pod & DSLAM.

4 **Side Pod Installation.**

See section 7 of [EPT/ANS/A057](#)

The DF-16 SHE box will contain a pre-installed power unit an ODU bracket and fitting kit. A side pod bottom wedge if required on build.



5 *Tools required for fitting Side Pod and Terminating Hybrid Cable.*

See section 4 of [EPT/ANS/A057](#)

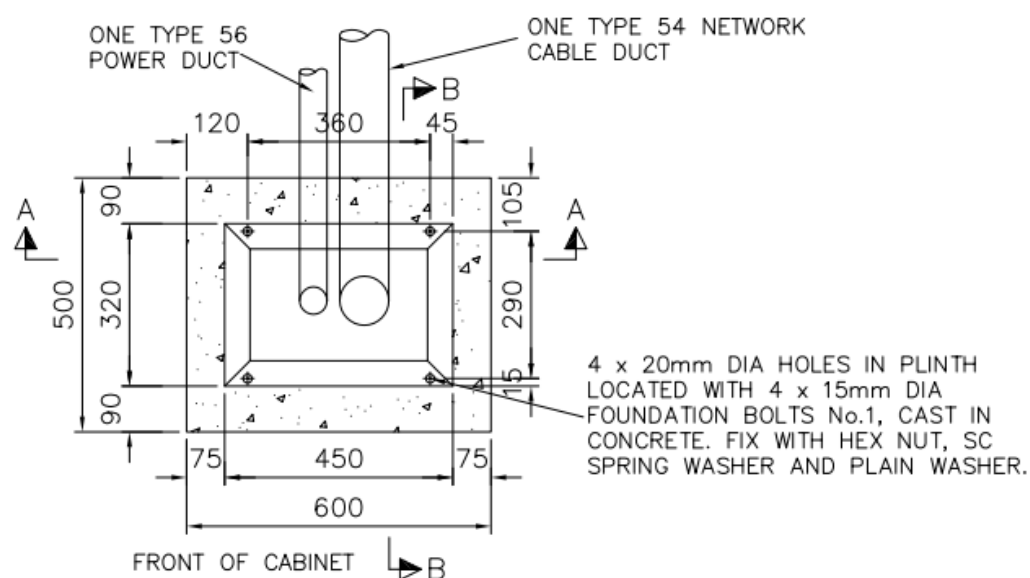
This document must be read before any work is started and requires the correctly trained engineers.

6 *Installation of Standalone Cabinet*



6.1 Concrete plinth

The standalone SHE cabinet will be installed upon a concrete plinth constructed as detailed in Openreach drawing CN15647



6.2 Cables

6.2.1 Installing cables into cabinet

Both the Hybrid cable and the network cable(s) shall be migrated into the cabinet through the duct 54. The duct 56 is only for future use a DNO feed.

6.2.2 Restraining cables



The cables shall be restrained by cable straps to the restraining bar fitted in the cabinet root. The cables can be restrained either side of the bar (whatever side is best to keep the cable in its straightest form). The cables can be restrained using the T cut outs in the bar itself or a criss cross of two ties over and under the bar to hold the cable.

7 CW1902 Hybrid Cable.

7.1 DSLAM Connection.

For information on the Hybrid cable and how to terminate in the DSLAM cabinet see section 5 of [EPT/ANS/A057](#)

Side pod lifting risk assessment

This document must be read before any work is started and requires the correctly trained engineers.

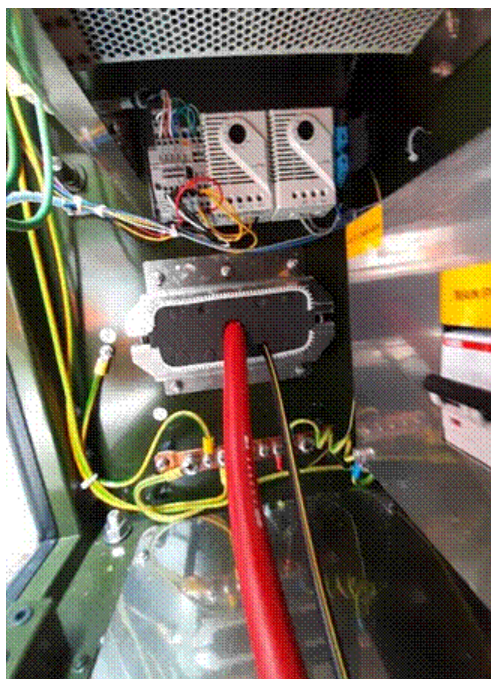
7.2 Side Pod connection.

Once fitted to the PCP release the cable entry gland between the PCP and side pod using a Philips screwdriver as shown below. Insert Hybrid cable ensuring approximately 5 metres of cable are migrated into the side pod. This process is the same for the COF 200, 36 ULW, and the red hybrid cable, when feeding backhaul fibres into the side pod via a PCP duct.

Once the network cable has been built into the SHE pods tighten the gland bracket to hold the cable(s) in place.



Note: The red hybrid cable will always be introduced into the SHE as this will power the unit even if it is not used for a backhaul connection.



