

FOUR STACK II

Traditional Antenna Stacking System

Stack Match

Operation Manual



V 1.0



<http://www.hamplus.com>

NOVEMBER 13, 2025

Rua Joe Collaco, 954 Florianopolis Brazil

Four Stack II

Traditional Antenna Stacking System

The **Four Stack II** is a system designed to adjust the impedance of up to four antennas connected in parallel. This system uses a 10-wire cable to send commands from the control module to the antenna switching module.

The **Four Stack II** has two modules.

1- Control Module:



This module has buttons for switching antennas, a power input, a SEND command to select the antenna array for transmission, and a connector for remote control.

2- Antenna Switch Module:



This module, which is normally installed on the tower near the antennas, receives an RF cable coming from the radio and a 10-wire cable from the control module that provides power (12VDC) and commands to activate the antennas.

Figure 1:
Four Stack II installation diagram.

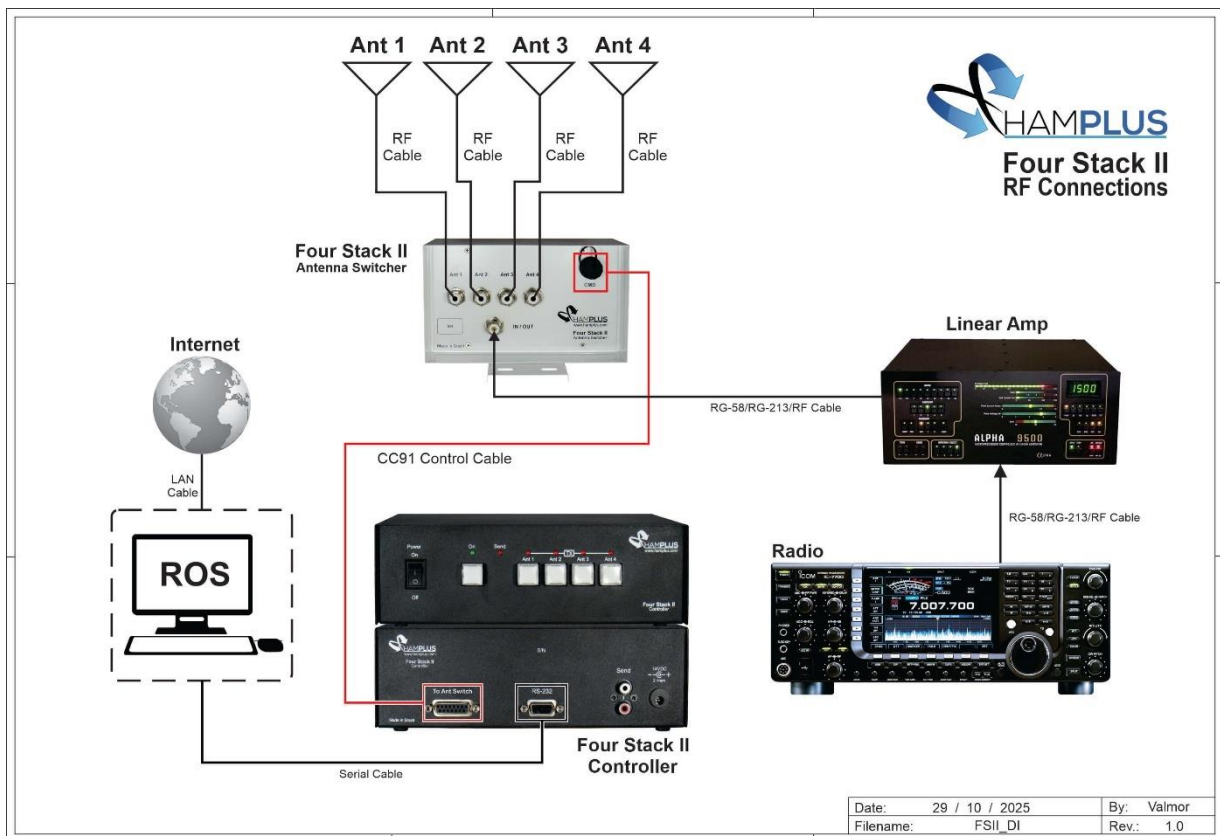
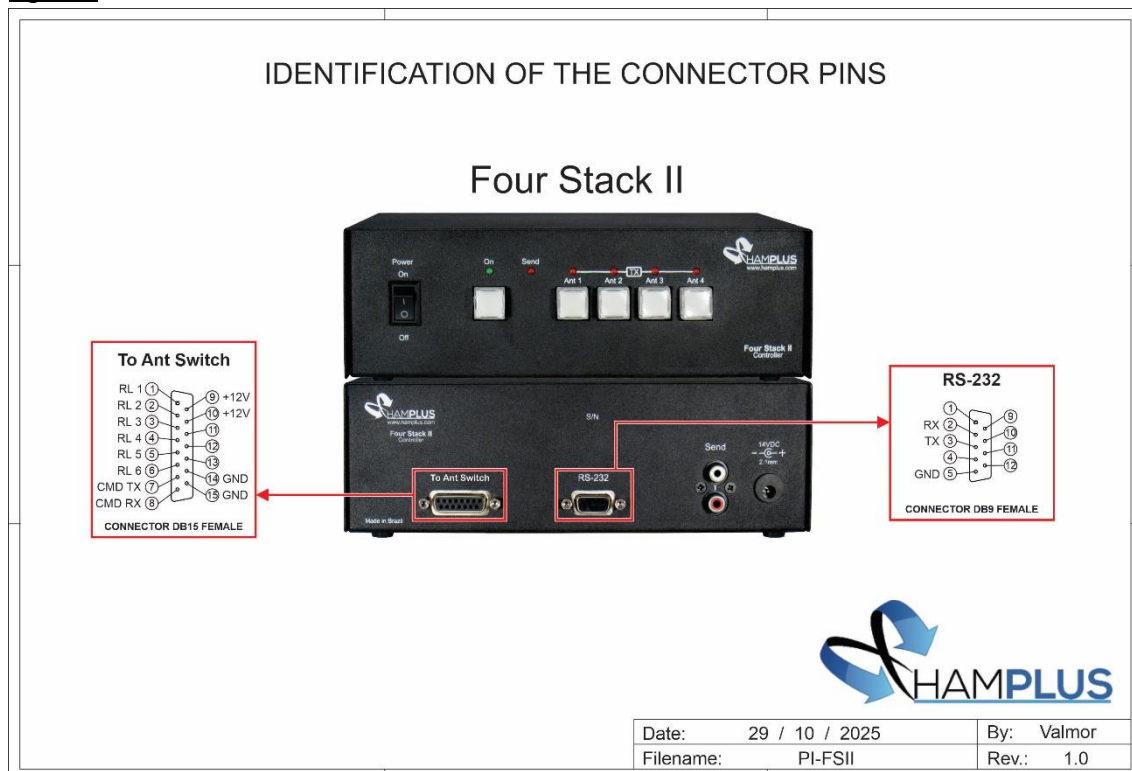


