

Installation instructions for the communication line for HL300

Very IMPORTANT:

Install the HL300 in a continuous row regarding the IP addresses.

Example: 50000120,50000121,50000122,50000123.....

It is also Very IMPORTANT that all the IP addresses of all HL300 are given in a map, so it's possible to make an easy trouble shooting.

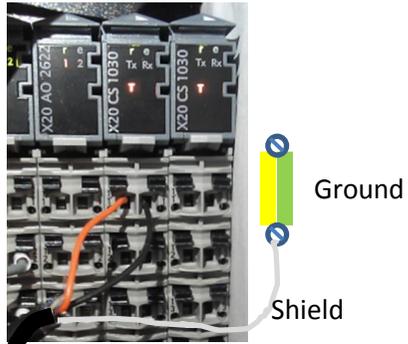
We recommend this type of cable:

<http://www.belden.com/techdatas/metric/3106a.pdf> or similar.

Anyway. It's only BAUD rate 9600 so the cable is not that important. Conclusion after experience.

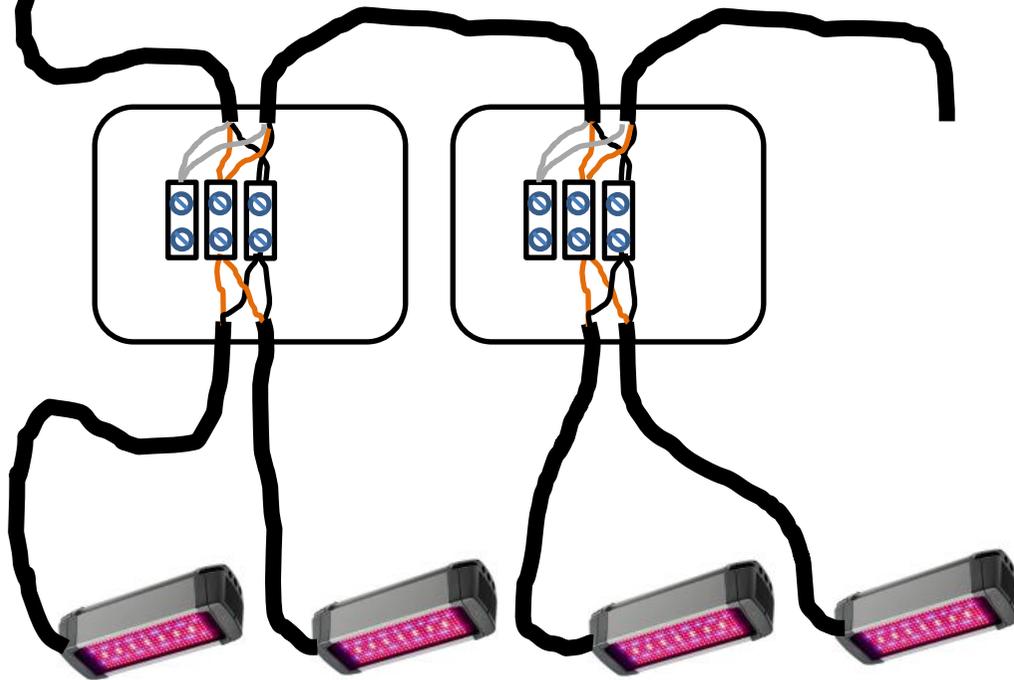
It's a shielded cable. The shield MUST be connected in all junction boxes and grounded at the EXP.

Installation instructions for the communication line for HL300



If the X20 CS 1030 module is at an end of the RS485 network, it should be terminated. It's done internally with a switch and the **T** will turn on. The terminating resistor can be turned on and off with a switch on the bottom of the X20CS1030 as shown below. If the terminating resistor is active it will be shown on the front with a T.

