Installation instructions for the communication line for FL300

Very IMPORTANT:

Install the FL300 in a continuos row regarding the IP addresses.

Excample: 50000120,50000121,50000122,50000123…….

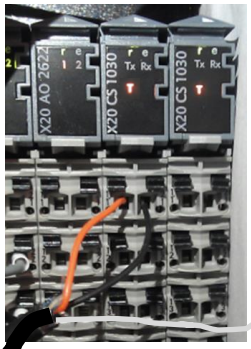
It is also Very IMPORTANT that all the IP addresses of all FL300 are given in a map, so it's possible to make an easy trouble shooting.

We recommend twisted pair cable:

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

The FL300 ground MUST be the same as EXP ground.

Installation instructions for the communication line for FL300



Ground

Shield

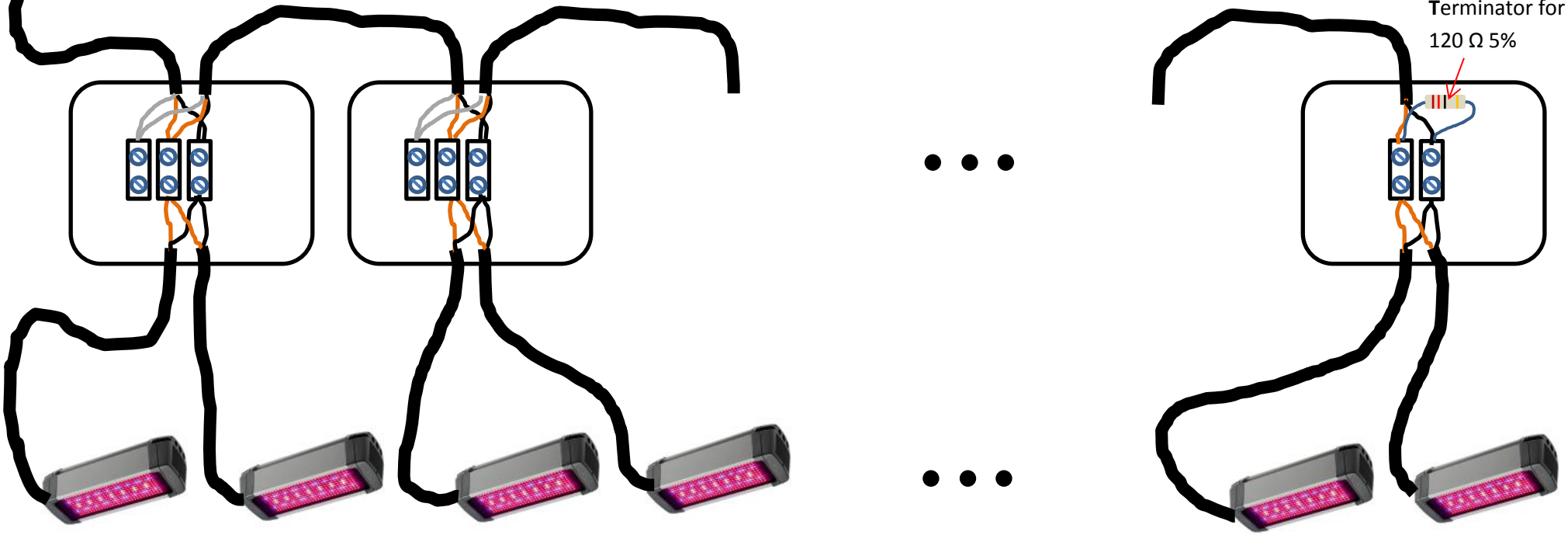
If the X20 CS 1030 module is at an end of the RS485 network, it should be **t**erminated. It's done internally with a switch and the T will turn on. The terminating resistor can be turned on and off with a switch on the bottom of the X20CS1030 as shown below. If the terminating resistor is active it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

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!

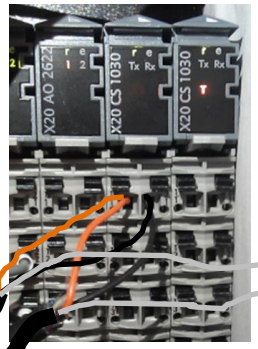
This is a RS485 network segment.