Figure 2:



Four Stack II Description:

The **Four Stack II** is an impedance matching device for arrays with up to **four antennas** in the same band. You can have two different antenna arrays: one for reception and one for transmission. Switching between the reception and transmission arrays is controlled by the radio's **PTT**. To do this, you need to connect the radio's **Send output** to the **Send input** of the **Four Stack II** controller.

For this function to work perfectly and to avoid damage to the system, the radio's TX Delay must be set to 20 ms or greater.

Operation:

To select antennas for reception:

Press the buttons for the desired antennas once to connect, and again to disconnect. The connected antenna is indicated by the illuminated button.

To select antennas for transmission:

With the **ENTER** button pressed, press the button for the desired antenna **once to connect**, and **again to disconnect**. The selected antennas are indicated by the illuminated **red LEDs** above the antenna selector buttons.

When the **radio's PTT** is pressed, the controller switches between receiving and transmitting antennas and signals this by illuminating the antenna selector buttons.

When the **PTT** is released, the controller reconnects the receiving antennas.

If the radio's **Send** output is not connected to the controller's Send input, transmission will be done through the antennas chosen for reception.

Protocol for RS-232 remote control of the Four Stack II

All commands are followed by ENTER ==> 0x0D

Commands are accepted by RS-232 in uppercase or lowercase letters.

When receiving a command that has no response, it executes without sending feedback.

The status command has the response sent with the following format:

"ST=" + byte one + byte two + 0x0D + 0x0A

Invalid commands return: "?>" + 0x0D + 0x0A

All Hamplus commands begin with the uppercase or lowercase letter "K", followed by the command byte itself + ENTER (0x0D).

Hamplus command list (byte after the letter "K" or "k" all in ASCII).

The only command that has a response is "0" (zero = STATUS).