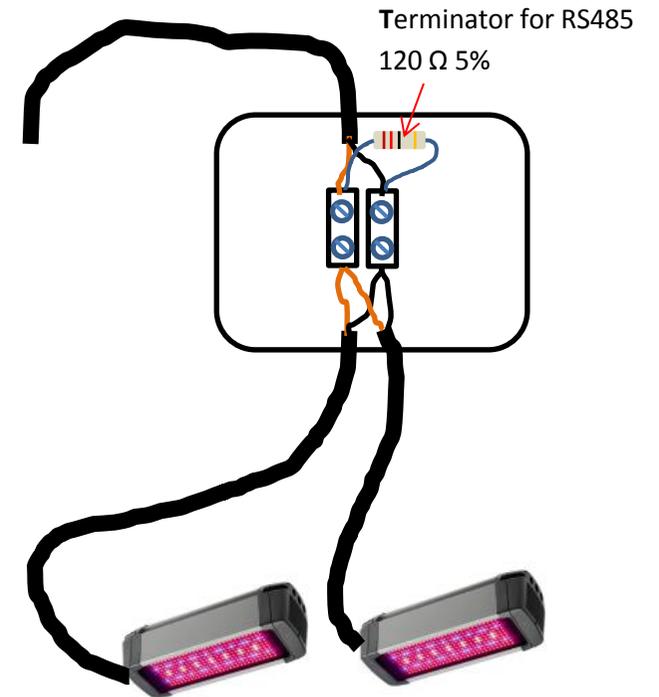
This is a RS485 network segment.



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Use an assembler box for each two fixtures. **NOTE!** Be very careful with the **quality of the connections!** Also **inspect the colors of the wires!**

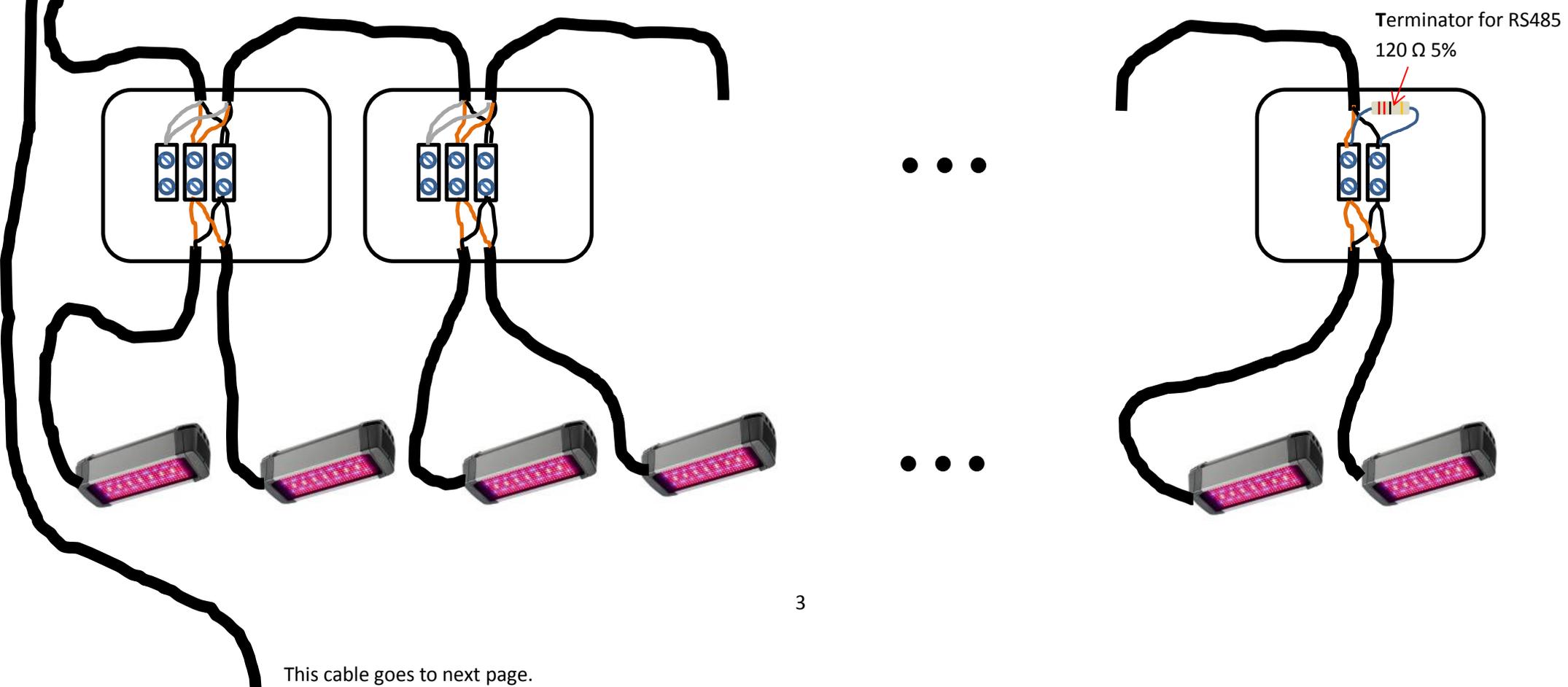
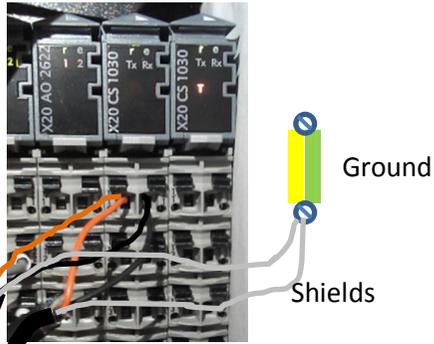