Terminator for RS485
120 Ω 5%



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 <u>not</u> at one of the ends of the RS485 network



Ground

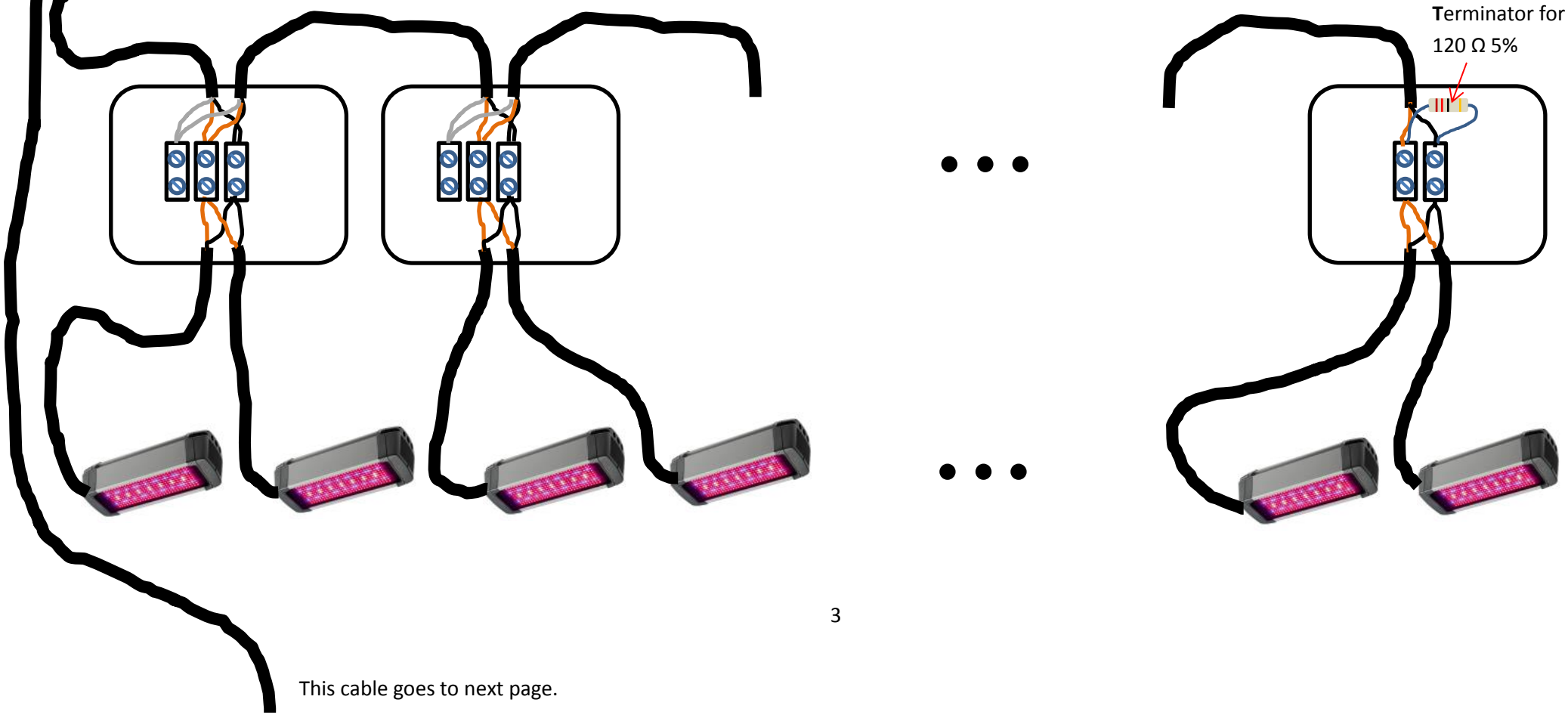
Shields

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.