36 ULW AND HYBRID



2 x 36 ULW AND HYBRID

COF 200 AND HYBRID

Once the chosen cable(s) is in position as per build ISIS EPT/ANS/A057.
Introduce the cable with a minimum length of 5 metres within the side pod
for the fibre and power build to commence.

8 ***Placing Power cables into the SHE RCD.***

All the electrical installation operations described may only be undertaken by a qualified power engineer.

After the power cables are connected fit the cable restraining bracket as shown below.



This plate will be in the same position when the pod is fitted left or right on the PCP. The holding bracket is held in place with the existing nut in the centre of

the outer casing of the RCD box.



Bracket in position. Secure cable using either cable tie i/c 072492 black A1 or Velcro provided within the fitting kit.

9 ***AIO Hybrid Fibre kit.***

The AIO 48F PON BUDI-box is a pre built kit comprising of the following:-

1 x AIO yellow 48 Hydra (made to BT colour code) with LC pluggable tails numbered for both PON cards, backaul fibres and spares for extra capacity moving forward.



48 Fibre AIO breakout to BT colour code

1x BUDI-Box with a magnetic backing and 6 trays of 12 ports on each tray fibres laid as follows. 1 -12 tray one (bottom tray) 13 – 24 tray two, 25 – 36 tray 3 and 37 – 48 tray 4. Trays 5 & 6 are for storing spare fibres.



1x length of black tubing to protect exposed elements when a COF 200 and Hybrid cable solution is used.



9.1 Installing the BUDI-Box .

The CommScope BUDI box will need a minimum of 3 meters of AIO hydra tail Network PON / Backhaul cable to be built within the side pod, taping both hydra and back haul fibre cable / mini flex transport tubing together at 150mm intervals.

The BUDI box can be placed on the door, roof, or side of the SHE pods to allow the splicing task to be performed without being too restricted.



BUDI-Box shown, stuck to door with magnetic back to assist with splicing.

9.1.1 Storing the BUDI Box

As stated above, tape both the hydra and network cable(s) / mini flex transport tubing together at 150mm intervals.

Coil the cables and store in the side of the cabinet, Cleats wiring self-adhesive 6C white can be installed in the side of the cabinet to aid storage of the cables.

Place the BUDI box onto the plate installed on the inside of the roof.

If the SHE is in a High traffic area then cable straps will be needed to stop possible vibration of the Budi-box moving within side the SHE.



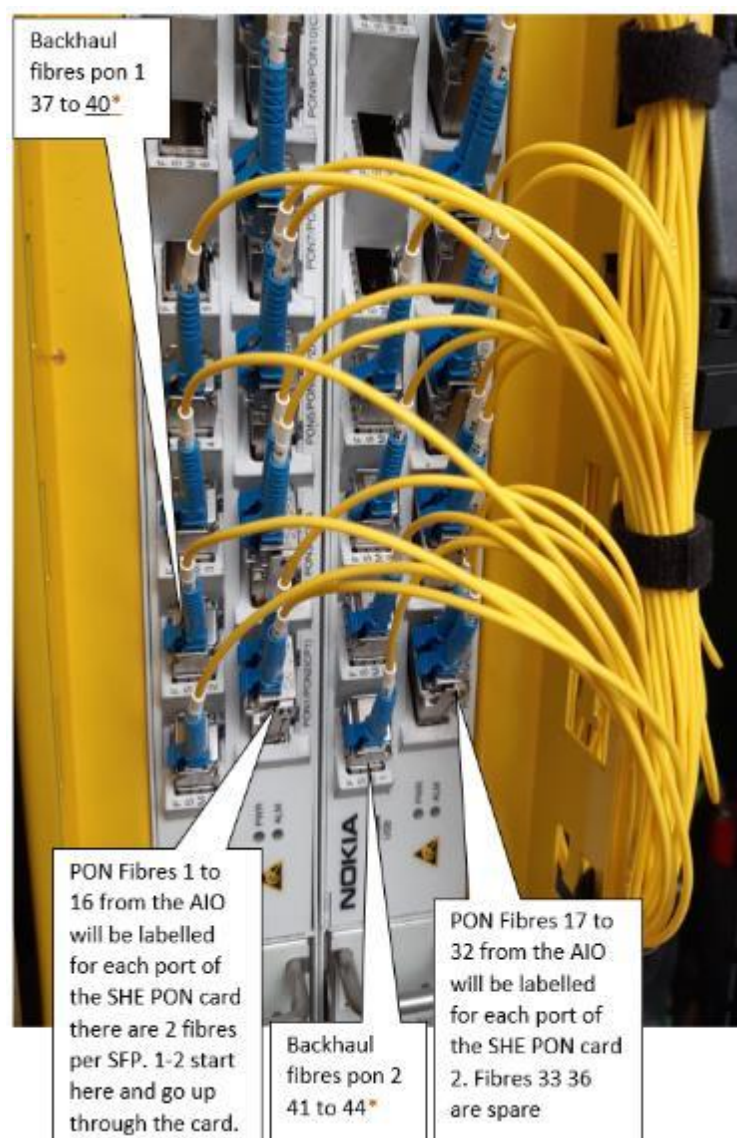
9.2 AIO Installation

To be ready to receive the AIO and BUDI box hydra system install the required SFP's (as per job pack C plus /B plus etc.) within the NOKIA DF-16 PON cards.