It's possible to make two segments. Each segment connected to one of the two X20 CS 1030 modules.

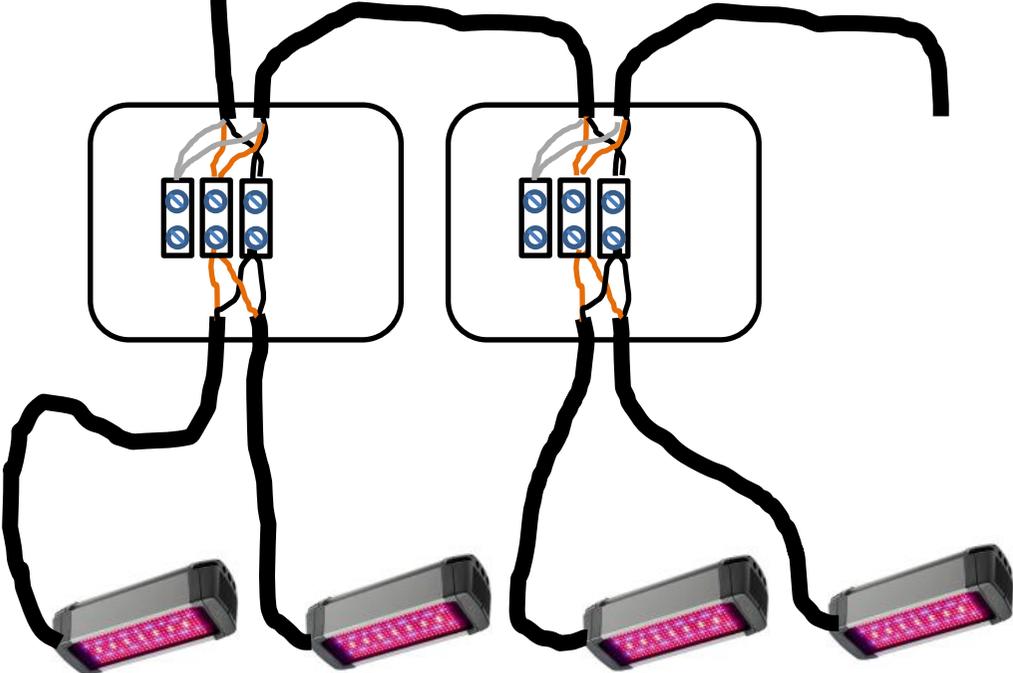
In this example, X20 CS 1030 Module is not at one of the ends of the RS485 network

