

# AS-603WL

## Operation Manual

AS-61WL / RC-603WL Set  
6x3 Automatic Wireless Antenna Switch  
Commands over RF Cable

Operation from 1.8 MHz to 54 MHz

# Operation Manual



# V. 1.9.1



## **AS-603WL**

AS-61WL / RC-603WL Set

### 6x3 Automatic Wireless Antenna Switch

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The **AS-603WL** is an automatic antenna switch for three radios and six antennas. There are two independent boxes, one for the antenna switch that is near the antennas, **AS-61WL**, and another box with the Push Buttons for the selection of the antennas and the Radios, **RC-603WL** that is next to the Radio. **The connection between the two boxes is only made with the RF cable (RG-58 or RG-213). This cable takes RF, power and the necessary commands for the perfect operation of this system.** The **RC-603WL** also allows the insertion of a linear amplifier or a wattmeter, or both. In this way the equipment will always be connected with the Radio and the antenna selected. The operation is individual, which means that only the selected radio will have access to the antennas. Unused antennas are automatically short circuited.

To facilitate the operation, the **RC-601WL** also has a third internal switch that switches the Send commands and the Com port to the selected Radio.

The **AS-603WL** supports communication with the following radios:

**Icom** (CI-V), **Kenwood** (RS-232), **Elecraft K3** (RS-232), **Yaesu** (RS-232) or any other Radio that uses one of these communication protocols.

#### **Procedure for connecting the RC-603WL to the radio:**

- 1- On the **RC-603WL** press and hold the yellow radio select Push button and turn on the **RC-603WL**.
- 2- Then press the Antenna Push Button corresponds to the model of the radio that you will connect, according to the list below;
  - a- **Ant 1** Push Button for **Icom** (CI-V) radios **Baud rate 19200**
  - b- **Ant 2** Push Button for **Yaesu** type FT-817, FT-857 and others. **Baud rate 4800**
  - c- **Ant 3** Push Button for **Yaesu** type FT-1000 MP radios and others. **Baud rate 4800**
  - d- **Ant 4** Push Button for **Yaesu** type FT-5000 radios and others. **Baud rate 4800**
  - e- **Ant 5** Push Button for **Kenwood, Elecraft, Flex Radio**, and others. **Baud rate 4800**

After the choice, the **Data LED** stops blinking, this indicates the end of this procedure.

#### **Procedure to activate Split mode:**

To activate Split mode, the **RC-603WL** must be connected to the radio with the appropriate cable and the **TX Delay of the radio must be set to at least 20 ms**.

- 1- Press the PTT on the radio and watch the RC-603WL's Send LED light up.
- 2- Then, with the PTT still pressed, press and release the button of the antenna that you want to receive.
- 3- When PTT is released, the RC-603WL will switch to the chosen receiving antenna.

Each time you press the PTT, it returns to the transmitting antenna.

**Any change of antenna or band on the radio deactivates Split mode.**

**Testing and using the automatic antenna selection feature of the RC-603WL and AS-61WL with a connected and selected radio:**

**NOTE:** No computer programming, PC connection or internal changes are required. A connected radio means that it is interfaced to the RC-603WL with a cable, such as Hamplus ERC-6, IRC-6, KRC-6, YRC-6, FRC-6 or YRC-61, and the radio set to the correct baud rate (19,200 baud CI-V or 4800 baud CAT and COM) and set up as described in the previous section.

If the RC-603WL is not interfaced as described, then it may be operated as a Manual Antenna Switch.

When connected, the RC-603WL is an Automatic Band Memory Antenna Switch that may be operated manually. "Programming" automatic antenna selections are made as each different band is selected on the connected and selected radio. The initial manual selection of a specific antenna for that band is made by depressing the desired Ant button, which is then automatically memorized. There is no "SAVE" button nor is there a multi-button programming sequence. Just set the antenna by the band on the radio.