Only remove rubber covers when the hydra is about to be fitted within the SFP's



Install the PON Hydra cable starting from the bottom of the PON card. Place connector number 1 as shown below, installing all 16- numbered connector's within NOKIA DF-16 SFP'S ensuring there are two fibre tails to each SFP within the PON card.



Place all 32 numbered fibre tails into both PON cards, then place the correct amount of back-haul fibres into the df-16 SHE ports for the required THP needed.

The spare fibre will allow for back haul growth depending on the required THP when installed. * Note the number of back haul fibres required per PON are determined by THP

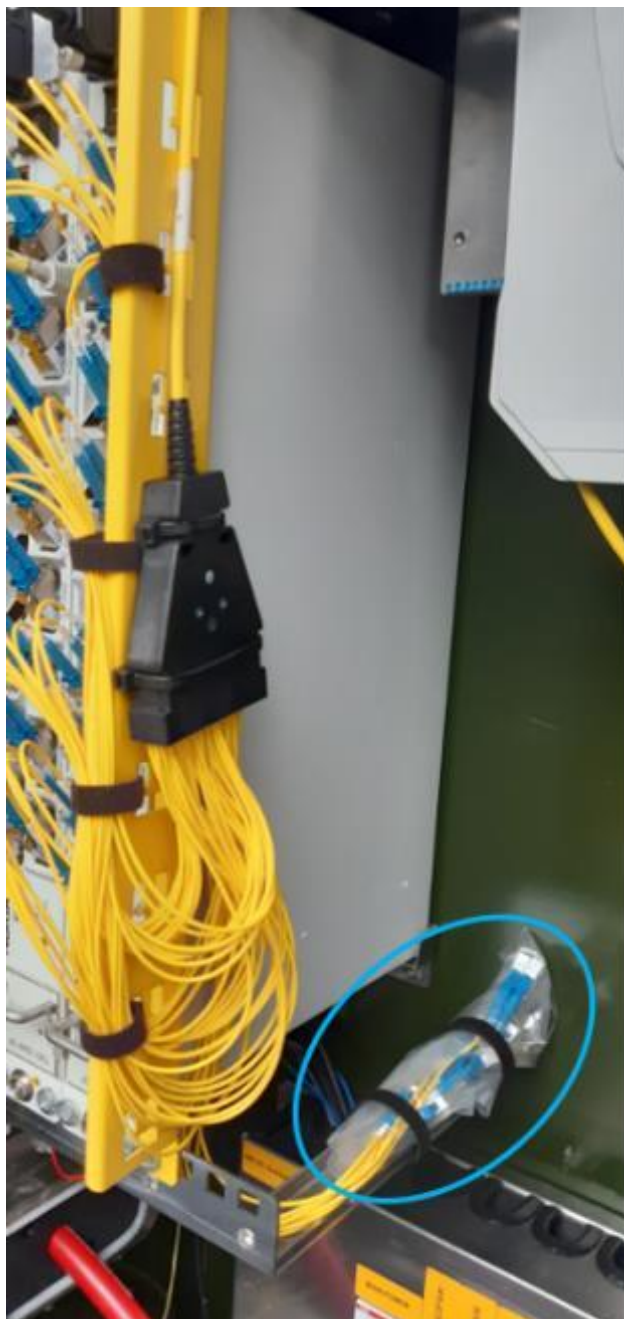
Use link to read policy on THP [NOKIA DF-16 Subtended Headend \(SHE\) in Side-pod or Standalone-Pod - Policy](#)

ISIS Directive : NWK/LNK/C580

The fibre AIO breakout must be secured to the cable management bars by using Velcro strapping NOT cable ties. Once secured and the connectors have been installed correctly again using Velcro secure the tails and spare fibres as per image below.