If the X20 CS 1030 module is **not** at one of the ends of the RS485 network, it should be unterminated. It's done internally with a switch and the **T** will turn off. Please look in the installation manual for an explanation of how to unterminate.

Use an assembler box for each two fixtures.
NOTE! Be very careful with the **quality of the connections!** Also **inspect the colors of the wires!**

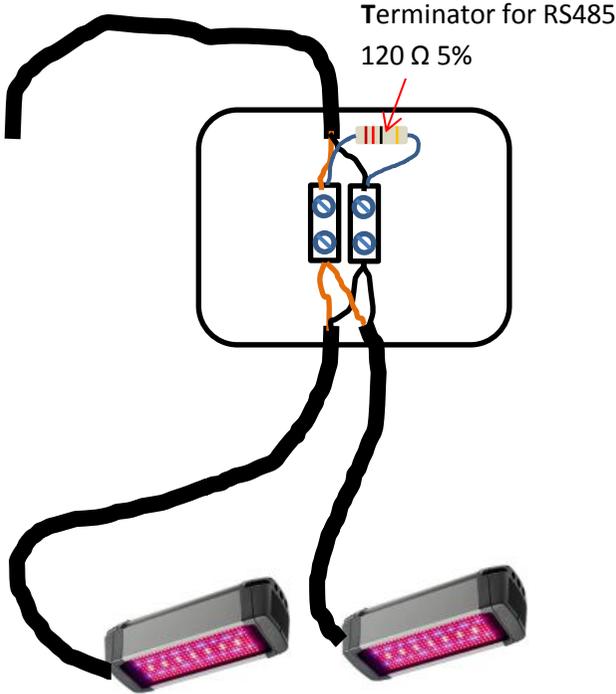


This cable goes to previous page.