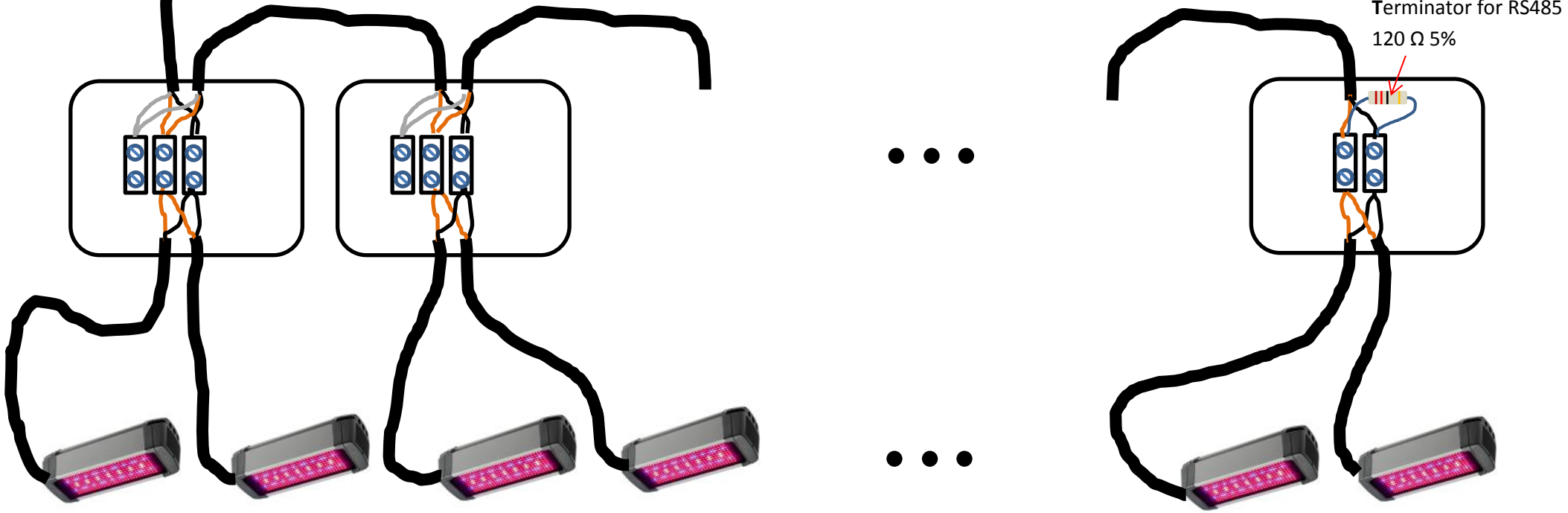
NOTE!Be very careful with the **quality of the connections!** Also **inspect the colors** of the wires!

Terminator for RS485
120 Ω 5%



This cable goes to next page.

This cable goes to previous page.

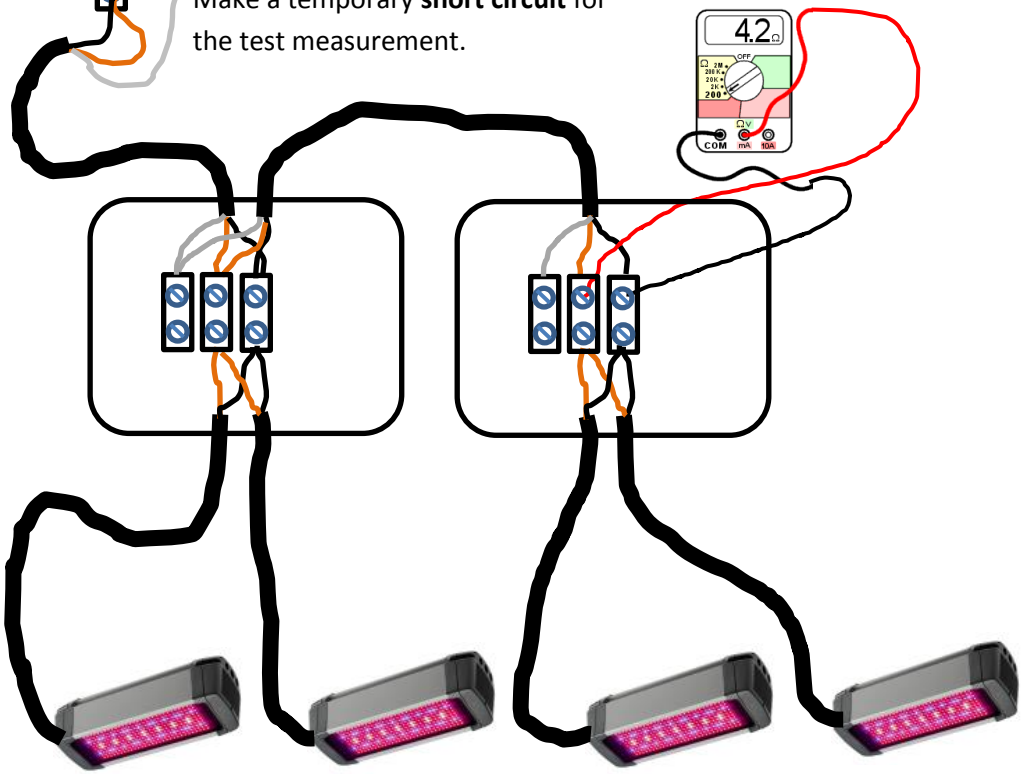


To ensure the quality of all connections please make a check measurement after the installation of each assembler box.