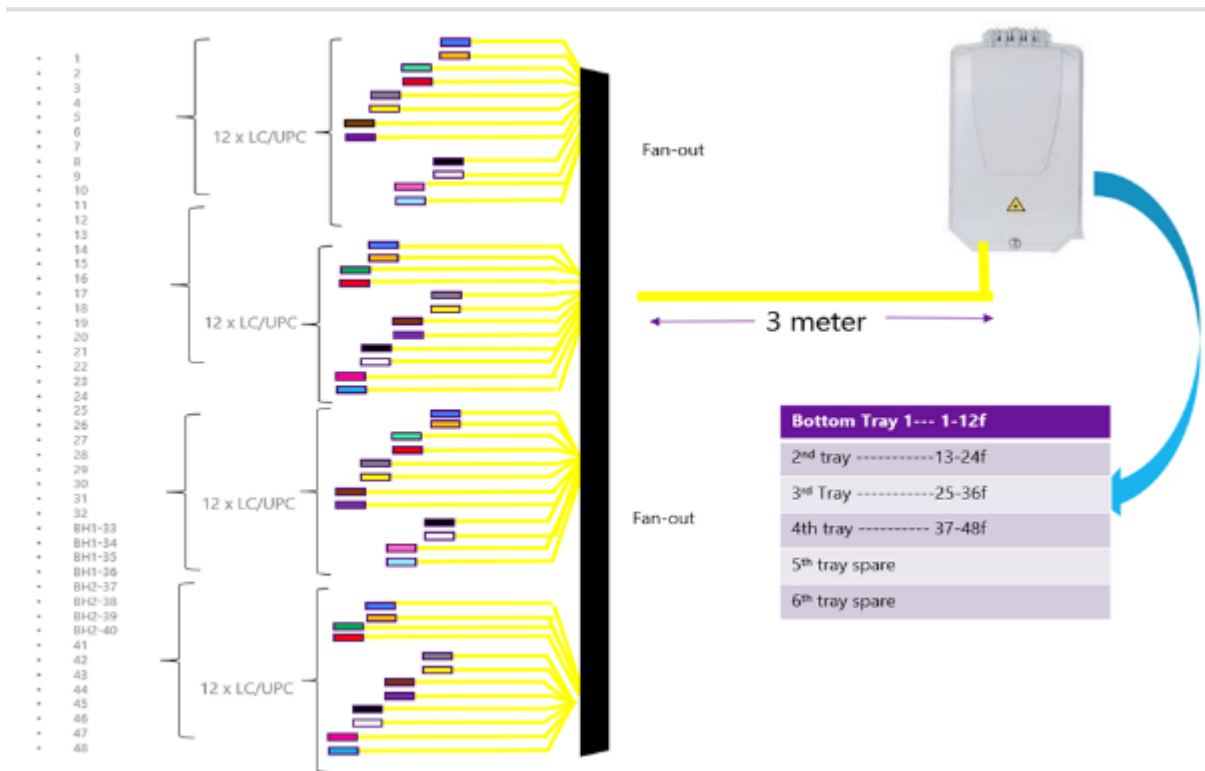




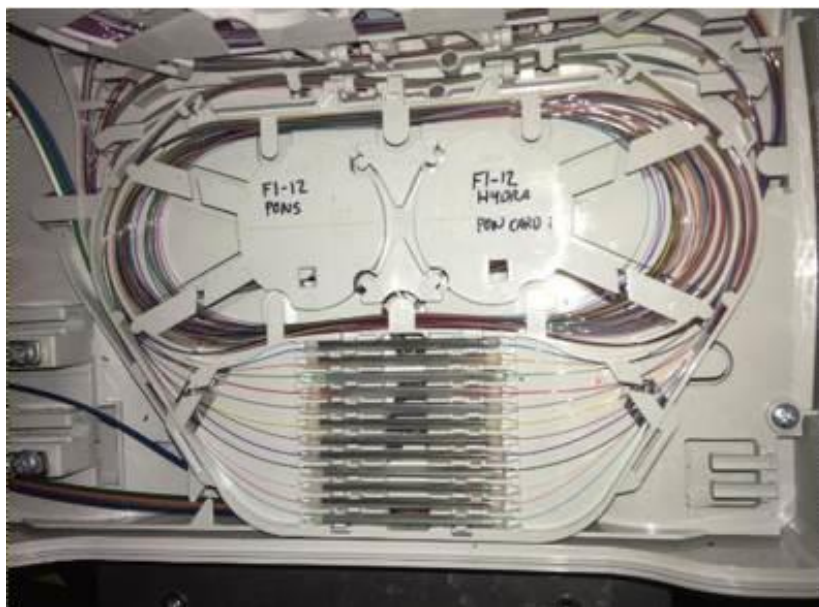


The spare fibres required to serve as Additional back haul fibres for 80k dual fibre circuits can be strapped to the chassis with the dust caps left in place. Shown above and below.

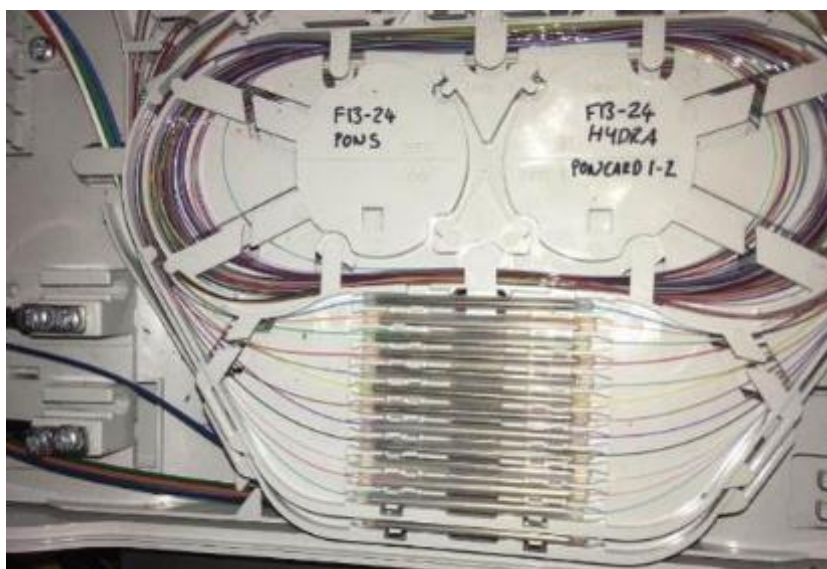
10 ***Tray layout used for all Back haul / PON fibre installations.***



