

INSTALLATION MANUAL

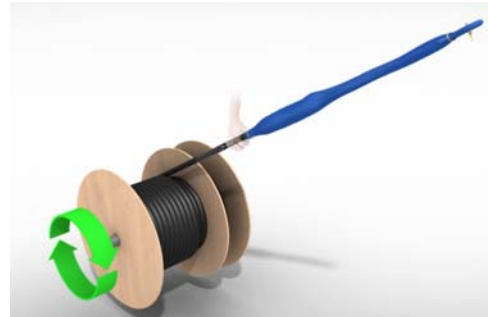
MASTERLINE extreme hybrid for Net4Mobility

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RRH END OF ASSEMBLY

Step 1 Mount the cable spool onto suitable de-reeling equipment. Start unwinding side where the braided tube is attached (picture to the right). Do not pull side where pulling tube is attached. Make sure, that the spool can turn freely when unspooling.



Step 2 Rig a rope to allow cable assembly to be hoisted up
Feed the rope through the loop in the braided tube and down onto the cable hoist.
→ Pull Assembly up the mast.

Important: **NEVER** pull on the divider or the breakout (Fiber optic or power itself), only pull on the hybrid cable below the divider using cable hoist.

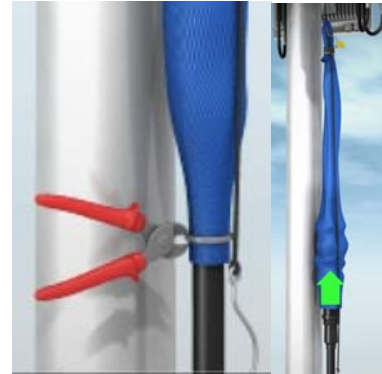


Step 3

Remove cable tie from braided tube end to get access to the housing.

- Once the divider is at the desired height and position, proceed to the next step. Do **NOT** yet fix it to the mast.

Comment: Take length of break-out and jumpers in consideration when the divider is positioned on the mast.

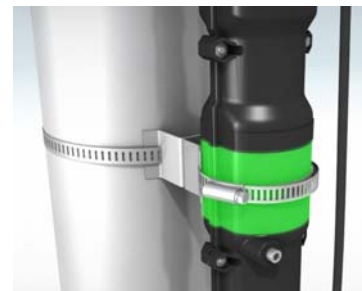
**Step 4**



Inspect condition of assembly especially the housing. If any damage is detected do not install.




**Step 5**

Fix housing to mast using mounting adapter.

Be careful not to damage it by over-tightening the clamp. Only fix with tube clamps, as indicated in picture. For 6/7 configuration it is ideal to locate the band under the molded lip on the enclosure.



Step 6	Fix cable to the mast using suitable clamps. Recommended spacing between clamps is 1m. Clamps should be applied to hybrid cable starting from a point 1m below the housing proceeding down to the bottom of the mast.	
Step 7	Earth assembly to the mast using an earth link. Recommendation is 16mm ² /xxAWG with Mxx lugs.	
Step 8	Connect DC tails to relevant RRH as specified by the RRH manufacturer. FO and DC tails are numbered to aid identification. Images 3 and 4 show pre-terminated DC jumpers connected to the MLEH DC tails.	
Step 9	Do NOT use cable ties to secure FO or DC tail as these may cause damage.	

Step 10	Comment: All connectors (fiber optic and power) are protected with water proof (IP67) dust caps. Therefore the MLE hybrid can be installed and left at the mast for later installation of jumpers.	
Step 11	Remove protective cap from FO tail ready to connect RRH Jumper. → Do NOT clean Q-ODC before connecting them together. Q-ODCs are factory cleaned and verified to ensure optimal performance. Cleaning during installation potentially decreases performance.	
Step 12	Connect FO and DC tails with RRH jumper. Use clamps delivered with the cable to fix the connectors.	

BASE STATION END OF ASSEMBLY

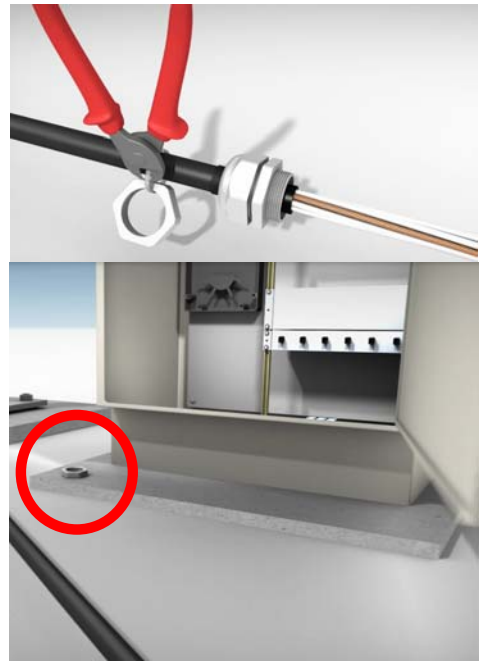
Step 1 After unwinding the whole assembly from the reel, while handling the assembly make sure to leave the pulling tube as long as possible on the assembly. Pulling tube ensures IP65 and gives protection to the FO and DC tails inside.