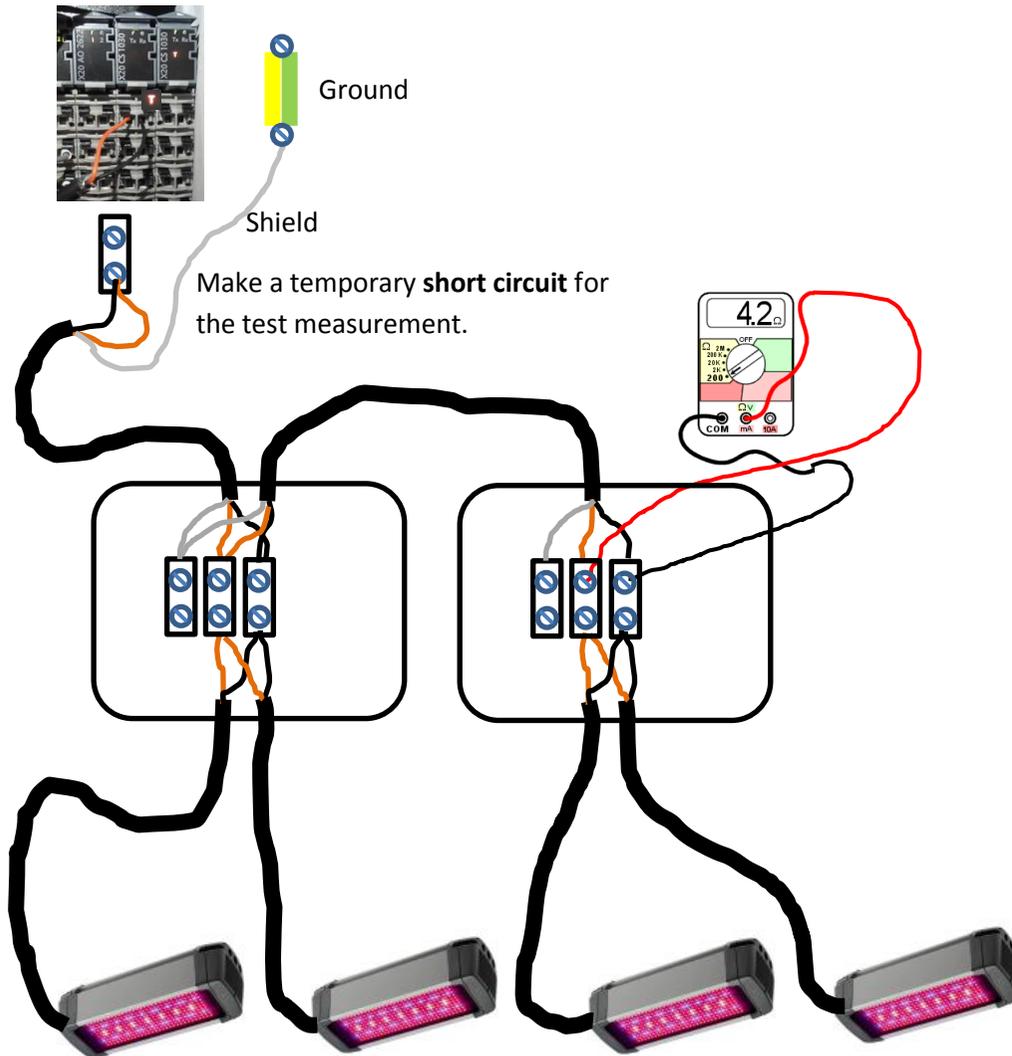


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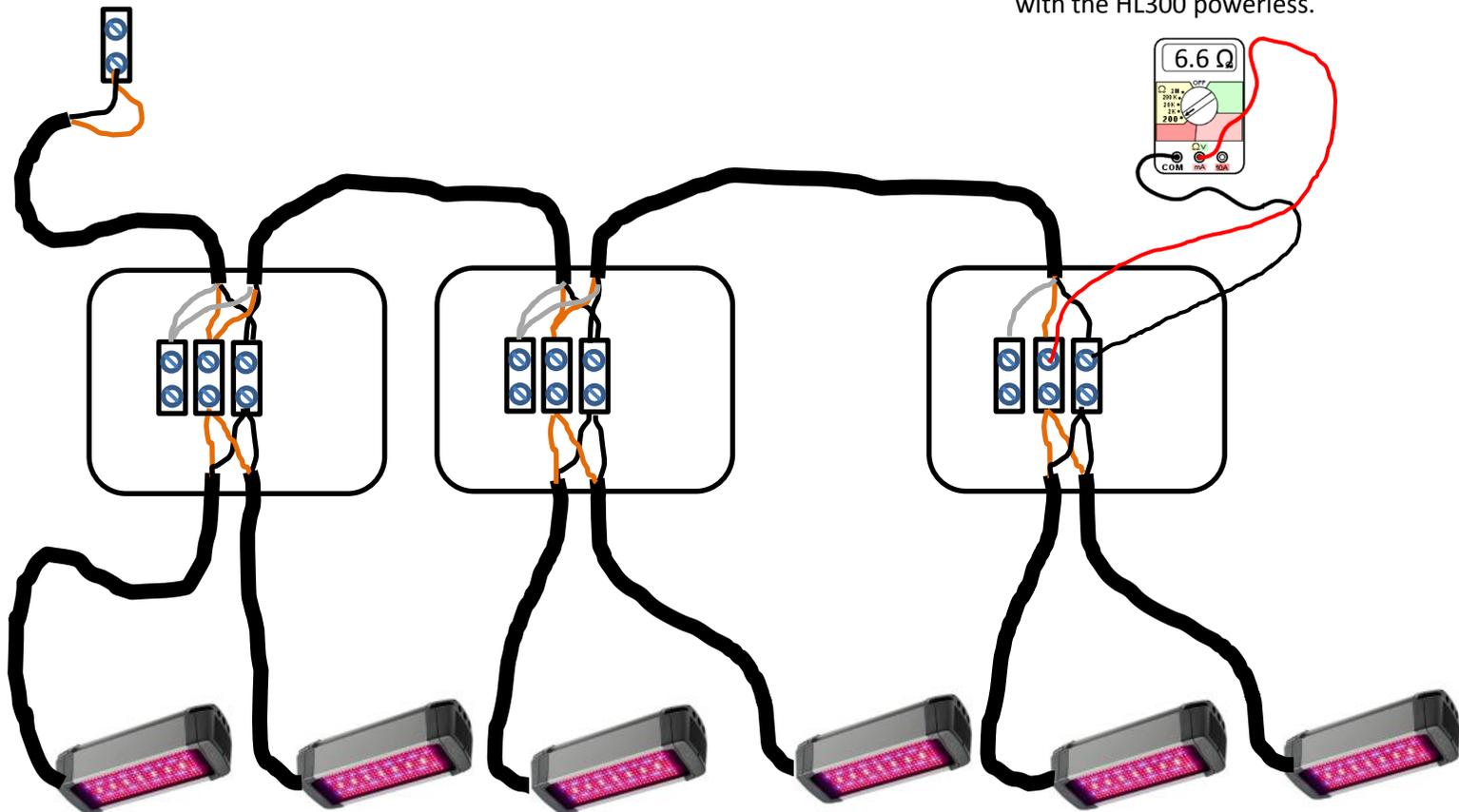
To ensure the quality of all connections please make a check measurement after the installation of each assembler box.