Ground

Shield

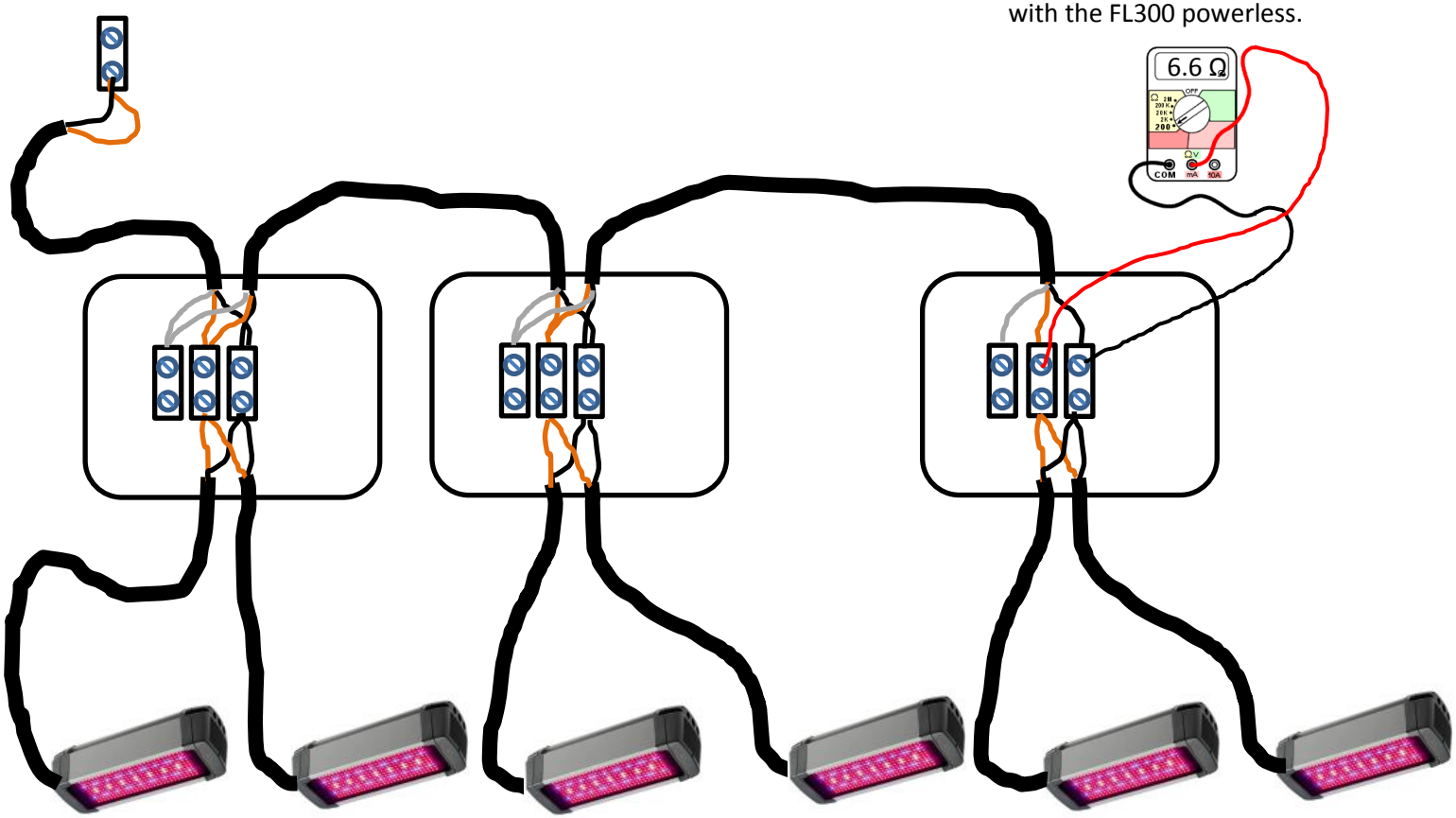
Make a temporary **short circuit** for the test measurement.