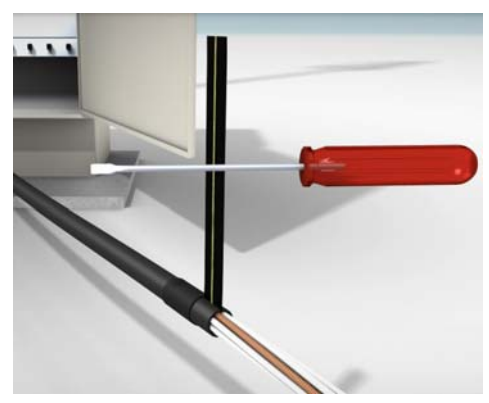
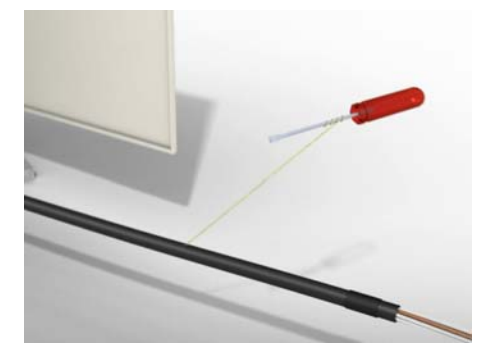





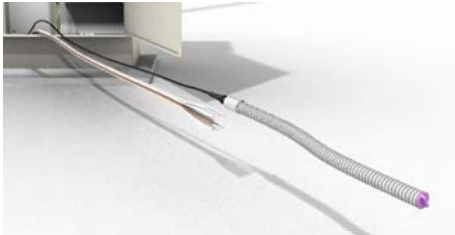


Step 2 To remove protective tube hold tube and loosen gland nut. Do NOT twist the tube at any stage of removal. Pull tube off to reveal the tails within.


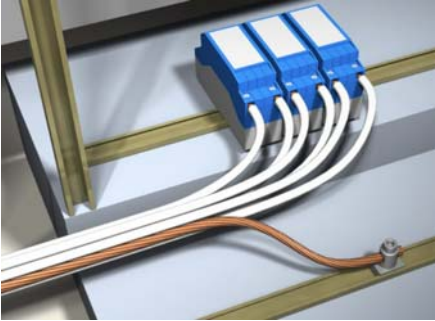


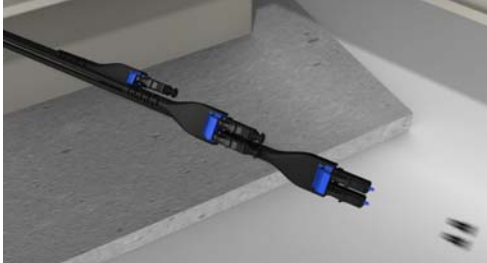


Step 3 Remove gland nut from cable.



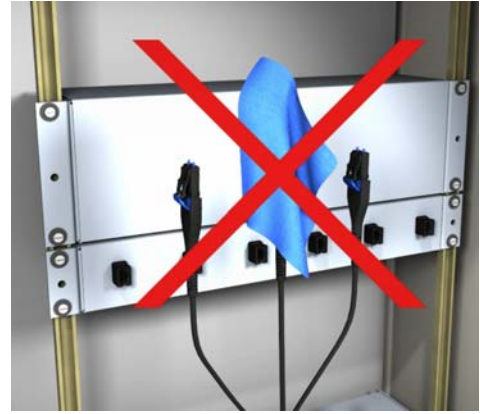
Step 4	Unwind black tape at cable butt to reveal rip cord. This cord is used to open the cable jacket and gain access to the cable elements within.	
Step 5	Use a screwdriver (or similar) to cut the cable jacket back to marked distance.	
Step 6	Remove cable jacket carefully.	
Step 7	Unwrap copper tape from cable using gloves due to potential sharp edges up to the "strip-back point".	

