Prysmian Group

INSTALLATION INSTRUCTION

OAsys® INTERNAL PLANT

MDU (SMALL) INSTALLATION GUIDE (GENERIC)

Part Number: XCPSC00892 and other Small MDU's

Clean before you connect.
It is important that all fibre connectors and adapters are cleaned prior to mating using approved local practice. Failure to clean may result in either poor signal performance and/or permanent damage to the connector end faces.

Description

- Internal Multi Dwelling Unit
- Capability to accept and manage a range of cable types and sizes including multi loose tube and blown cable.
- Secure cable anchoring using up to 2 ARS or cable tie options with a capacity for up to 4 cables.
- Single circuit / 4F splice trays. Max Capacity 96 splices.
- Single element / 12F splice trays. Max Capacity 180 splices.
- 2-point lockable cabinet.
- Removable door which provides increased access to internal components during installation.
- Bend managed solution.
- Brush inputs and outputs to accommodate differing applications.
- SC Duplex or LC Quad adaptors available to provide 48 SC connections and 96 LC connections.
- Bend managed reverse option for connectorising output cable.

Tools and Additional Items Required

Additional Items Required:	**Prysmian Part No.**
Heatshrink Splice Protectors-pk 12/50	XKTSC00050 / XPESC00053

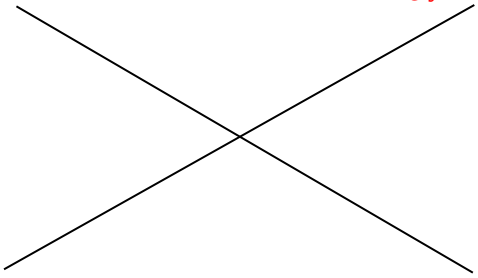
Optional Items:	**Prysmian Part No.**
Patch Cords	REF datasheet: AC004
Bend Limiting Transport Tube	REF datasheet: AC012
Pigtails	REF datasheet: AC003
Adaptors	REF datasheet: AC002
MDU Accessories	REF datasheet: WM008

Tools: 13mm Socket / Hammer Action Drill / 12mm Masonry Drill Bit / Fusion Splicing Machine / Side Cutters / Spirit Level / Pencil / Circumferential Cutter / Tube Cutter / Verticassa Stripping Tool.
Tools dependant on which method of installation is required.

Component Parts (pictures not to scale)

1 MDU Assembly — **Qty 1**

2 MDU Installation kit — **Qty 1**



3 Other Items	**Qty**
Keys (2 Pairs)	2
5mm LS RFH Tube (5m)	1

MOUNTING THE MDU

Step 1

1. MOUNTING THE MDU

- The MDU will need to be fixed to a solid surface before any cables or splices take place.
- Select a suitable location for the MDU to be attached.
- This should be a solid flat wall. Make sure there is adequate space so the door can be unlocked, swung open and removed.
- All cables that come into the MDU should be secured/attached to the wall.
- The MDU should not take external loading from bent cable.
- Ensure that there are no electrical outlets directly above or below the unit.

MOUNTING THE MDU

Step 1.1

- Unpack the unit.
- Remove the keys which are attached to the unit.
- Insert them into each lock and twist to unlock. When the locks are in the open position the keys cannot be removed from the locks.

MOUNTING THE MDU

Step 1.2

- Swing the door open.
- Support the door using one hand.
- With the other release one of the sprung loaded hinge pins and carefully remove the door from the unit this will provide you with room to manoeuvre and provide you with additional working space.

MOUNTING THE MDU

Step 1.3

- Identify the position on the wall where you wish the MDU to be attached. Check the hole centres horizontally are 360mm apart.
- Mark the wall where the first wall plug will be positioned.
- Using the spirit level draw a line across the wall and then measure out the horizontal distance.
- Using 12mm masonry drill piece and drill both holes so that they are 10mm deeper than the wall plug. Approx. depth: 70mm
- Insert 2 of the wall plugs into the holes.
- *Note: Wall plugs to be used in masonry walls only.*

MOUNTING THE MDU

Step 1.4

- Thread a washer onto each of the fastening bolts and screw 2 of the fastening bolts into the wall plugs using a 13mm Socket Set.
- Hold the unit up against the wall and allow the unit to drop down into the keyed cut out. Do not fully tighten the bolts.
- Using the pencil mark the 2 lower fixing positions roughly.
- Lift the unit off the wall and double check the vertical height distance between the centre of bolts is approximately 461mm.

MOUNTING THE MDU

Step 1.5

- Using the same 12mm drill bit used in step 4 drill 2 more holes in the marked positions making sure that they are 10mm deeper than the wall plug. Approx. depth: 70mm
- Hang the MDU back onto the wall and tighten the top bolts using a 13mm Socket.
- Screw the 2 remaining bolt assemblies into the lower wall plugs and tighten using a 13mm Socket.
- The MDU is now installed onto the wall.