After the installation of 2 assembler boxes, it's time to make a measurement of the cable resistance. Make this measurement with the HL300 powerless.

Make another check measurement after the installation of the third assembler box.

After the installation of 3 assembler boxes, it's time to make a new measurement of the cable resistance. Make this measurement with the HL300 powerless.



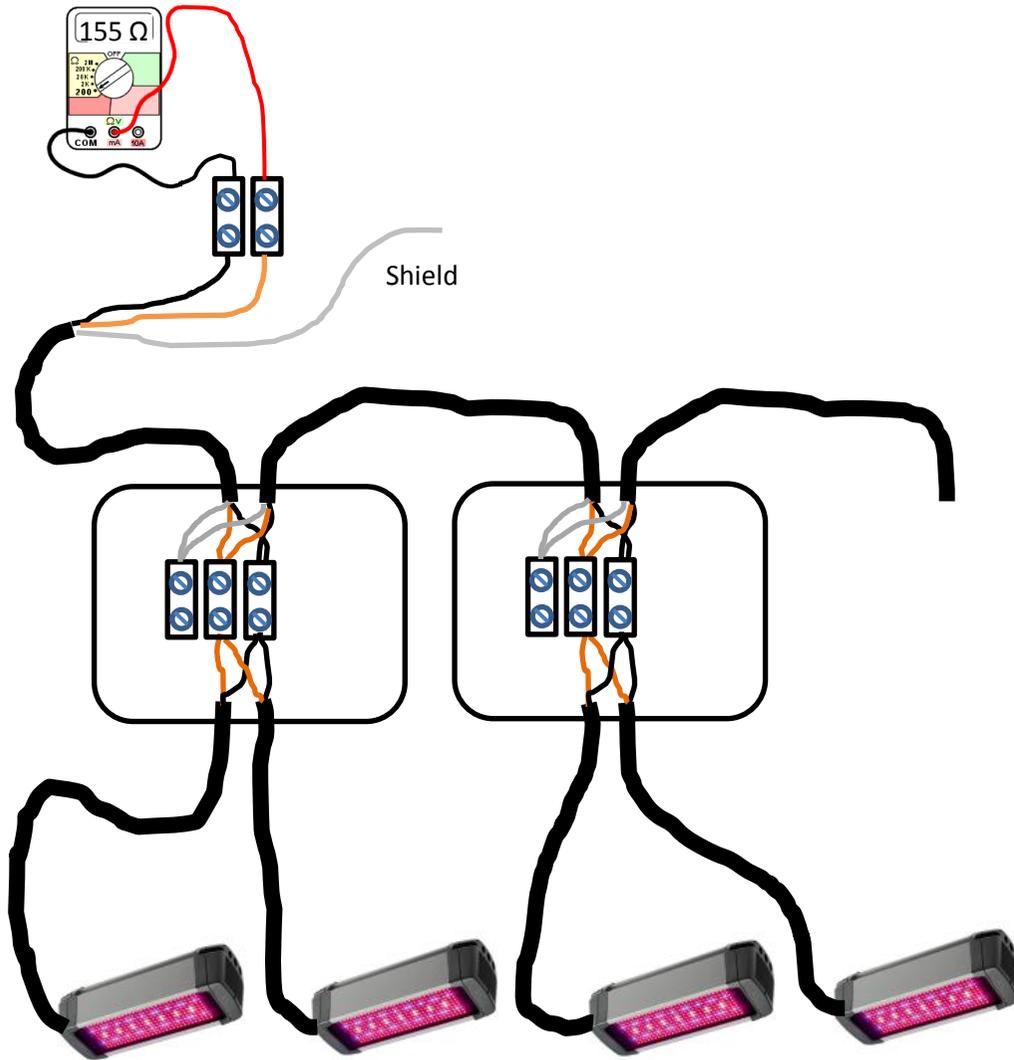
In this way you continuo to make measurements, each time an assembler box has been installed.

Please note all measurements in a scheme, together with the box numbers and the Lamp addresses.

Measurement of cable resistance

Assembler box	Measurement Ω	By Lamp Address
2	4.2	IP01000200
3	6.6	IP01000201
4	...	IP01000202
5	...	IP01000203
6	...	IP01000204
7	...	IP01000205
8	...	IP01000206
9	...	IP01000207
10	...	IP01000208
11	...	IP01000209
12	...	IP01000210
13	...	IP01000211