Tray 1 Hydra Fibres 1 – 12 serve PON card 1



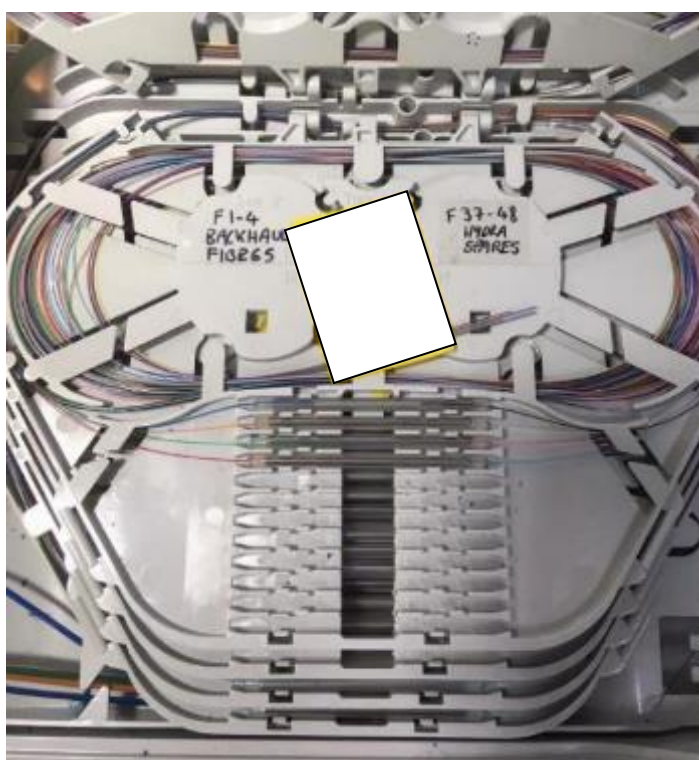
Tray 2 Hydra Fibres 13 – 24 serve PON card 1 (13-16) and PON card 2 (17-24).



Tray 3 Hydra Fibres 25 – 36 serve PON card 2 (25-32) and spare PON fibres (33-36).



Tray 4 Hydra Fibres 33 – 40 serve Back haul fibres and spares. * Note fibres 41 – 48 are extra back haul fibres required per PON are determined by THP and SFP build when deaul fibres are required.