CABLE PREPARATION

Step 2

2. CABLE PREPERATION

- This section details information on how to prepare different cables for use in the MDU.
- The following types of cable are detailed:
- *- Blown Tube*
- *- Multi Loose Tube*
- *- Verticasa*

CABLE PREPARATION

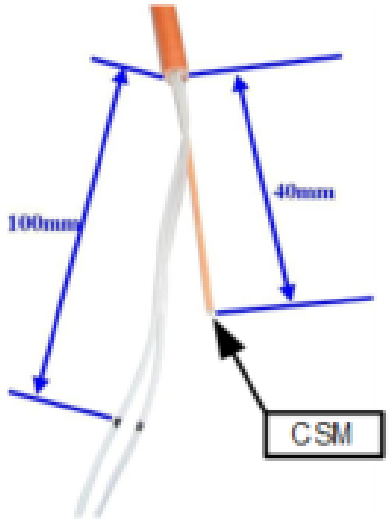
Step 2.1

BLOWN TUBE:

- DB cable should have the external sheath removed before it enters the MDU. The external sheath is removed using a circumferential cutter & longitudinal cutter. This leaves the internal sheath for fixing.
- The MDU uses the internal 5mm tubes as a way of controlling fibre into the tube inlet manifold and for outputting fibre.
- Within the MDU the internal sheath should be removed. Use a circumferential cutter. This will expose the tubes. Take care not to damage the tubes.
- Enough tube should be exposed to allow the tube to attach to the desired location.
- Tubes should be cut using a tube cutter.

CABLE PREPARATION

Step 2.2



MULTI LOOSE TUBE:

- Prior to installation ensure that there is a minimum of 2m of cable spare for installation, termination, and storage purposes.
- Make a Butt Mark 2m from end of cable. Remove the outer sheath back to the Butt mark and remove all tapes and bindings.
- Remove all unwanted cable elements. Cut the Central Strength Member (CSM) to a length of 40mm from the cable butt.
- Make a mark on the exposed cable elements 100mm from the cable butt.

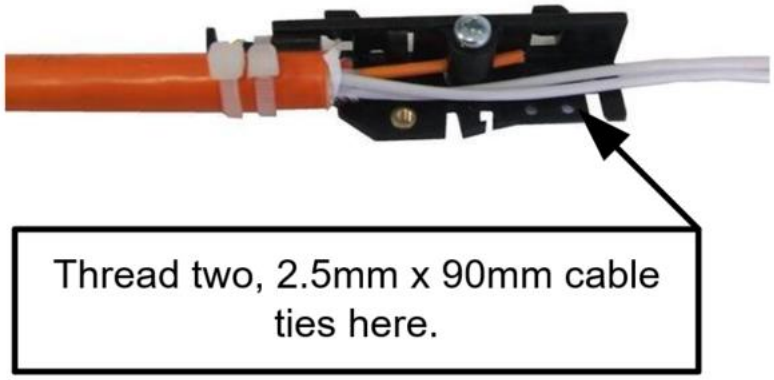
CABLE PREPARATION

Step 2.3

- Ensure that the CSM is in the centre boss of the ARS and the cable butt is approximately in line with the end of the cable support cradle of the ARS.
- Fit the M4 x 10mm screw to secure the CSM.

CABLE PREPARATION

Step 2.4



- Secure the cable butt to the ARS using 2, 3.5 x 290mm cable ties.
- Remove excess cable tie length with a Flush Cutting Tool 1A.
- Thread two, 2.5mm x 90mm cable ties through the 4 holes in the body of the ARS ready to secure the over sleeving tube (optional but recommended).
- Remove the protective tube/sheath from the elements back to this mark to expose the fibres.
- *For cable to cable/blown fibre these steps need to be completed on both cables.*

CABLE PREPARATION

Step 2.5

VERTICASA

- To expose the fibre modules from the VertiCasa™ Riser Cable:
- Create a window cut with the VertiCasa™ Stripping Tool.
- Extract all the fibre modules from the cable.
- Cut the external sheath and the two Glass Reinforced Plastic (GRP) rods below the fibre modules with some side cutters.
- Remove the unnecessary part of the external sheath to expose the fibre modules.
- *Refer to IP133 for detailed instructions.*

