

INSTALLATION MANUAL

HUBER+SUHNER AG
Fiber Optics
MASTERLINE Ultimate Power
DOC-0000807936 Rev A

February 07, 2018
Page 1 of 11

MASTERLINE Ultimate Power

Table of contents

• HANDLING OF ASSEMBLY	1
• RRH END OF ASSEMBLY	1
• BASE STATION END OF ASSEMBLY	7
• POWER CODING	10
• REVISION HISTORY	11



HANDLING OF ASSEMBLY

To avoid any damage due to improper installation, please keep in mind below points:

- AVOID any additional stress on connector head by twisting or bending when routing or locating it
- AVOID installation path around any sharp objects
- AVOID uncontrolled knocking of connector head on any hard object
- AVOID any contact of connector head with any additional substance such as glue/oil/fat etc. unless prior authorization is given by HUBER+SUHNER AG

RRH END OF ASSEMBLY

Step 1

Use a smartphone to scan the QR code which is attached on the side of the reel.
If you have internet access you can reach the installation instructions.



INSTALLATION INSTRUCTIONS / DATA SHEETS

Installation manual

[MASTERLINE Ultimate hybrid](#)

Installation video

[How to install a MASTERLINE Ultimate cable system](#)

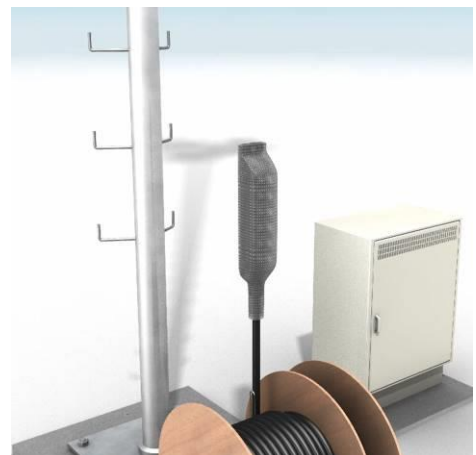
Step 2

Remove the mounting bracket which is attached to the spool.
Secure the mounting bracket with hose clamps (when fitting to a pole/mast) or screws (when fitting to a wall).

**Step 3**

Mount the cable spool onto suitable de-reeling equipment. Start unwinding from the side where the MLUP connector head is located. Do not pull on the side where is blunt cut. Make sure, that the spool can rotate freely when unspooling.

Remove the protection bubble foil only right before attaching the MLUP connector head to the mounting bracket.



Step 4

Use a rope to pull up the cable system.



Check the maximum pulling force (at 50°C ambient temperature during 1 hour) on the label attached to the hoisting grip. Do not apply higher force! The maximum pulling force equates to the weight of 100m cable.

Cabling systems longer than 100m may not be lifted more than 100m vertical except a second hoisting grip is used. Contact HUBER+SUHNER for further installation instructions.

Lead the rope along the left side of the MLUP connector head down onto the cable hoist and secure.

Fix the rope with 2 tapes to the lower and upper end of the connector head.



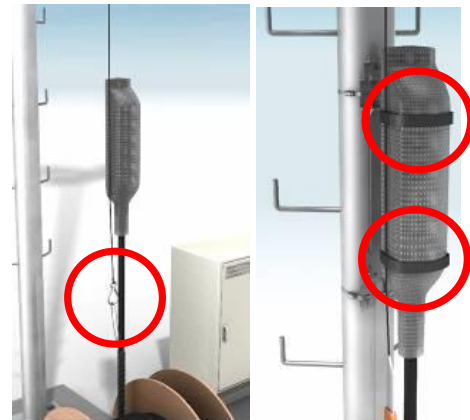
Do not remove the air bubble bag which protects the connector head while lifting the cabling system.

Pull the cabling system up the mast.

Make sure that the MLUP connector head does not hit against any constructions and does not get bent over edges.