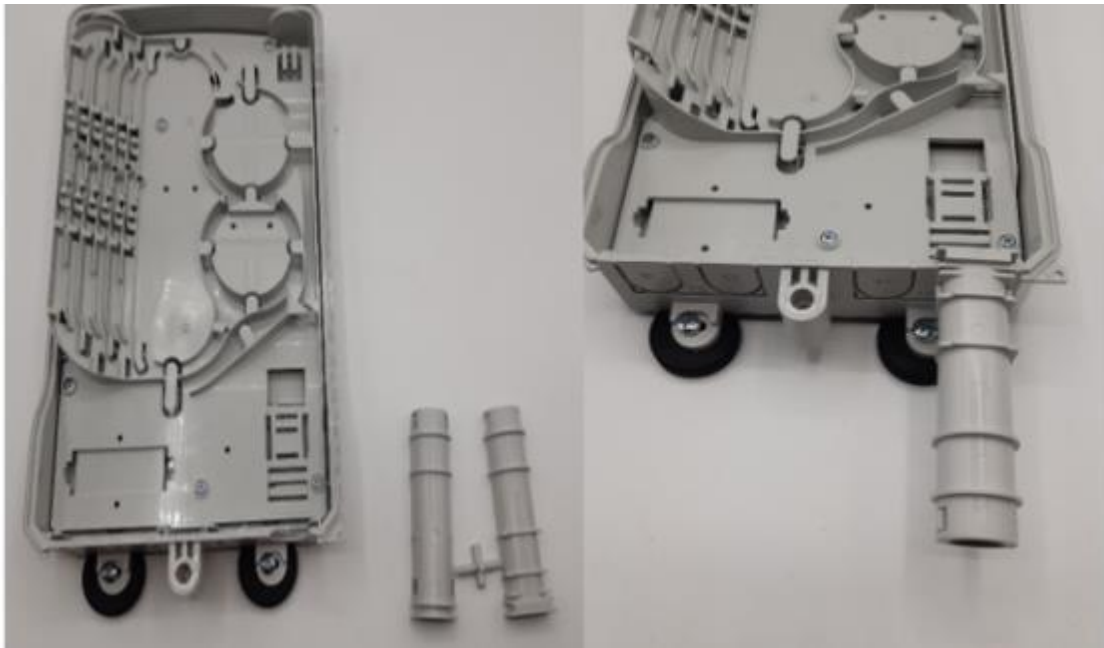


11 ***Network cable installation (PON & Back haul)***

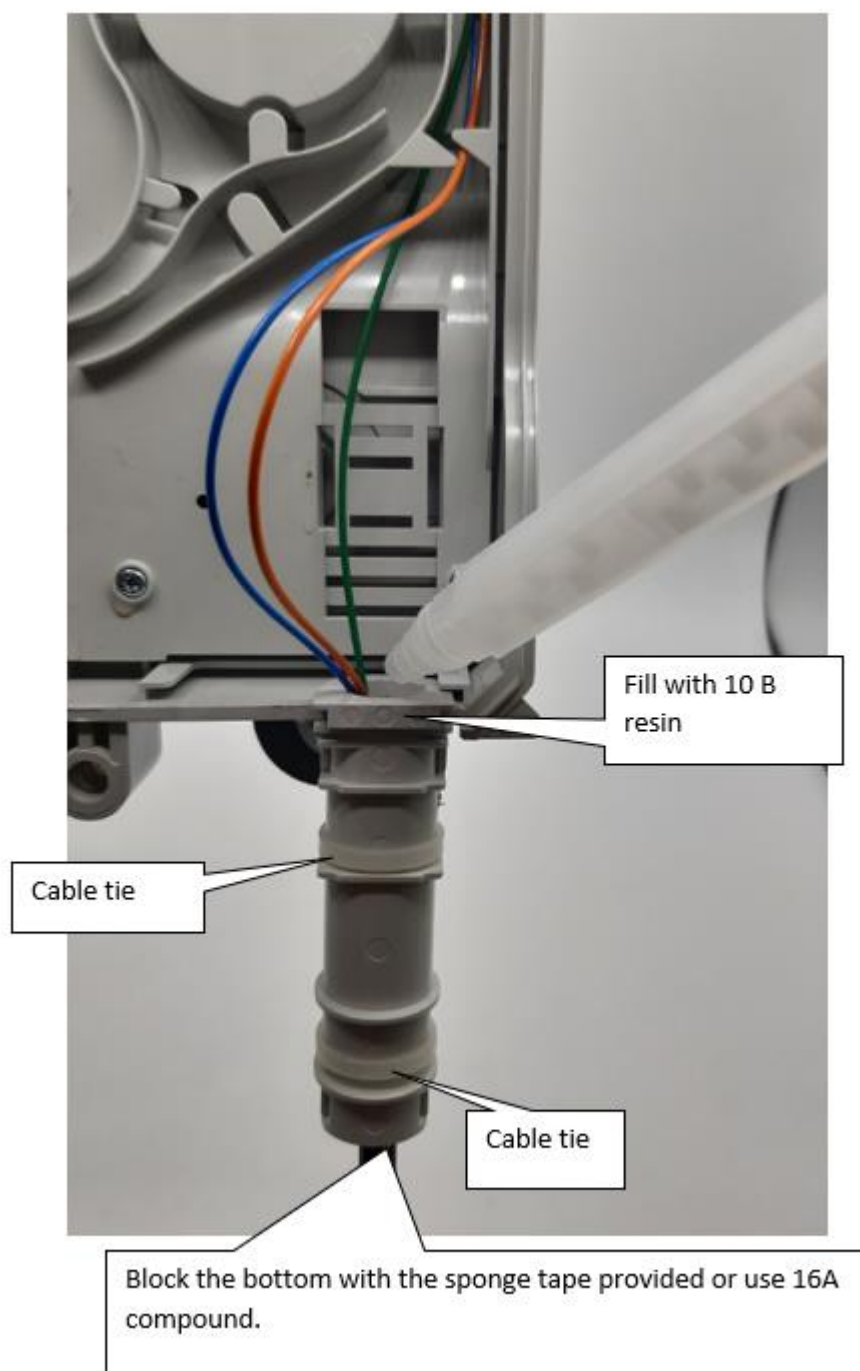
11.1 **Gas blocking of outgoing ports**

When the AIO 48f KIT has been populated with both 36ULW COF215 OR COF200 then gas blocking will be required. The kit comes with two gas blocks which sit within the half-moon cut-outs at the base of the Budi-box.

Place the two halves together as shown below, too make a port which can be filled with resin 10B and blocked at the base with either wrapping sponge or 16A compound.