Restated, simply assign or reassign any RC-603WL Ant button number to any band by initial or subsequent manual selection. For every and any band chosen and displayed on the connected and selected radio, every time a different antenna button is manually depressed, that selection is memorized.

Here is an example of antenna memorization by band setting on the transceiver connected to and selected as Radio 1 on the RC-603WL:

1. Select 40 meters on Radio 1 and press Ant 2 on the RC-603WL (as if your 40 meters antenna is connected to the Ant 2 port on the AS-61WL)
2. Select 80 meters on Radio 1 and press Ant 1 on the RC-603WL (as if your 80 meters antenna is connected to the Ant 1 port on the AS-61WL)
3. Select 20 meters on Radio 1 and press Ant 3 on the RC-603WL (as if your 20 meters antenna is connected to the Ant 3 port on the AS-61WL) ... and so on.

Now, test the automation by changing back to the 40 meters band on your radio. The RC-603WL should now automatically switch to Ant 2.

Then, select 80 meters on your radio and the RC-603WL automatically switches to Ant 1, and so on.

If automatic antenna selection by band or frequency does not occur, then reattempt the **Procedure for connecting the RC-603WL to the radio** in the section above.

Supporting the use of a multi-band antenna, the RC-603WL provides the ability to assign any single antenna port to any number of bands on the connected radio, also by initial manual selection.

**For example:** A 20/15/10 meters tri-band beam coaxial cable is connected to Ant 3 port on the AS-61WL.

4. Select 20 meters on the connected radio and press Ant 3 on the RC-603WL (because your tri-band antenna is connected to Ant 3 port on the AS-61WL)
5. Select 15 meters on the connected radio and press Ant 3 on the RC-603WL (because your tri-band antenna is connected to Ant 3 port on the AS-61WL)

6. Select 10 meters on the connected radio and press Ant 3 on the RC-603WL (because your tri-band antenna is connected to Ant 3 port on the AS-61WL)

Now, test the tri-bander automation by selecting any of those bands, 20, 15 and 10 meters, on your radio. The RC-603WL will now automatically stay on Ant 3, or go back to Ant 3 after selecting a band with a different band memorized.

7. Select 80 meters on your radio and the RC-603WL automatically switches to Ant 1,
8. Then, select 20 meters on your radio and the RC-603WL automatically switches back to Ant 3... and so on.

**IMPORTANT FEATURE:** PC interface to this antenna switch controller is not necessary. Interfaced transceivers that are also controlled locally or remotely by USB or LAN will continue to benefit from this Automatic Band Memory Antenna Switch. This smart controller method of automatic antenna selection is simply made by band or frequency selection with the radio control program.

**REMINDER:** Reassignment of any band or frequency to a different antenna port is simply made by manual reselection of the new antenna port number whenever the connected radio is set on that specific band or frequency. The manual change is automatically updated by the RC-603WL for only the selected radio. Simply stated, reassign any Ant # to any band by manual reselection of the new Ant # whenever the radio is set to that band.

**For example,** let's say that you now want to move your 40 meters antenna to the Ant 5 port on the AS-61WL. Simply select 40 meters on the connected radio and press Ant 5 on the RC-603WL, and it memorizes this change. Each time you change this radio to a 40 meters frequency, Ant 5 will now be automatically selected.

**NOTE:** On any given radio band, any manual antenna selection that is made, even if it happens to be incorrect, will be memorized. So, check and recheck each of your band memorized antenna selections by changing to each of the bands on your connected and selected radio and watching the RC-603WL automatically change to the correct antenna. Correct any wrong Ant # on any band by manual selection.

### **Remote Operation:**

The **AS-603WL** can be operationally controlled through its **RS-232** serial port. The selection of antennas and radios follow the **Hamplus HP603** protocol.

### **HP603 Protocol:**

RS-232, 9600 baud, 8 data bits, 1 stop bit, no parity  
Letter "K" in the first byte and commands in the next byte.