CABLE PREPARATION

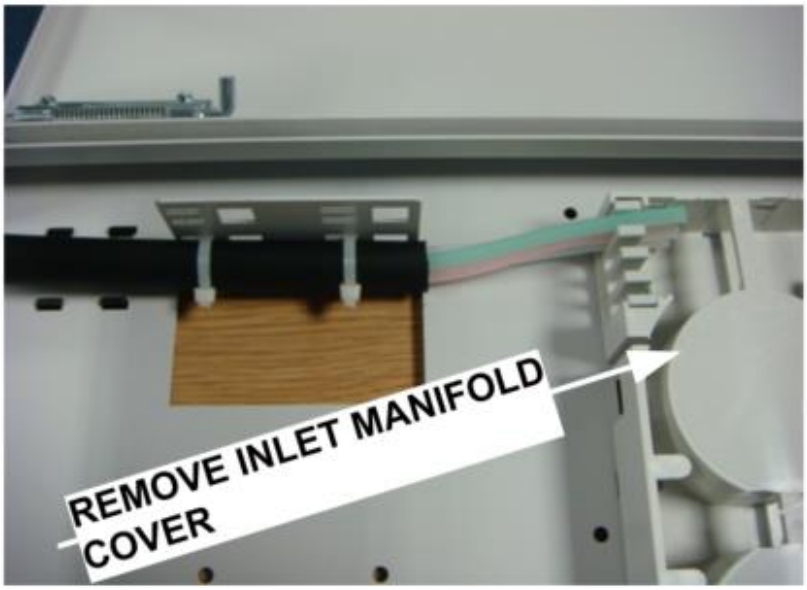
Step 3

ROUTING THE INPUT CABLE

- This section details how to bring in the input cable(s) to the MDU.
- The MDU has 3 different methods of cable restraint. Depending on cable composition the cables can be restrained using a cable gland, ARS or cable ties.
- The MDU also accommodates a variety of cable types. Each one requires slightly different installation methods depending on the construction of the cable.
- Note: It is important to store at least 1.5m of each fibre on each tray to provide yourself with back up length should you break a fibre, or a circuit goes down.
- For multiple cable entry refer to step 3.6 before installation continues.

CABLE PREPARATION

Step 3.1

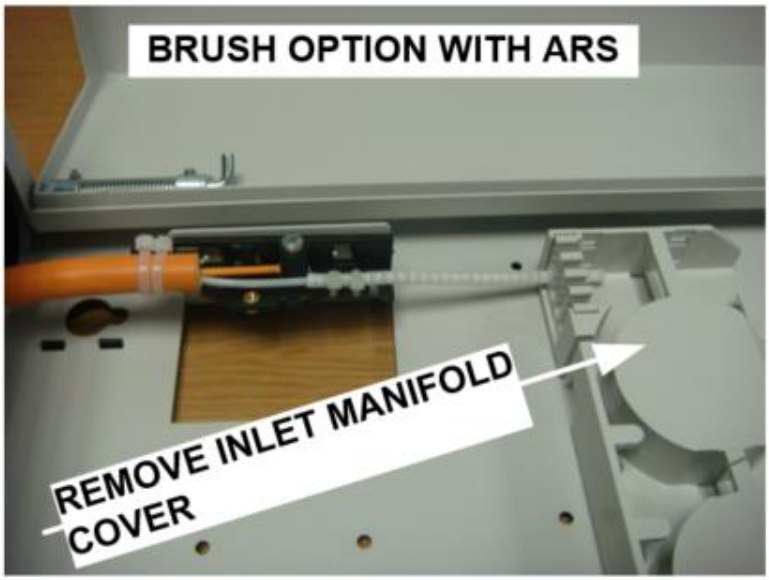


BLOWN TUBE:

- Blown Tube must be stripped back to expose the inner sheath (DB only).
- Push the cable through the gland / brush in the bottom of the unit. Remove the inlet manifold cover by depressing the 2 clips on the right side and lifting the cover off.
- Measure the distance between the cable anchor point and the input manifold. Add 20mm to this length and strip back the outer sheath to expose the internal tubes.
- Secure using 2 cable ties. Use the side cutters to trim. Tighten gland if required. Route the tubes to the inlet manifold.
- *Note: The input gland is only suitable for using '1' tube cable.*

CABLE PREPARATION

Step 3.2



MULTI LOOSE TUBE:

- Push the cable through the cable gland / brush in the bottom left of the unit. Remove the inlet manifold cover.
- The cable can be secured in one of 2 ways depending on the fibre count of the cable. A maximum of 2 cables using an ARS, 1 cable using a BEM or cable ties can be fitted.
- For cables up to 48F use an ARS restraint. For cables exceeding 96F use a BEM restraint (sold separately). Follow the instructions provided with the ARS or BEM.
- Route the tubes to the inlet manifold.

CABLE PREPARATION

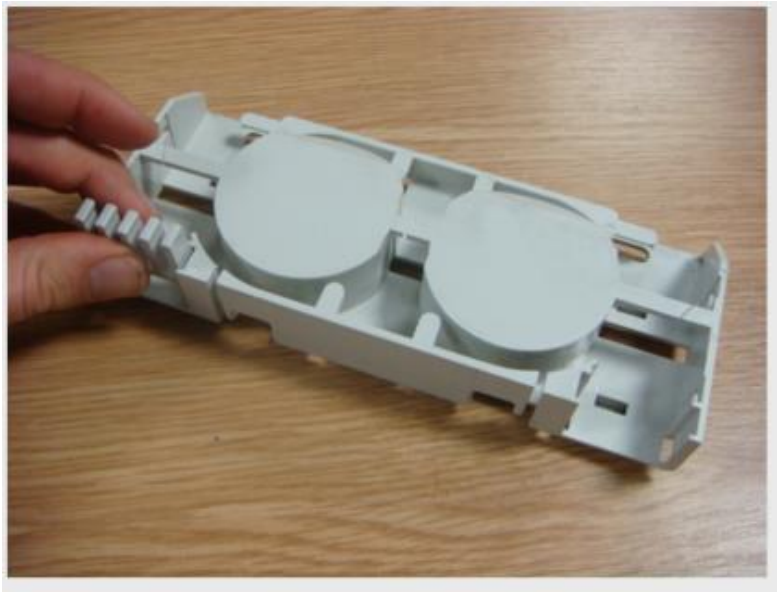
Step 3.3

OTHER CABLES:

- Push the cable through the cable gland / brush in the bottom left of the unit. Remove the inlet manifold cover.
- Strip back the cable to expose the elements.
- Secure the cable using 2 cable ties. Use the side cutters to trim the cable ties. Tighten gland if required.
- Remove the comb from the inlet manifold. Refer to step 3.4 for more details on *'Removable Tube Combs'*.
- Feed the elements up the channel. Strip back the elements to expose the fibres.