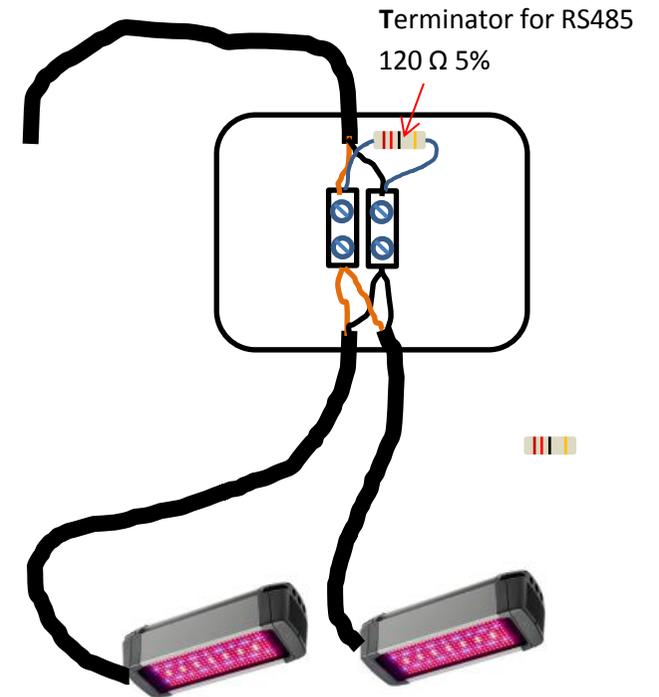
Check the impedance of the network



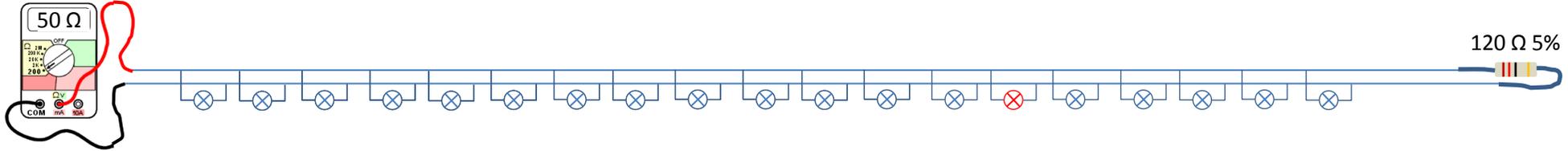
When finished the installation of a network segment, it's important to make an impedance measurement. The impedance is $120\ \Omega$ + cable resistance. The measurement depends on cable length and should be approximately $150\ \Omega$. **Never** less than $120\ \Omega$. Make this measurement with the HL300 powerless. If you see too low impedance, please follow the instructions at the next page.

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How to find a defect lamp (a lamp with too low impedance) at the RS485 network.

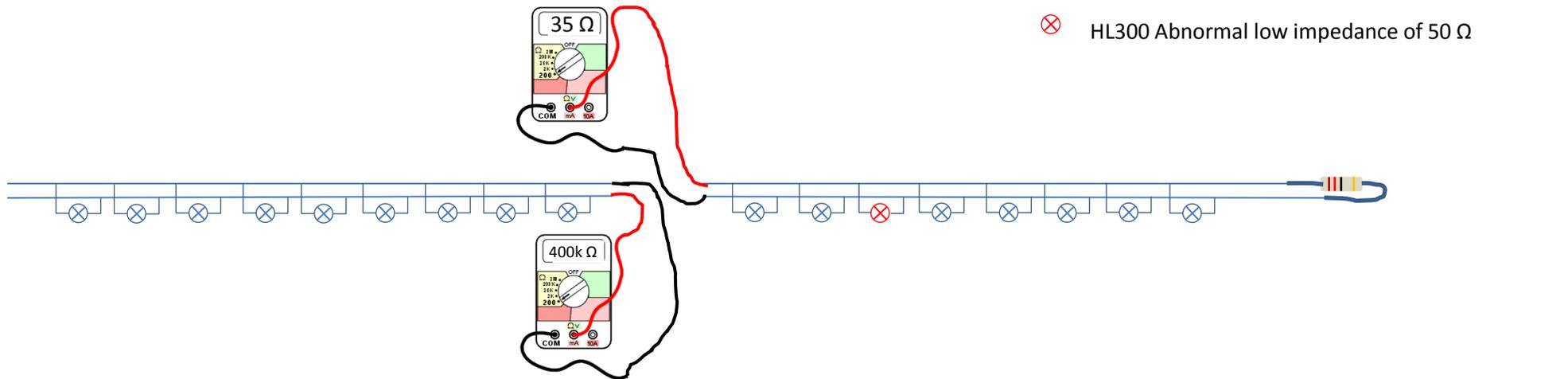


Disassemble the network from the X20 CS 1030 module and connect a multimeter capable of measuring Ohms.

These measurements must be done with no power connected to the lamps.

This measurement of 50 Ω tells us that we have a lamp with very low impedance. It must be found.

Split the network in 2. Half and half. Measure each part, one by one.



These measurements tells us that we have a lamp with very low impedance to the right.

Continuo in this way, splitting up in ¼, 1/8, 1/16 until the lamp with low impedance is found. Send the lamp for repair at Senmatic.

Note! The measurements are examples. The values can vary.