### **List of commands:**

- K0** = (zero) STATUS Request (response formatting is described below)
- K1** = Activate antenna-1
- K2** = Activate antenna-2
- K3** = Activate antenna-3
- K4** = Activate antenna-4
- K5** = Activate antenna-5

**K6** = Activate antenna-6  
**K7** = Switch to radio-1  
**K8** = Switch to radio-2  
**K9** = Switch to radio-3  
**KA** = Activates SPLIT by placing antenna-1 as RX  
**KB** = Activates SPLIT by placing antenna-2 as RX  
**KC** = Activates SPLIT by placing antenna-3 as RX  
**KD** = Activates SPLIT by placing antenna-4 as RX  
**KE** = Activates SPLIT by placing antenna-5 as RX  
**KF** = Activates SPLIT by placing antenna-6 as RX

**Format of the response to the STATUS request (K0):**

**First Byte (U2)**

**Bit-0** = Set if Antenna-1 is connected  
**Bit-1** = Set if Antenna-2 is connected  
**Bit-2** = Set if Antenna-3 is connected  
**Bit-3** = Set if Antenna-4 is connected  
**Bit-4** = Set if Antenna-5 is connected  
**Bit-5** = Set if Antenna-6 is connected  
**Bit-6** = Set if on radio-1  
**Bit-7** = Set if on radio-2

**Second Byte (U3)**

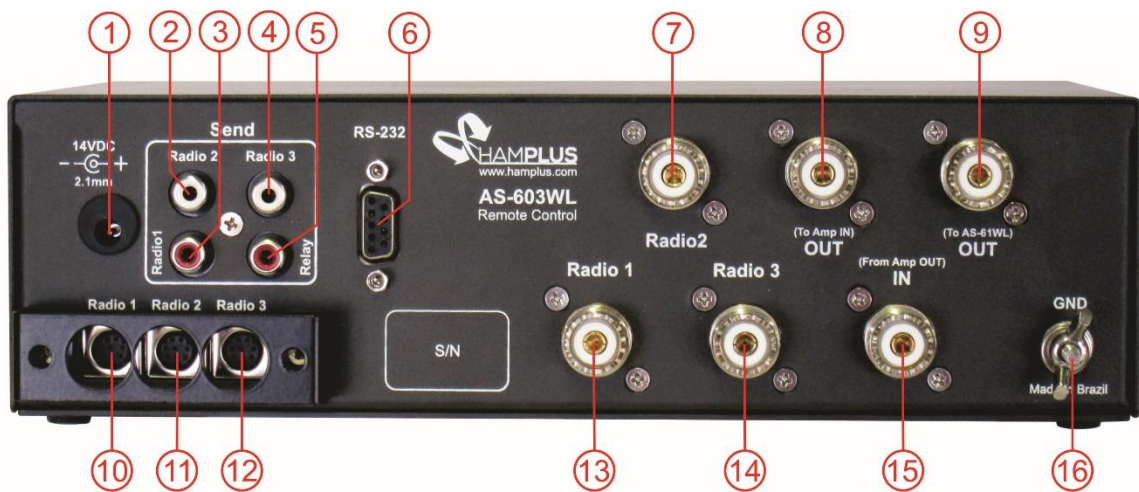
**Bit-0** = Set if on radio-3  
**Bit-1** = Set if SPLIT mode active  
**Bit-2** = PTT - set if enabled  
**Bit-3** = not used  
**Bit-4** = not used  
**Bit-5** = not used  
**Bit-6** = not used  
**Bit-7** = not used