Note: 950N / 95kg is only an example and depends on the hybrid cable used

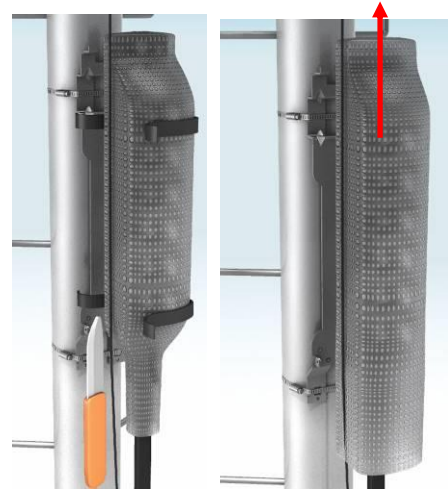


Step 5

Remove the MLUP head fixation (tape) from the rope and the air bubble bag from the MLUP connector head.
Hook MLUP head into the mounting bracket.



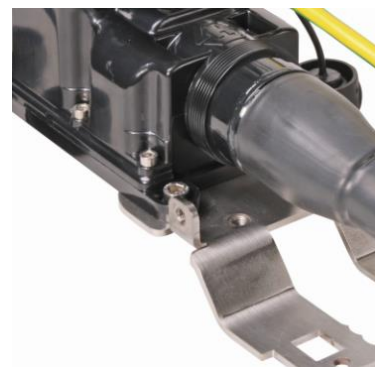
Do not remove the rope from the hoisting grip before all cable clamps are mounted.

**Step 6**

Secure the MLUP connector head at the mounting bracket by tightening the two M6 screws on the bottom left and top right corner.



Tight the M6 screws with a torque of 2 Nm.
Be careful not to damage the housing by tightening the screws too tightly.



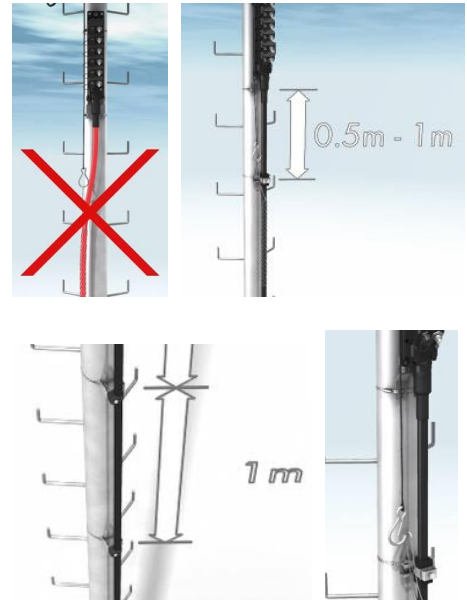
Step 7

Fix the cable to the mast using suitable clamps. H+S offers cable clamps for different profiles. Recommended spacing between the clamps is 1m. Clamps should be applied to hybrid cable starting from a point 0.5m to 1.0m below the cable entry proceeding down to the bottom of the mast. The cable has to be fixed straight and in line (maximum 5°) with the MLUP enclosure between the cable entry and the 1st cable clamp. The maximum bending radius of the cable is 8x cable diameter.

After all cable clamps are attached, remove the rope.



Do not remove the rope before all cable clamps are mounted.

**Step 8**

The MLUP enclosure has an integral earth point suitable for M8 lug for grounding. Connect the earth point to an earth bar with a grounding assembly with minimum 16mm² / 6AWG cross section. Consider the correct order: first the grounding wire lug, secondly the washer, thirdly the spring washer.





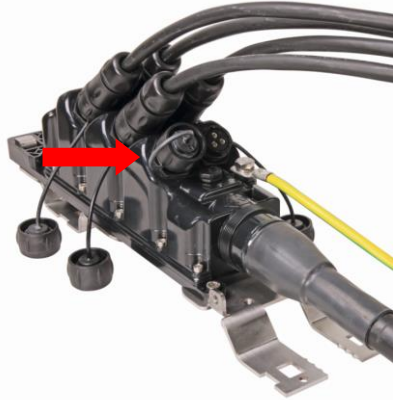

Tighten the M8 earth screw with a torque of 5 Nm. Be careful not to damage the enclosure by tightening the M8 earth screw too tightly.





H+S offers different grounding assemblies:

- Item no. 85086667: 0.5m, black, 16mm², 2x M8 lug
- Item no. 85083781: 0.5m, yellow/green, 16mm², 2x M8 lug
- Item no. 85086668: 0.5m, black, 25mm², 2x M8 lug
- Item no. 85083792: 0.5m, yellow/green, 25mm², 2x M8 lug


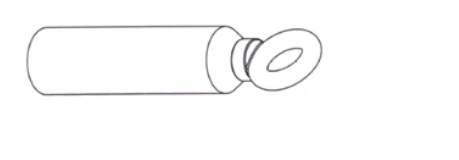
All our accessories are also mentioned in the H+S online catalogue.