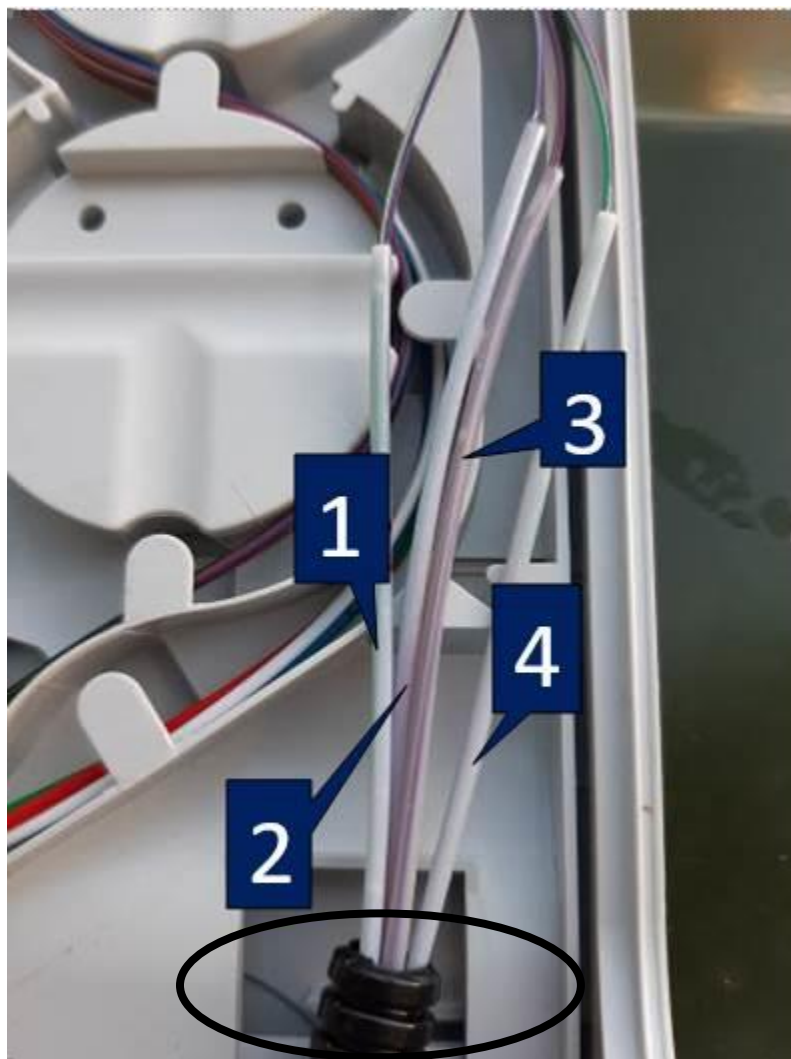


Make sure that all cables from the AIO into the network are gas blocked.



11.2 Installation of COF 200 method

Strip 5m of sheathing from the COF 200 and remove the strength member at the butt of the cable to release the four fibre elements.



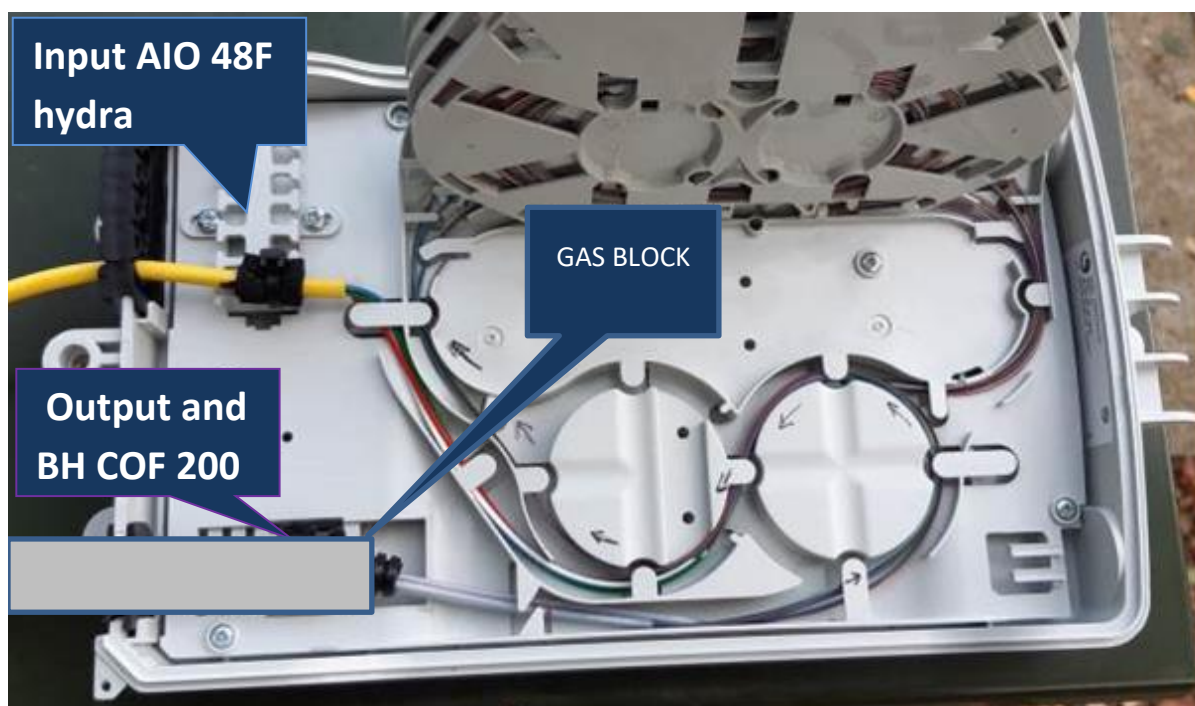
Install 3m of the supplied black mini flex transport tubing over the full length of all four elements to protect from damage. Ensure the transport tube is down to the butt of the COF200 and within the gas block so the 10b resin grips the mini fleex and gas blocks the cable.



COF200 will need to be strapped on to the bracket as shown, with a gas block and black mini flex transport tubing placed over the elements to protect their transition from gas block to the CommScope BUDI box.

Remove approximately 2m of the element tubes and store the fibres onto the associated trays.

This image below shows the route of the back-haul fibre cable being laid within the BUDI-box race way.