After the installation of 2 assembler boxes, it's time to make a measurement of the cable resistance. Make this measurement with the FL300 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 FL300 powerless.



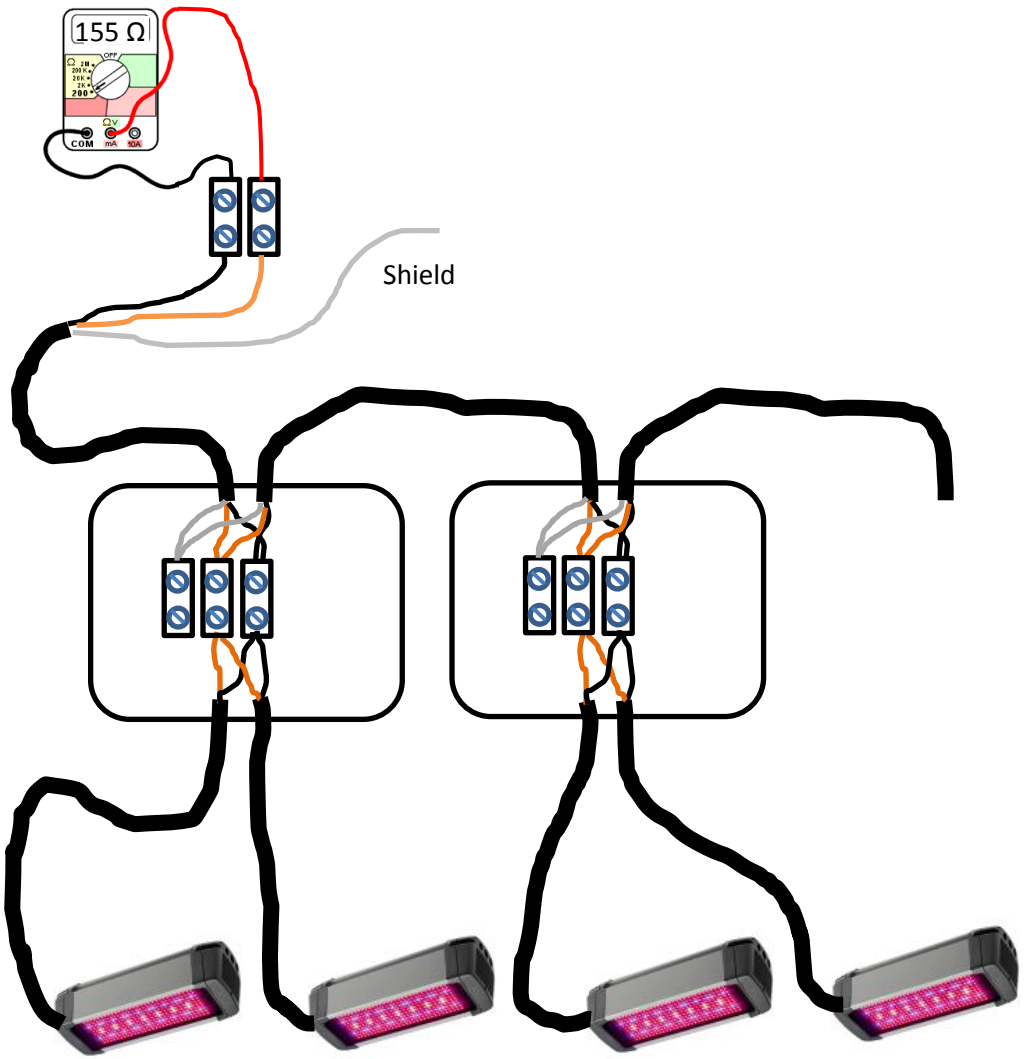
In this way you continuo to make measurements, each time an assembler box has been installed.