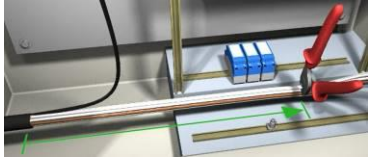



<p>Step 9</p>	<p>The power jumpers are terminated with a rugged circular plastic plug connector and are blunt cut on the RRH side.</p>	
<p>Step 10</p>	<p>All connectors (power) are protected with water proof (IP67) protection caps. Therefore the MLUP can be installed and left at the mast for later installation of jumpers.</p>  <p>Do not remove the cap only at the moment when the plug connector is mated.</p>	
<p>Step 11</p>	<p>Connect power jumper on left side of connector head.</p> <p>Remove cap: Twist the coupling ring of the plug connector to remove protecting cap as shown.</p> <p>Mating: Push plug connector slightly into flange connector, rotate to find keying position, twist coupling ring of the plug connector as shown until you hear a "click" sound.</p> <p>Un-mating: Twist coupling ring as shown to unmate the plug connector.</p>	

<p>Step 12</p>	<p>If required, a protective cover can be easily fitted over MLUP connector head and can be secured with two screws.</p>  <p>Attach the safety cord to the bracket and the protective cover.</p> <p>Protection cover for MLUP: Stainless steel, dimensions (L x H x W) 365 x 200 x 90 mm</p> <ul style="list-style-type: none"> Item no. 85032157 	 
<p>Step 13</p>	<p>Ensure smooth routing of all cables from connector head to RRH equipment using suitable cable clamps not cable ties. H+S offers cable clamps for different profiles.</p>	

BASE STATION END OF ASSEMBLY

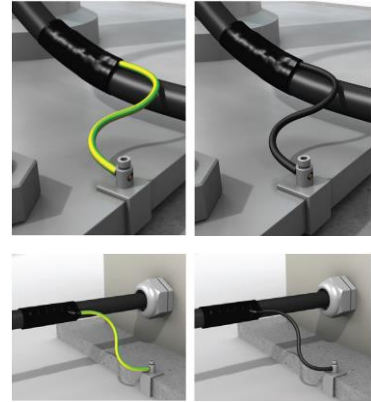
<p>Step 1</p>	<p>Unwinding the whole assembly from the reel and lay the cable to the end equipment.</p>	
<p>Step 2</p>	<p>Remove end-cap from the cable system and strip cable jacket off the right position.</p>	

Step 3	Remove cable jacket carefully.	
Step 4	Unwrap copper tape from cable using gloves due to potential sharp edges up to the “strip-back point”.	
Step 5	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.	
Step 6	Measure (twice) the required DC tail length and cut them.	
Step 7	Route DC cable element to their respective termination points and connect. Route earth wire to earth bonding point and connect.	

Step 8

If earthing is required outside cabinet/cabin use universal grounding kit and follow separate instructions.

NOTE: the grounding cable can also come in black.



POWER CODING

RRH	RRH end			BTS end	
	conductor color code			conductor color code	
	Option 1	Option 2 (USA)	Option 3 (USA)	Option 1	Option 2 (USA)
1	Brown	Black	Black	1-White	1-Black
	Blue	Grey	White	2-White	2-White
	Braided screen			Common drain wire	
2	Brown	Black	Black	3-White	3-Red
	Blue	Grey	White	4-White	4-Green
	Braided screen			Common drain wire	
3	Brown	Black	Black	5-White	5-Orange
	Blue	Grey	White	6-White	6-Blue
	Braided screen			Common drain wire	
4	Brown	Black	Black	7-White	7-White/Black
	Blue	Grey	White	8-White	8-Red/Black
	Braided screen			Common drain wire	
5	Brown	Black	Black	9-White	9-Green/Black
	Blue	Grey	White	10-White	10-Orange/Black
	Braided screen			Common drain wire	
6	Brown	Black	Black	11-White	11-Blue/Black
	Blue	Grey	White	12-White	12-Black/White
	Braided screen			Common drain wire	

REVISION HISTORY

Revision	Description of detailed changes	Manager/Engineer	Applicable date
Rev. A	First Version	René Müller	2018-02-07