CABLE PREPARATION

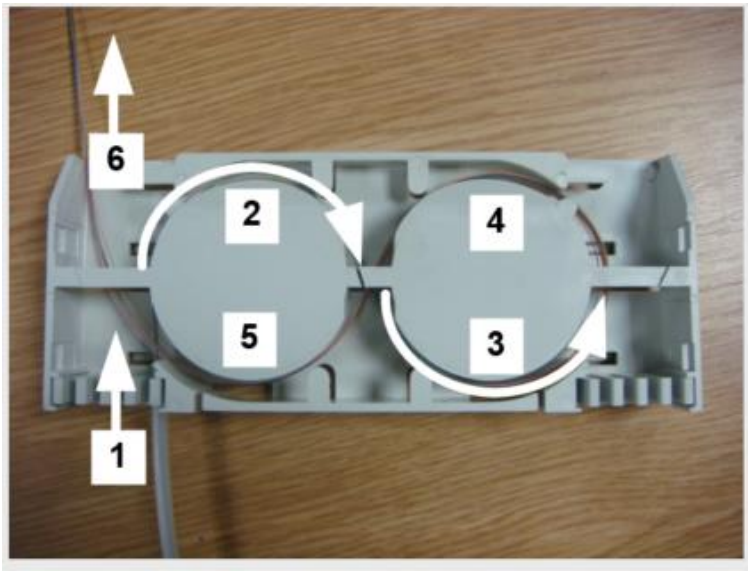
Step 3.4 Removable Tube Combs



- The tube combs can be removed easily by pulling from the inlet tube manifold. This may be required if the number input tubes exceed 16.
- If the number of input tubes exceeds 16 it may be necessary to cable tie the tube to the cable anchor bracket and run the fibre straight from there into the left-hand channel.
- If the number of output tubes exceed 16 then it is possible to run primary or secondary coated fibre to the adaptor panel. Where possible it should be over sleeved for added protection, security, and identification.

CABLE PREPARATION

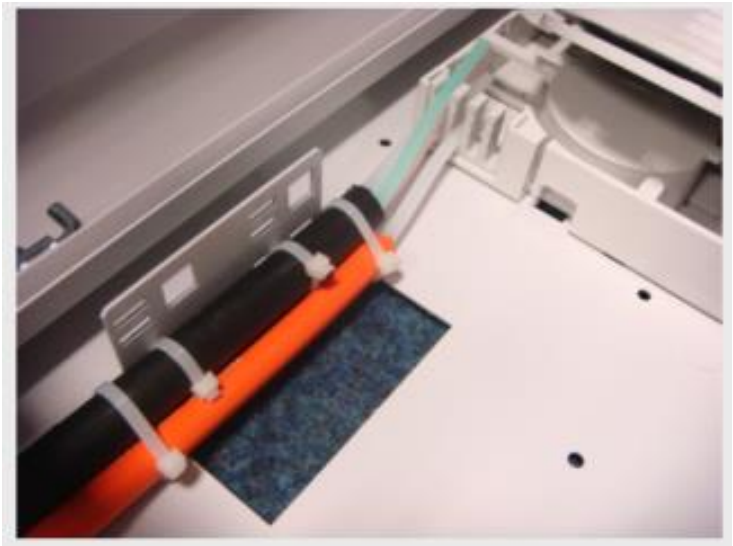
Step 3.5 Overlength Storage



- Fibre or pigtail over length can be stored in the inlet manifold.
- If required, the inlet manifold can be used as a cross over to reverse the fibre direction.
- For most installations this will not be requires as fibre length is stored on the splice trays.
- For fibre routing follow the numbered sequence.

CABLE PREPARATION

Step 3.6 Piggy Backed Cables and Bend limiting Tube:



- Additional cables can be anchored to either of the cable anchor positions.
- Cables can be cable tied to other cables where required.
- Always ensure that elements/fibres are not crushed when cable ties are used.
- If using multiple MLT cables, then use an ARS where possible and cable tie additional cables between sheaths.
- If using multiple blown tubes, then cable tie internal sheaths together to secure cables (shown above).