"0" - STATUS request command

"1" - command to toggle antenna-1 in RX

"2" - command to toggle antenna-2 in RX

"3" - command to toggle antenna-3 in RX

"4" - command to toggle antenna-4 in RX

"5" - command to toggle antenna-1 in TX

"6" - command to toggle antenna-2 in TX

"7" - command to toggle antenna-3 in TX

"8" - command to toggle antenna-4 in TX

Formatting of the response to the STATUS request (0):

First Byte:

Bit-0 = Set if antenna-1 of RX is activated

Bit-1 = Set if antenna-2 of RX is activated

Bit-2 = Set if antenna-3 of RX is activated

Bit 3 = Set if antenna-4 of RX is activated

Bit 4 = Always Clear

Bit 5 = Always Clear

Bit 6 = Always Clear

Bit 7 = Always Clear

Second Byte:

Bit 0 = Set if antenna-1 of TX is activated

Bit 1 = Set if antenna-2 of TX is activated

Bit 2 = Set if antenna-3 of TX is activated

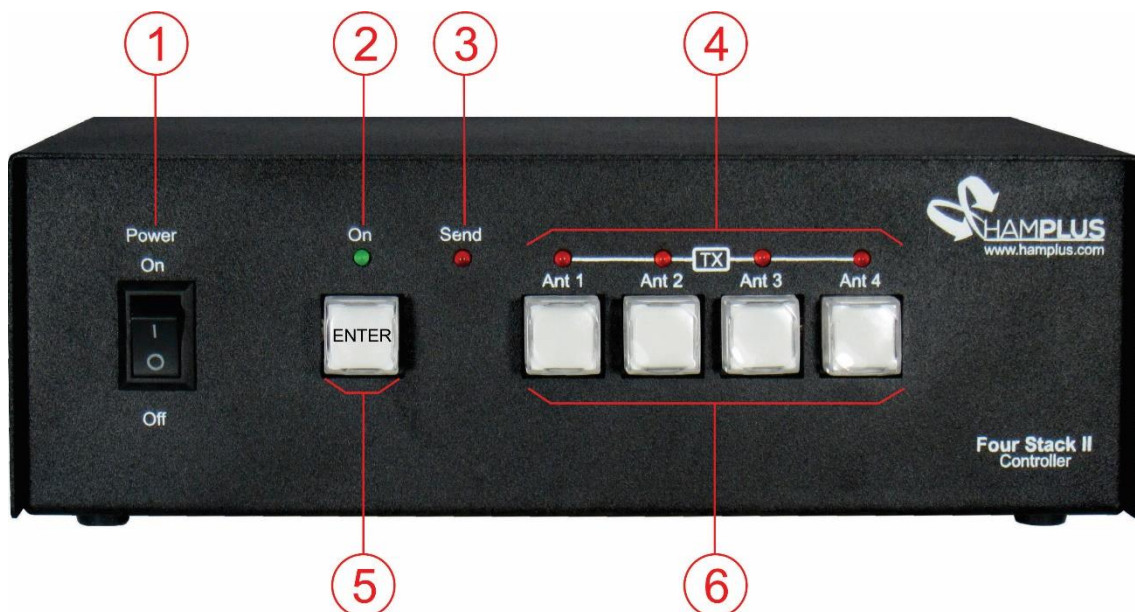
Bit 3 = Set if antenna-4 of TX is activated

