



Expanded Troubleshooting Guide: Remote Driver Board

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I ---- Intro

The Remote Driver option is designed to put the SDA100 Driver board at the base of the antenna Tower. It is expected that the customer will provide a dry location to mount the board.

The communications link between the SDA100 and the Remote driver uses RS485 data levels and twisted pair cabling. The Cat-5 cable carries ground to ensure that no damaging voltages will be present when the two are connected together.

Despite this fact the user must make sure there is a good ground for both the remote driver and SDA100.

The Driver chips will tolerate 65 volts between both ends of the cable but for reliable operation there should be less than 12volts between the two grounds.

1 ---- Check Driver configuration.

There are 2 normal reasons for this message to happen:

- a. The controller cannot detect the driver board, it cannot talk to it.
- b. There is a command error and the driver board sends a NAK (negative acknowledge).

The first one usually is a cable or board problem, like no power no connect to remote driver. The Cable needs to be a CAT-5 cross over cable) two pares crossed and two pares straight through).

The second one is a soft fault which could be caused by ground voltage shifts at the remote location or a Driver board problem that overloads the power supply at the remote location.

If the message appears randomly then check for ground voltages. If the message appear when you try to tune the antenna try to isolate to a sequence of events so you can figure out why the power supply is dropping out.

2 ---- Installation

When installing the Remote driver there are several things that need to be considered to have a reliable setup.

- a. Find a good mounting location away from the feed lines and other cables.
- b. The location should be dry and well ventilated to prevent condensation.
- c. There should be an Earth ground connected to the mounting plate this will bond the control cable shield to ground giving static a place to go. It also helps with RFI. Using the Ground terminal on the 25 pin-D splice kit will also work for Earth ground.



Remote Driver Board (Continued)

- d. Route the CAT-5 Cable away from coaxes and control lines that are not grounded to the same ground system. Often times we forget that if there are cables in the cable bundle that are unprotected they can bypass all the protection you have installed just by running parallel to the other cables.
- e. Ensure power ground is really ground, often times in remote locations there may be large motors like tower motors, well pumps and the likes that have large inductive loads that shift the line voltage, if there is not a true earth ground wire you will need to create a good ground system to ensure these voltages do not interfere with the Remote Driver commutations.

3 ---- Damage from electrical storms

There are two ways that the remote drive can be damaged in an electrical storm.

First is by induced voltages coming down the control cable and damaging the input line filters and possibly driver chips on the Remote Driver Board. If you have this sort of damage verify the tower ground system is in good condition. You may also want to add a Line filter to the SteppIR control cable.

Second is damage to the RS485 link between the remote driver and the SDA100. If you have this sort of damage then make sure your CAT-5 cable is not running parallel to other cables that may be exposed to induced storm voltages. You can also filter this line but if the problem is caused by parallel cables you will need a filter at both ends. Here is what you need [Http://www.l-com.com/surge-protector-indoor-10-100-base-t-shielded-cat5-lightning-surge-protector](http://www.l-com.com/surge-protector-indoor-10-100-base-t-shielded-cat5-lightning-surge-protector)

4 ---- Switch settings on Remote Driver

For the remote board to work properly the Switch on top must be set, S1 and S2 OFF, towards U2. These switches are under the small optional piggy back relay Board that is on some driver boards.

Also the jumpers on the back of the board 2 and 3 must be jumped, the 2 jumpers for 1 must be jumped in the same direction, left to right, as jumper 2 and 3.

5 ----- Two power supplies which one is which

- The 33V or High Power Supply is for the Remote Driver.
- The 24V supply is for the SDA100

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