Step 8	Make sure not to leave any sharp edges where the copper foil goes under the jacket: carefully remove excess foil with pin-nosed pliers and then cover it with tape.	 A close-up photograph showing a pair of red-handled pin-nosed pliers being used to trim the excess copper foil from a cable jacket. The cable is black with a silver foil layer, and the pliers are positioned to cut the foil at the edge of the jacket.
Step 9	Carefully unwind the fibre optic cable element from the DC tails and from a loop to separate it.	 A photograph showing a fiber optic cable being carefully separated from a bundle of DC wires. The fiber optic cable is white with a purple end, and the DC wires are black. The fiber optic cable is being unwound from a loop.
Step 10	During this process (at any stage) ensure the fibre optics are not kinked where they exit the cable butt.	 A photograph showing a fiber optic cable being secured to a base station. The cable is white with a purple end, and the DC wires are black. The fiber optic cable is being attached to a base station using a temporary fastener.
Step 11	Once fiber optic cable is separated from DC wires, attach it temporarily to base station to keep it secure and clean.	 A photograph showing a fiber optic cable attached to a base station. The cable is white with a purple end, and the DC wires are black. The fiber optic cable is attached to a base station using a temporary fastener.

Step 12	<p>DO NOT CUT AT ANY STAGE THE FIBRE OPTIC ELEMENT</p>	
Step 13	<p>Route DC cable element to their respective termination points and connect.</p> <p>Route earth wire to earth bonding point and connect.</p> <p>Ansluts till HJS/kransförlagd ledare</p>	
Step 14	<p>Release snap-lock fastener using a screwdriver.</p>	
Step 15	<p>Carefully remove protective tube to gain access to fibre optic tails.</p>	
Step 16	<p>Route fibre optic tails carefully and following a smooth route to their respective connection points. Remove dust caps of LC connectors and plug into equipment.</p>	

Step 17

Do NOT clean LC before connecting them to the equipment. LCs are factory cleaned and verified to ensure optimal performance. Cleaning during installation potentially decreases performance.



FIBRE OPTIC ALLOCATION

RRH	RRH End		Base Station End	RRH	RRH End		Base Station End
	Connector PIN		Connector PIN		Connector PIN		Connector PIN
	Q-ODC/ODC-2	ODC-4	LC		Q-ODC/ODC-2	ODC-4	LC
1	1	1	B	7	1	1	B
	2	2	A		2	2	A
	-	3	B		-	3	B
	-	4	A		-	4	A
2	1	1	B	8	1	1	B
	2	2	A		2	2	A
	-	3	B		-	3	B
	-	4	A		-	4	A
3	1	1	B	9	1	1	B
	2	2	A		2	2	A
	-	3	B		-	3	B
	-	4	A		-	4	A
4	1	1	B	10	1	1	B
	2	2	A		2	2	A
	-	3	B		-	3	B
	-	4	A		-	4	A
5	1	1	B	11	1	1	B
	2	2	A		2	2	A
	-	3	B		-	3	B
	-	4	A		-	4	A
6	1	1	B	12	1	1	B
	2	2	A		2	2	A
	-	3	B		-	3	B
	-	4	A		-	4	A

POWER CODING

RRH	RRH end (top)			Base Station end	
	Power jumper		Potential	Blunt cut	Wire color
	Color	Pin		Color	EU
1	Brown	1	0V	Brown	1-White
	Blue	2	-48V	Blue	2-White
	Ground	⊥	Ground	Common drain	
2	Brown	1	0V	Brown	3-White
	Blue	2	-48V	Blue	4-White
	Ground	⊥	Ground	Common drain	
3	Brown	1	0V	Brown	5-White
	Blue	2	-48V	Blue	6-White
	Ground	⊥	Ground	Common drain	
4	Brown	1	0V	Brown	7-White
	Blue	2	-48V	Blue	8-White
	Ground	⊥	Ground	Common drain	
5	Brown	1	0V	Brown	9-White
	Blue	2	-48V	Blue	10-White
	Ground	⊥	Ground	Common drain	
6	Brown	1	0V	Brown	11-White
	Blue	2	-48V	Blue	12-White
	Ground	⊥	Ground	Common drain	
7	Brown	1	0V	Brown	13-White
	Blue	2	-48V	Blue	14-White
	Ground	⊥	Ground	Common drain	
8	Brown	1	0V	Brown	15-White
	Blue	2	-48V	Blue	16-White
	Ground	⊥	Ground	Common drain	
9	Brown	1	0V	Brown	17-White
	Blue	2	-48V	Blue	18-White
	Ground	⊥	Ground	Common drain	
10	Brown	1	0V	Brown	19-White
	Blue	2	-48V	Blue	20-White
	Ground	⊥	Ground	Common drain	