ROUTING INPUT FIBRE TO TRAYS

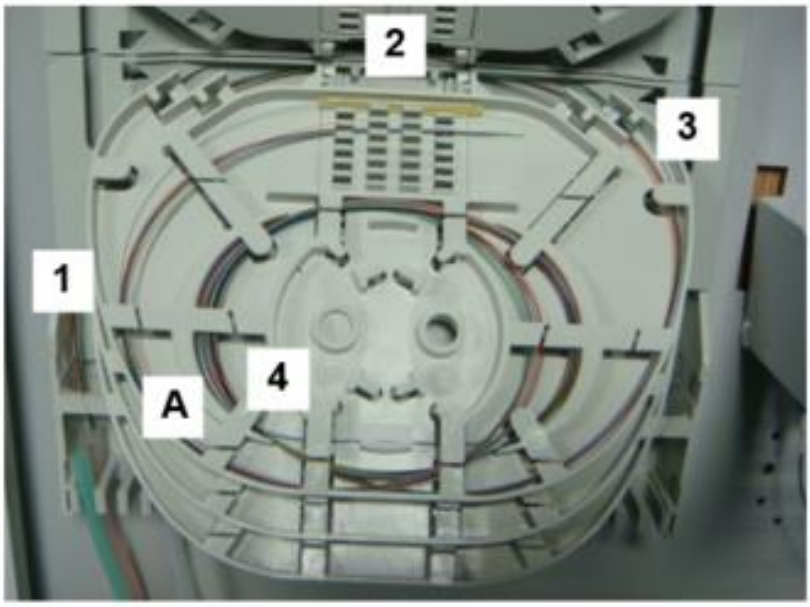
Step 4

4. ROUTING INPUT FIBRE TO TRAYS

- Now that the input cables have been secured and routed correctly to the MDU fibre can be brought onto the trays.

ROUTING INPUT FIBRE TO TRAYS

Step 4.1



- Route up to 4F (SC) / 12F (SE) to each tray using the diagram above. The trays are hinged.
- Notice how the fibre enters the tray and how it is stored. At point 2 the fibres are placed underneath the small tabs.
- Route all the input fibres as required working from the bottom tray upwards. Follow the numbered sequence.
- When you are ready for splicing exit through point A.
- *Note: It is important to store at least 1.5m of each fibre on each tray to provide backup length should you break a fibre, or a circuit goes down. This is stored in location 4. Image shows 12f tray.*

MOUNTING OUTPUT CABLES

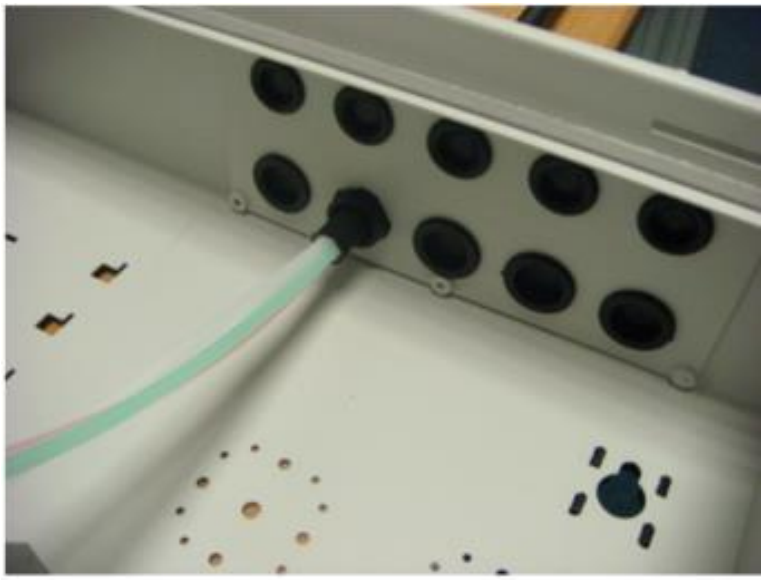
Step 5

5. MOUNTING OUTPUT CABLES

- This section details how to bring in the output(s) to the MDU.
- The MDU has 4 different methods of cable restraint. Depending on cable composition the cables can be restrained using Glands, ARS's, BEM's or by using cable ties.
- The following steps provide guide information on how to route the output cables.
- Patch cords are not restrained but can be held in position with a Velcro strap.
- Note: It is important to store at least 1.5m of each fibre on each tray to provide yourself with back up length should you break a fibre, or a circuit goes down.

MOUNTING OUTPUT CABLES

Step 5.1

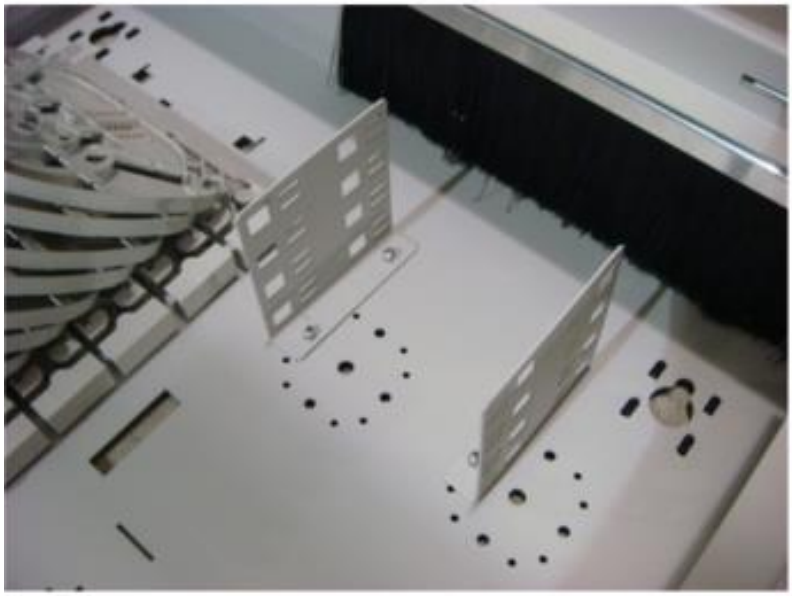


GLAND OUTPUT:

