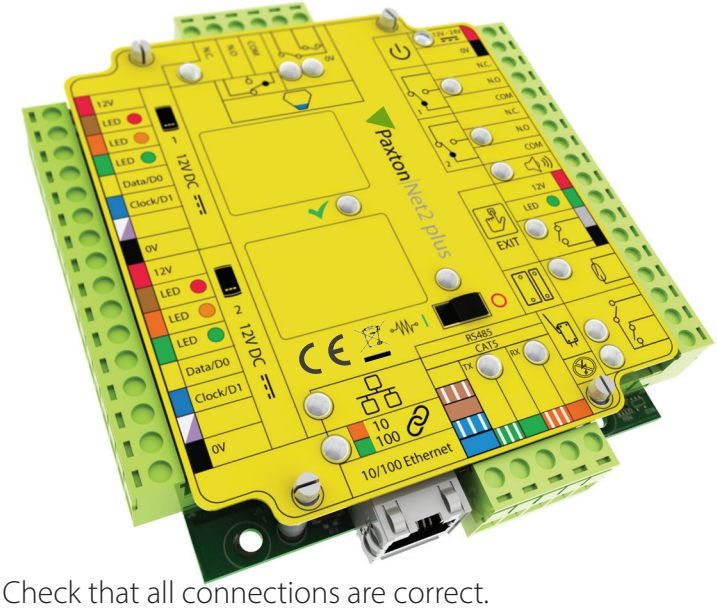
ACU's not responding - RS485 data line



NO ACU's are responding

- Ensure that the communication interface has power. Check that all connections are correct.

- Shut down and restart the Net2 server program.

- Check the type of communication interface being used. If using a TCP/IP interface or modem adaptor, check the settings as detailed in:-

AN1006 - Installing sites over TCP/IP < http://paxton.info/51 >
AN1007 - Installing remote sites using modems. < http://paxton.info/53 >

- Termination resistors - Check that the 4x120 ohm termination resistors are in place; one across each pair at both ends of the data line. NOTE: Some equipment (e.g. USB/RS485 converter, Net2 plus, etc.) have resistors that are put in circuit by means of red jumpers or a switch. If these units are situated in the middle of the data line, make sure their resistors have been switched out.

- A data line test will confirm the integrity of the installation and should be completed before progressing with further diagnosis. (90% of all Net2 installation faults have been traced to data line wiring errors.)

Tests on the data line should be carried out with the power and PC connections removed from the converter and performed by an experienced installer.

Testing the Data Line

- Check the cable used - only CAT5, CR8723 or General Cable equivalent C1352A cable is recommended.

- The resistance between Orange and Orange/White, and Green and Green/White must be measured using a Multimeter. A resistance of between 60-76 ohms (Belden/General Cable) or 60-87 ohms (CAT5) is normal. This confirms that the termination resistors are connected and the cable is continuous.

- The screen should be totally isolated from the data wires. As a guide, unplug the data line from the converter. Check the resistance between the screen and each data wire in turn. A high resistance (Greater than 1,000 ohms) confirms that the screen is not shorted with this core.

  If the result is inconclusive, the data line should be unplugged from every ACU to isolate the cable from the hardware and the test repeated.
- The screen of the data cable is the 0V reference for all communications and it is essential that the screen is continuous. To check this, at one end of the data line, connect the screen to terminal 1. At the other end of the network, use a multimeter to check that the resistance between screen and terminal 1 is now low (Less than 10 ohms). If not, the screen and its connection at each ACU should be checked.
- Ensure the network is in a daisy chain formation and does not exceed 3280ft, unless an RS485 repeater is being used.
- Confirm the number of ACU's on one data line is no greater than 200.

- Check OK LED's - If any ACU does not have its OK LED flashing, take it off the data line as it could stop the communication between the PC and the other ACU's. This ACU will need to have its internal firmware reloaded. For details on how to perform this refer to:

AN1062 - What to do if the OK LED on the ACU is not flashing. < http://paxton.info/1184 >

- If no ACU's are communicating with the PC, connect a single ACU to a short length of data cable directly to the converter. Be sure to maintain all of the normal data line rules, i.e. termination. If this works, the problem is likely to be with the data line and not the PC, software or converter.

- If this ACU fails to communicate try another known ACU.

- If you cannot get a single ACU to communicate, then the PC may be at fault. Ensure the serial port is functioning correctly. For details on this test refer to:

AN1057 - Testing a serial port and converter. < http://paxton.info/1185 >

- If the problem remains, try loading the software onto a second PC or laptop. If the system is active, copy the existing database across from the main system before detecting the ACU's or their card details may be cleared and lock out valid users.

Some ACU's are responding

- A full data line test is documented above (Testing the data line) and should be completed before other checks.

- Check OK LED's - if any ACU's do not have OK LED's flashing, take these off the data line. For details on how to recover the ACU, refer to:

AN1062 - What to do if the OK LED on the ACU is not flashing. < http://paxton.info/1184 >

NOTE: A Net2 USB plug-in converter (455-294) can be used to connect a laptop PC directly to an ACU.

- Connections - Check wiring and integrity of network terminal connections at the problem ACU.

- Check the Power supply for the correct voltage.

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