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

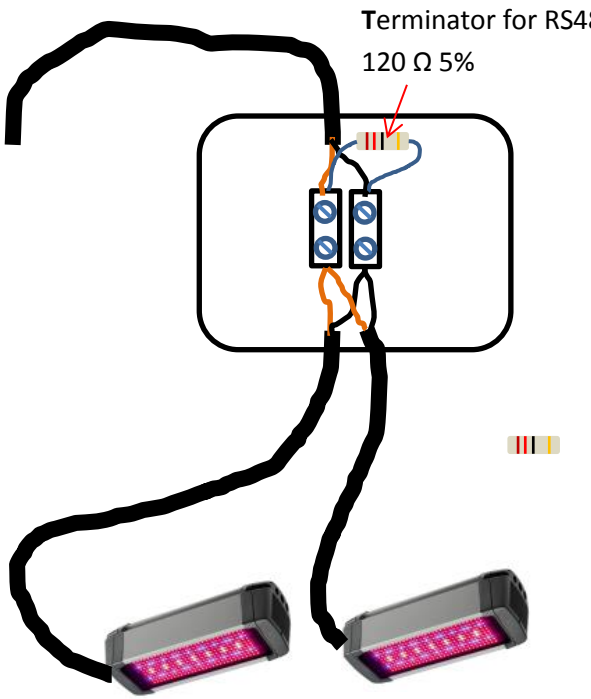
Measurement of cable resistance

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

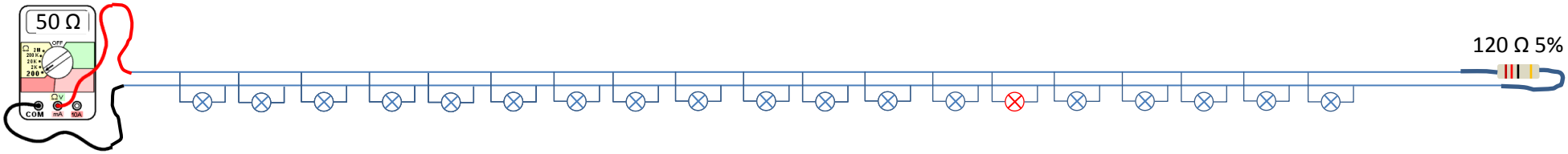
Check the impedance of the network



When finished the installation of a network segment, it's important to make an impedance measurement. The impedance is 120 Ω + cable resistance. The measurement depends on cable length and should be approximately 150 Ω. **Never** less than 120 Ω. Make this measurement with the FL300 powerless. If you see too low impedance, please follow the instructions at the next page.



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.

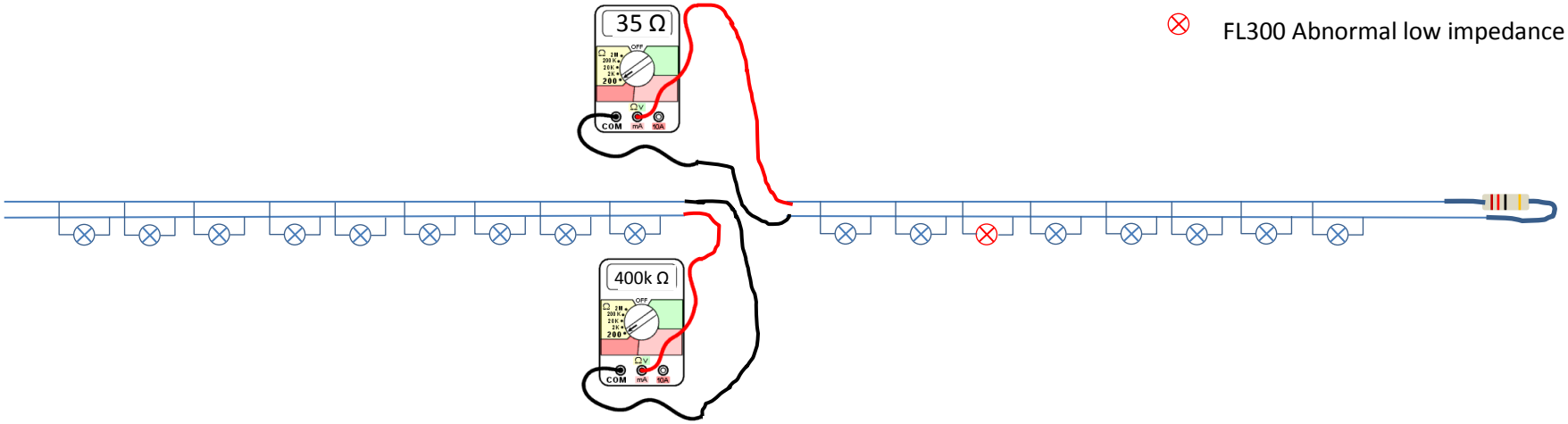
These measurements must be done with no power connected to the lamps.

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.

⊗ FL300 Normal impedance of 400.000 Ω (400 kΩ)

⊗ FL300 Abnormal low impedance of 50 Ω



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.