- Remove the required blanking grommets.
- The gland plate can accommodate 4x M20 (4-9mm) and 4x M25 (9-17mm) glands (sold separately).
- Fit the selected glands ensuring that they are tightened up securely to the plate.
- Push the cable through the gland. Now prepare the cable for the bulkhead adaptor plate.
- Cables should be stripped as shown in the ‘Cable Preparation’ section.
- *Note: Glands are not suitable for patch cords or pre-connectorised cables.*

MOUNTING OUTPUT CABLES

Step 5.2



BRUSH OUTPUT:

- The brush output allows for a wider variety of output types and quantities to exit the MDU.
- With the brush option internal cable retention is required. This can be done using ARS's, BEM's or cable ties.
- These are attached to cable anchor brackets (sold separately). Each cable anchor bracket can have up to:
  - 4x Ø20mm cables cable tied
  - 4 ARS's
  - 1 BEM
- For patch cords Velcro straps are used to retain them in position.
- *Note: Patch cords must not be cable tied.*

CONNECTORISING THE ADAPTER PLATE

Step 6

CONNECTORISING THE ADAPTER PLATE

- Your MDU will have an adapter plate which will have one of the following connection types.
  - SC Duplex
  - LC Quad
  - 5mm to 5mm Bulkhead

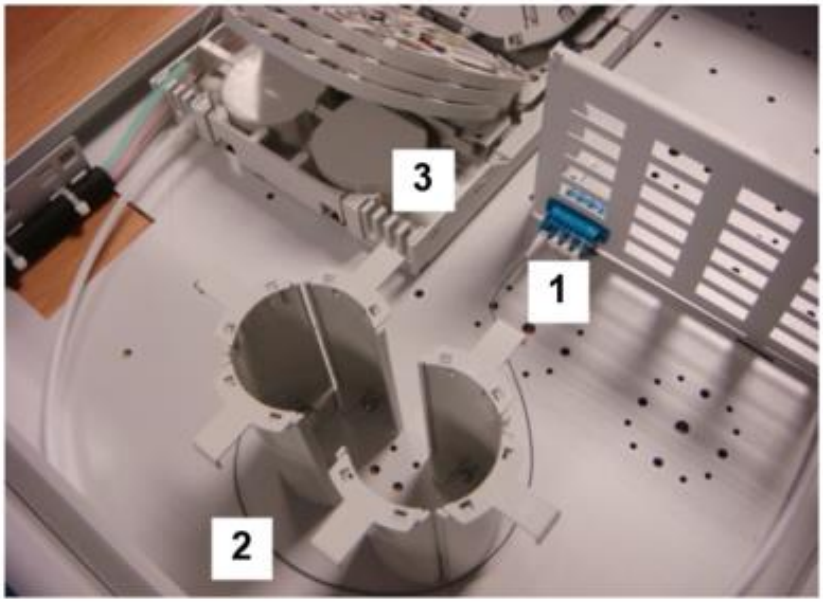
- These are usually determined by the type of outputs you are using.

For Example:

- SC Duplex: Connectorised Cable/Patch cords
- LC Quad: Connectorised Cable/Patch cords
- 5mm to 5mm Bulkhead: Blown Tube / MLT / Verticasa

CONNECTORISING THE ADAPTER PLATE

Step 6.1



SC DUPLEX / LC QUAD ADAPTERS:

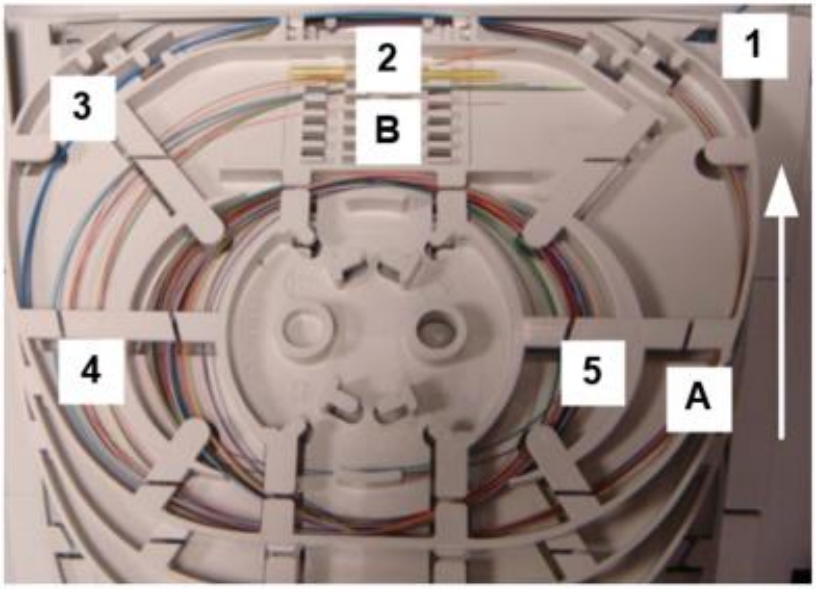
- Output Patchcords: Remove the dust cap from both the patch cord (sold separately) and adaptor, clean the end face of the patch cord and click into position.