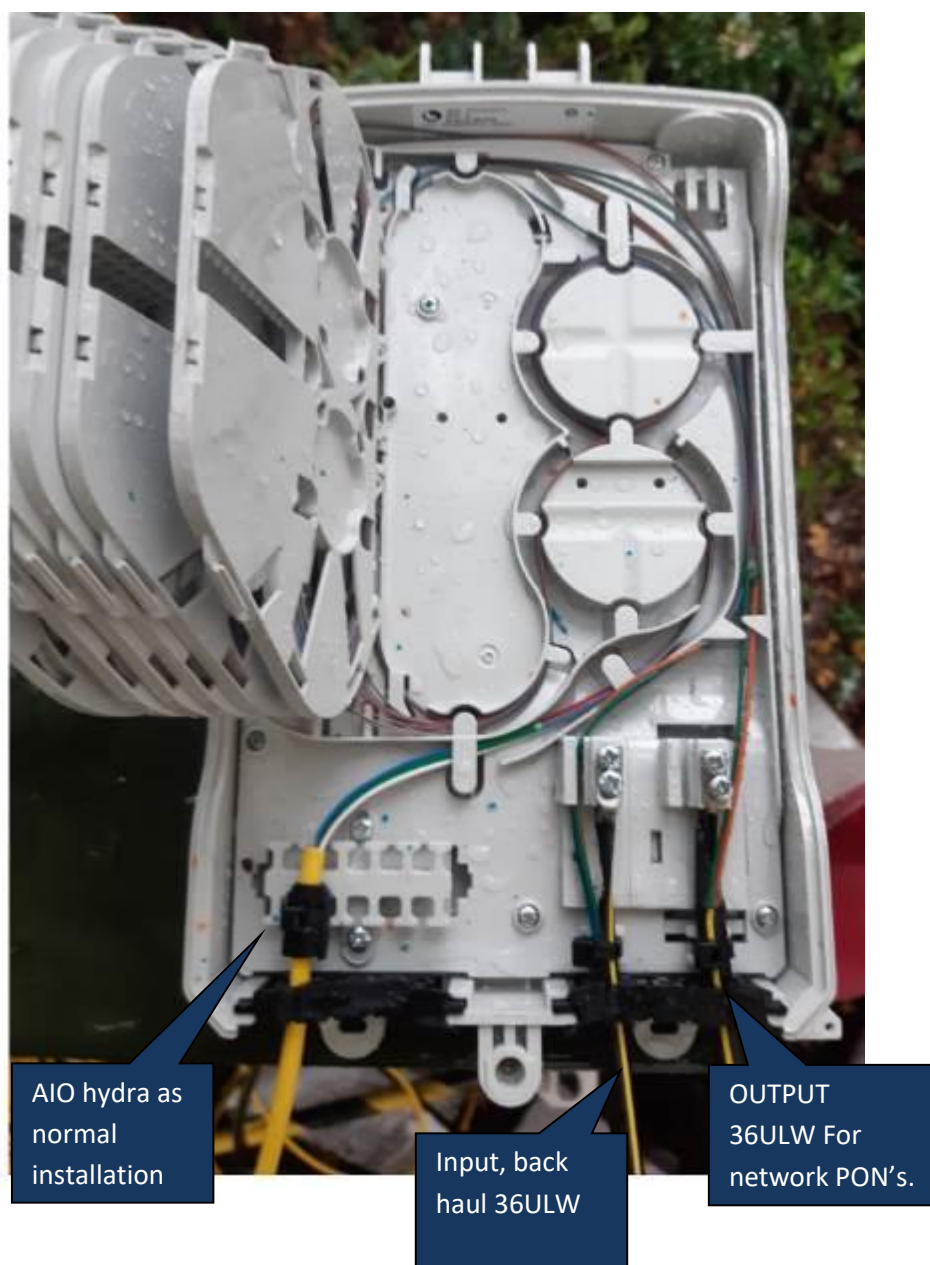
When using the COF 200 method the backhaul fibres and the outgoing PON fibres are fed from the same cable

This one cable is used to feed the back-haul fibres into the Nokia SHE and connect the PON fibres to the AIO hydra using the splice trays. Element one and two are used to feed the SHE PON cards within the Nokia. Element 3 is used for the remaining 8 fibres required for PON 2 and four spares and element 4 is used for the back-haul fibres and spares.

Ensure that the fibre elements are positioned onto the correct side of the tray prior to splicing.

11.3 Installation of the backhaul fibres and network PON feed using 2x 36ULW cables.

This method uses two 36 ULW fibre cables and the hybrid for power only



Using Fibres from the Hybrid cable for back haul and a 36ULW for PON build. **Making sure that all cable from and to the network have the gas blocking tube fitted.**

5m of the central element of the Hybrid cable which contains the fibres should be available.

Install 3m of the supplied black mini flex transport tubing over the full length of element to protect from damage. Ensure the transport tube is down to the butt of the Hybrid cable

Install a cones airblock 7 at junction of the Hybrid cable butt and the end of the transport tube. The Hybrid cable will need to be strapped on to the bracket as shown in 10.1, This is to give mechanical strength to the fibre element.

Remove approximately 2m of the element tube and store the fibres onto the associated trays.



Making sure that all cable from and to the network have the gas blocking tube fitted.



Clear site and test and commission.

END OF DOCUMENT