

SP PRO ABB UNO Managed AC Coupling Installation Notes



Appendix I: Wireless RS485 for ABB UNO-DM Link

Introduction

This instruction will show how to install the Wireless RS485 link Kit (Order code 005316).

This details the additional steps needed to install a Wireless RS485 link into a SP PRO ABB UNO-DM Managed AC Coupled system.

Important information

1. This document needs to be read in conjunction with:
 - SP PRO AU Instruction Manual
 - Relevant ABB UNO-DM Installation Manual
2. SD1100 RS485 Wireless adaptors are powered from the supplied plug packs. The plug packs must be connected to the same AC power circuit as the connected ABB UNOs. This is normally the AC load side of the SP PRO.
3. To extend the range of the wireless devices, please order the Patch Antenna (Order code 004810).

Additional information

Selectronic web site – <http://www.selectronic.com.au> or contact the Selectronic team.

Legend to diagrams in this document



SP PRO 2i



Selectronic Certified
ABB UNO-DM Grid
inverter



SD1100 RS485
Wireless adaptor
with dipole
antenna



SD1100 RS485
Wireless adaptor
with patch
antenna

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Overview

The diagrams below illustrate the options for single phase managed AC coupled system with ABB UNO-DM inverters.

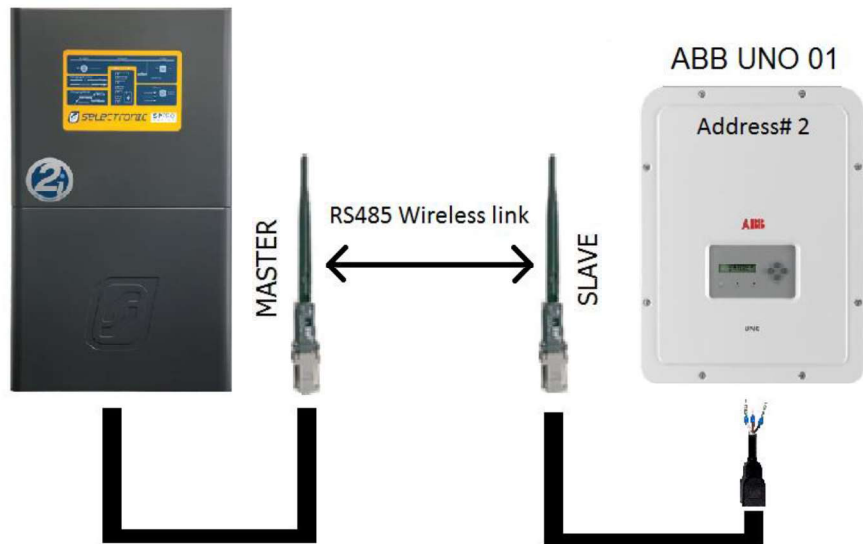


Figure 1: Single phase system with one wireless ABB UNO-DM

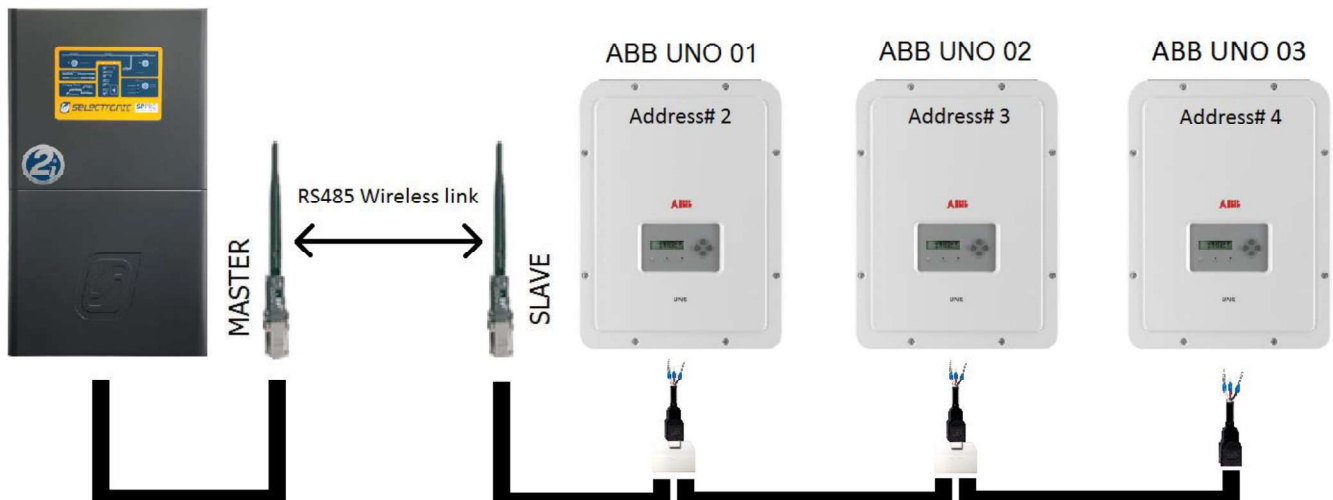


Figure 2: Single phase system with multiple wireless ABB UNO-DM

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Installing a separate pair of wireless RS485 devices on each phase

The diagram below shows a three-phase managed AC coupled system with three ABB UNOs per phase. A separate pair of Wireless RS485 link Kit (Order code 005316) must be used for each phase.

Note: When using multiple Wireless RS485 device pairs use Patch Antennas on each of the devices at the local end of the system (SP PRO end). This will reduce the interference between devices. Keep patch antennas separated by a minimum of 300mm.