- Pigtails: Remove the dust cap from both the pigtail (sold separately) and the adaptor, clean the end face of the pigtail and click into position.

- Feed the pigtail around the the bend managers and route the pigtail through the right-hand side of the inlet manifold. Follow the numbered sequence.

CONNECTORISING THE ADAPTER PLATE

Step 6.2



- Route up to 12 pigtails to each tray using the diagram above.
- Notice how the pigtail enters the tray and how it is stored. At point 2 the pigtails are placed underneath the small tabs.
- Route all the pigtails to the trays which contain the input fibres. Strip back the pigtail to expose the fibre between points 3 and 4. Follow the numbered sequence.
- When you are ready for splicing exit through point A. Splice capacity is determined by tray type. Up to 4F (SC) / 12F (SE).
- Fusion splices the input fibre to the pigtail.
- *Note: Excess fibre is stored in location 5.*

CONNECTORISING THE ADAPTER PLATE

Step 6.3

5mm TO 5mm BULKHEAD:

- Using a tube cutter trim the tube so that when it is inserted into the bulkhead adaptor it sits up against the internal stop.
- To insert the tube push it into the end of the bulkhead connector.
- If you need to remove the tube once it is inserted push the collet towards the metal flange and pull out the tube. Trim and insert again.
- It is important that the tube hits the internal stop to ensure fibre can be blown properly.
- Blown fibre and multi loose tube fibre will need to be over sleeved with bend limiting/low smoke tube. 5m is typically supplied or can be purchased separately.

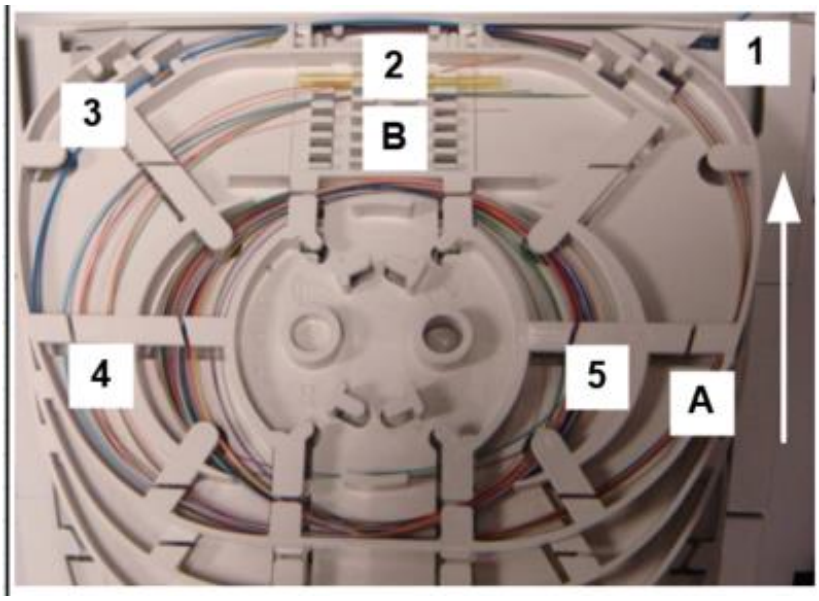
CONNECTORISING THE ADAPTER PLATE

Step 6.4

- Push one end of the tube into the other side of the bulkhead connector.
- Feed the tube around the mandrels and up to the tube inlet manifold. Refer to Step 6.1 for routing information.
- Trim the tube so that the end of the tube sits just inside of the comb on the tube inlet manifold.
- ESFU and EPFU elements do not require over sleeving but can be over sleeved for added protection if required.
- *Note: The inlet manifold can take 16 tubes. It may be possible to add additional tubes depending on how many inputs have been used.*