Bit 4 = Set indicates that PTT is activated

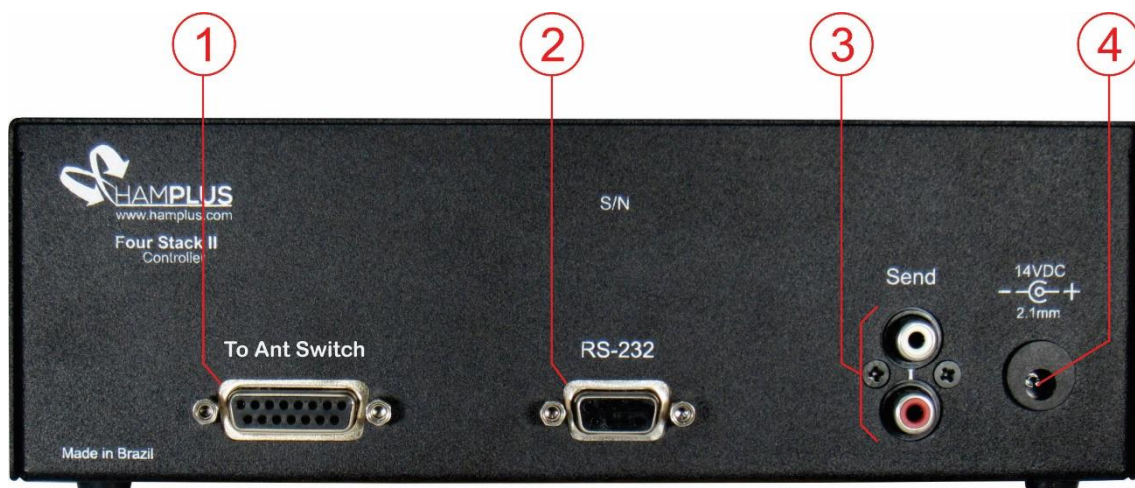
Bit 5 = Always Clear

Bit 6 = Always Clear

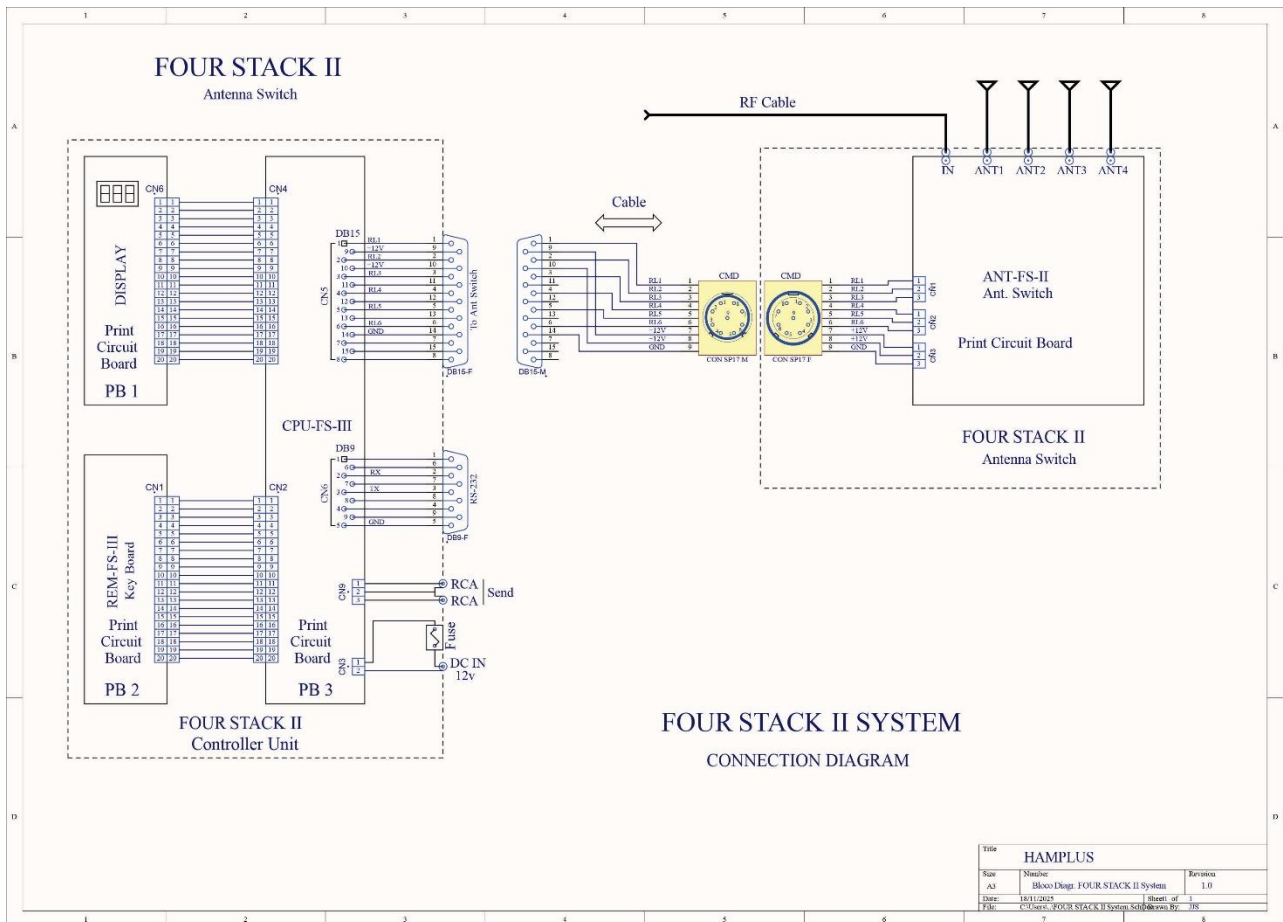
Bit 7 = Always Clear



- | | |
|-----------------|---------------------------------|
| 1- Power switch | 4- TX Antenna Indicator Led |
| 2- Power On Led | 5- Enter Button |
| 3- Send Led | 6- Antenna selector Push Button |



- | |
|--------------------------------------|
| 1- DB-15 Connector to Antenna Switch |
| 2- DB-9 RS-232 Remote connector |
| 3- Send In RCA Connector |
| 4- Power Input 14 VDC |





Four Stack II

13 DE NOVOEMBRO DE 2025

Rua Joe Collaco, 954 Florianopolis Brazil