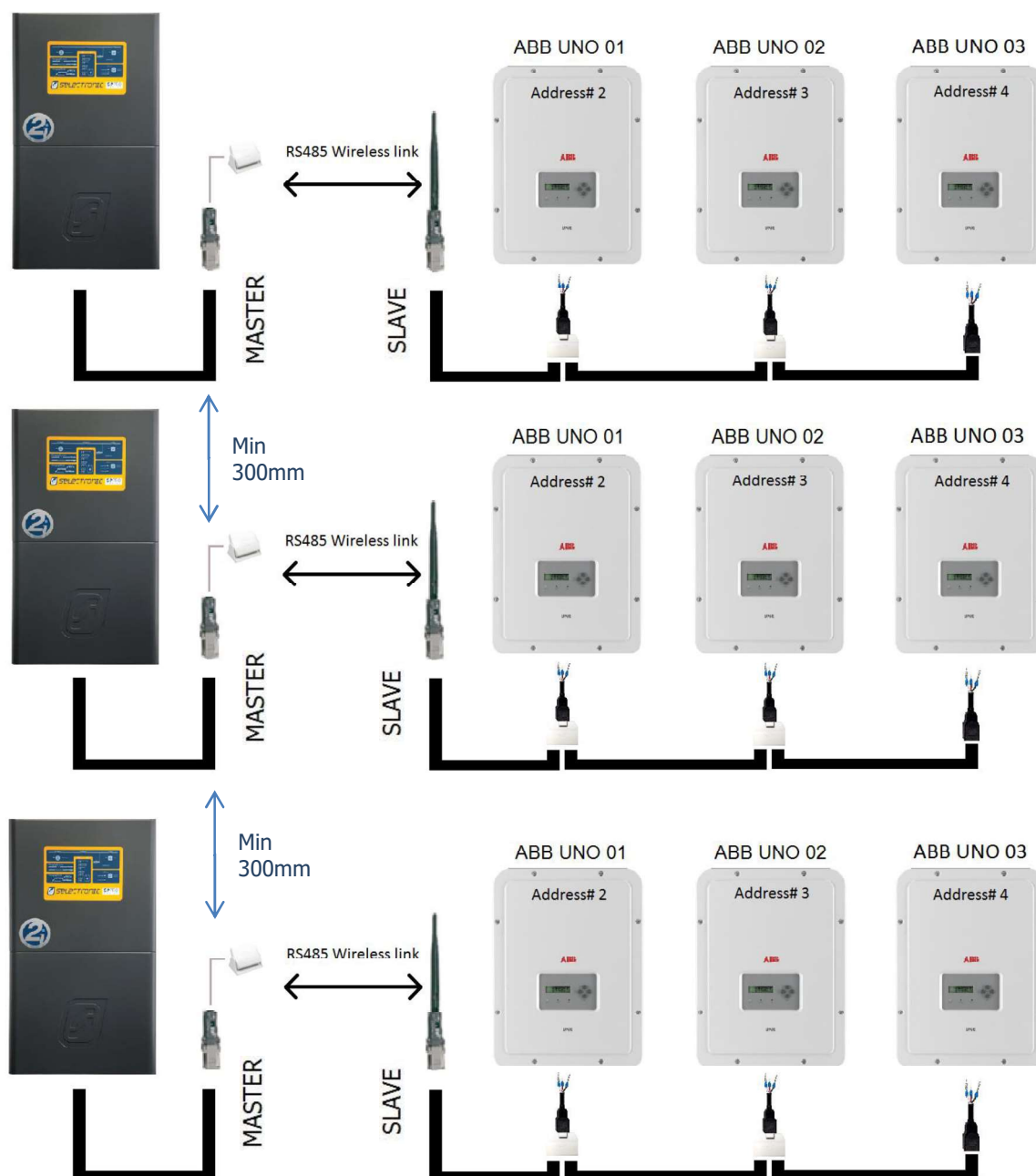


Figure 3: Overview of three phase system using Wireless RS485

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Wireless link restrictions

The wireless link uses the same frequency band as Wi-Fi and Bluetooth (2.4GHz). Any obstructions between the two devices or interference from other devices using the same frequency band (other blue tooth or Wi-Fi devices) will have a significant impact on their range.

To achieve the maximum range of 200m there must be line of sight between the two devices and no interference. As a rule of thumb, each obstruction that is equivalent to a stud wall will reduce the distance by about 20%. Mud brick walls, double brick or concrete walls will have a much larger impact on the range.

Any obstruction from the landscape such as levy banks, hills or undulation land will totally block the signal and the wireless link will not work.

If more than one wireless link is required within the same installation (such as a three-phase system or multiple remote sites) then the interference between the devices will further reduce the distance. In this case it is recommended that a patch antenna be used on all local Wireless devices.

Extending the Wireless Range

If the required distance is longer than the specified 200m clear line of site, or there are multiple devices being used then the range of the devices can be extended by replacing the dipole antenna with a "patch" antenna. The table 1 below gives an indication of the expected range when using a combination of dipole and patch antennas:

Table 1: Maximum "Line of site" distance between Wireless RS485 device pairs.

Local Wireless device antenna	Remote wireless device antenna	Max distance, one pair of devices (line of sight)	Max. distance, multiple pair of devices (line of sight)
Dipole (supplied)	Dipole (supplied)	200m	Not recommended
Patch – Optional (stock code 004810)	Dipole (supplied)	300m	150m
Patch – Optional (stock code 004810)	Patch – Optional (stock code 004810)	500m	250m



Optional Patch Antenna to extend the range of the wireless devices
(Selectronic Order Code 004810)

Note: Patch Antenna is directional and must be mounted in a fixed position that is directly facing the antenna of the other wireless device.