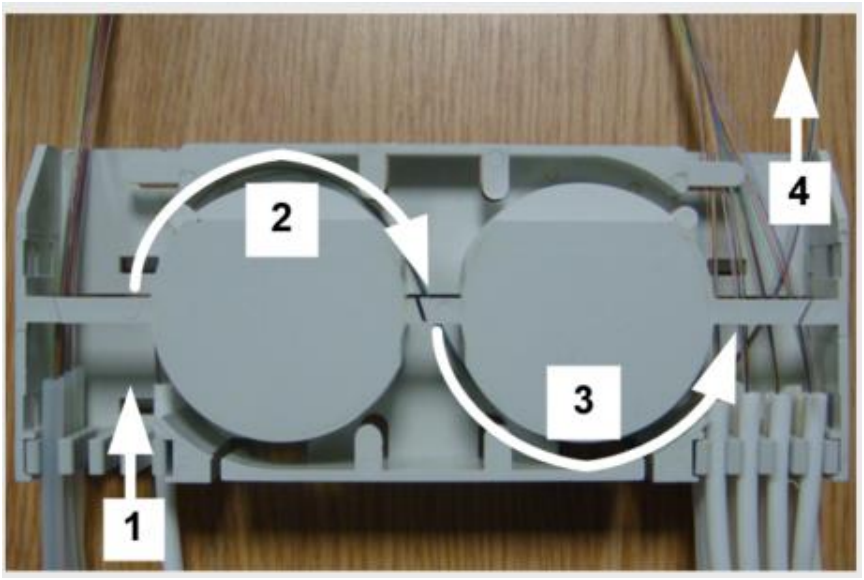
CONNECTORISING THE ADAPTER PLATE

Step 6.5



- Route up to 12 fibres to each tray using the diagram above.
- Notice how the fibre enters the tray and how it is stored. At point 2 the fibres are placed underneath the small tabs.
- Route all the fibres to the trays which contain the input fibres. Follow the numbered sequence.
- When you are ready for splicing exit through point A. Splice capacity is determined by tray type.
- Fusion splices the 2 fibres.
- *Note: Excess fibre is stored in location 5.*

ADDING ADDITIONAL TUBES



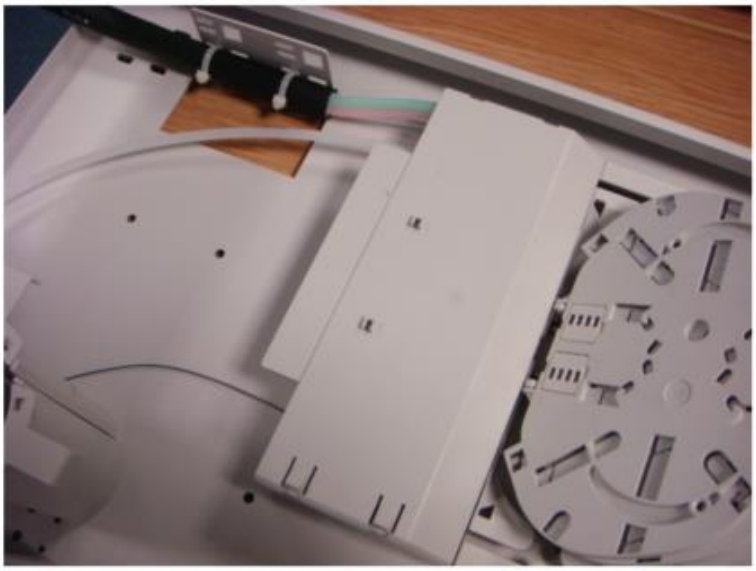
- In extreme circumstances additional tubes can be routed to the left of the inlet manifold depending on how many positions were used during installation of the inputs.
- Over sleeve the fibres and route the left-hand side of the inlet manifold. If you are using ESFU or EPFU it is recommended that these are oversleeve with low smoke/bend limiting tube.
- Route the outputs through the inlet manifold mandrels and exit on the right-hand side. Follow the numbered sequence.

7. FINAL INSTALLATION STEPS

- To complete the installation of the MDU complete the following steps.

FINAL INSTALLATION STEPS

Step 7.1



- Flip up all the trays.
- Replace the inlet manifold cover carefully. To do this insert the left-hand side first and then then gently push the right-hand side until the tabs lock in position.
- Flip down all the trays being careful not to disturb any circuits.

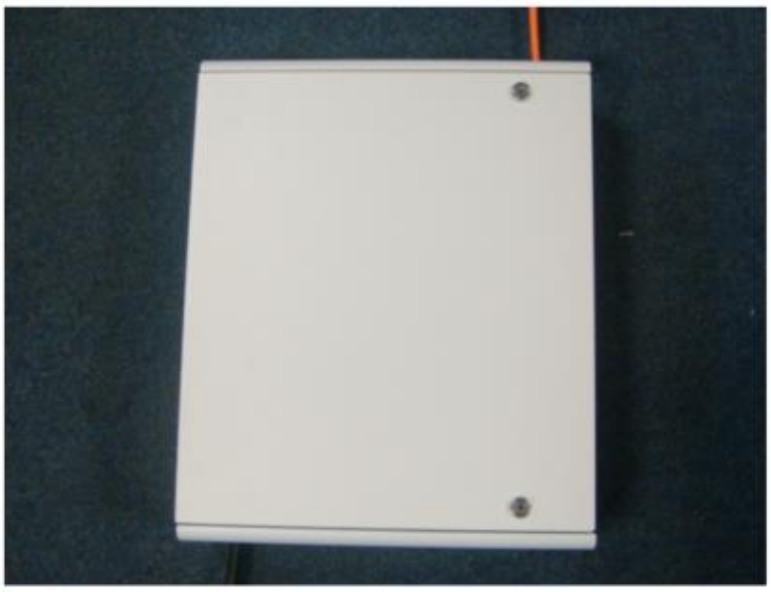
FINAL INSTALLATION STEPS

Step 7.2

- Replace the door by engaging the bottom pin into the base metalwork and then retracting the sprung loaded pin at the top of the door. Carefully move the door into place.
- Release the sprung loaded pin so that it engages the base metalwork.
- Swing the door shut.
- Lock both barrel locks to secure the MDU.

FINAL INSTALLATION STEPS

Step 7.3



- Your installation is now complete.

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