**STATUS** is retransmitted by **UART via RS-232** with the following format:

**"ST=" + STATUS byte-1 + STATUS byte-2 + 0x0D + 0x0A**

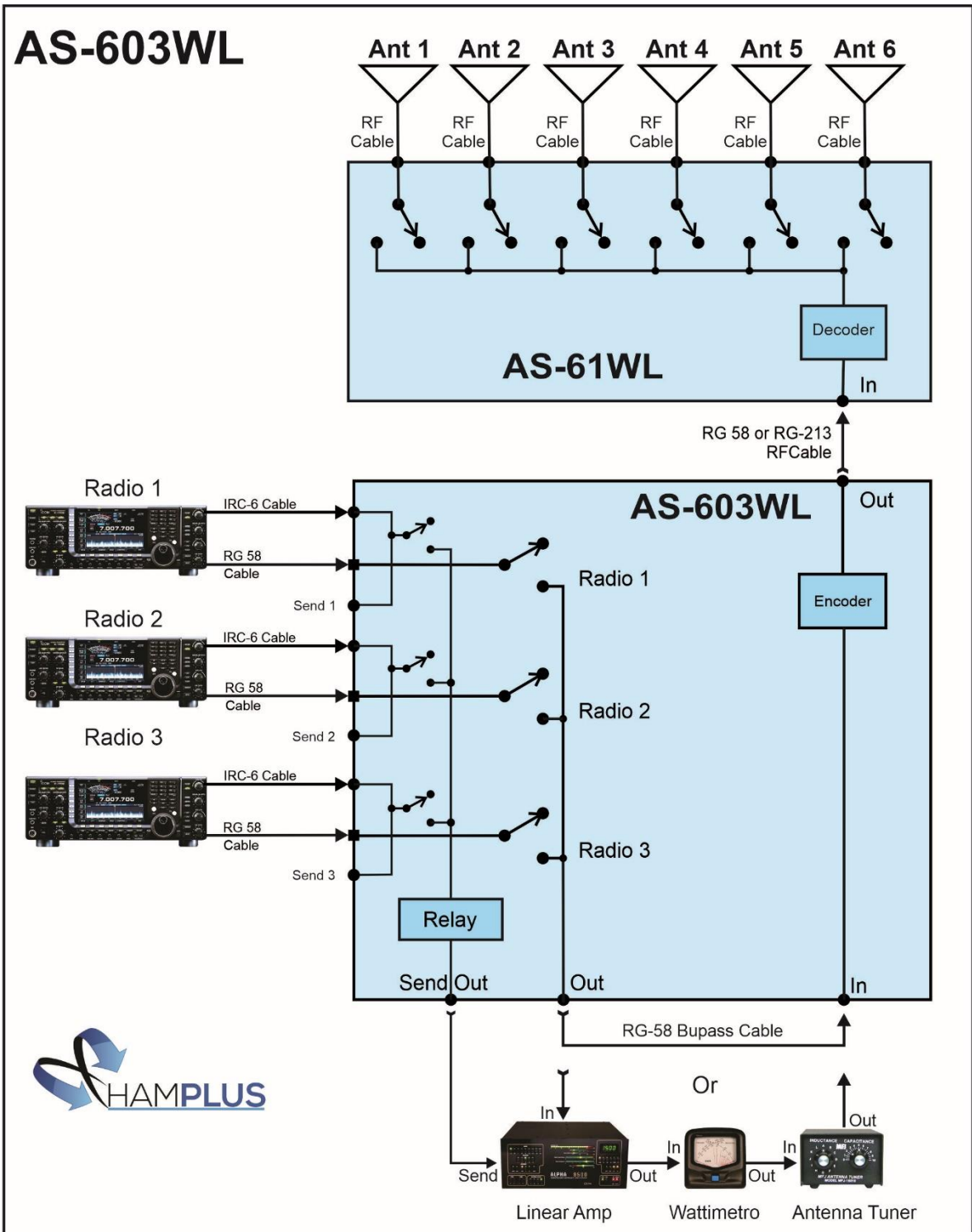
**Note:** In commands only the letter "K" (first byte) can be **upper** or **lower** case, the other bytes of the commands are **just numbers** or **uppercase letters**.

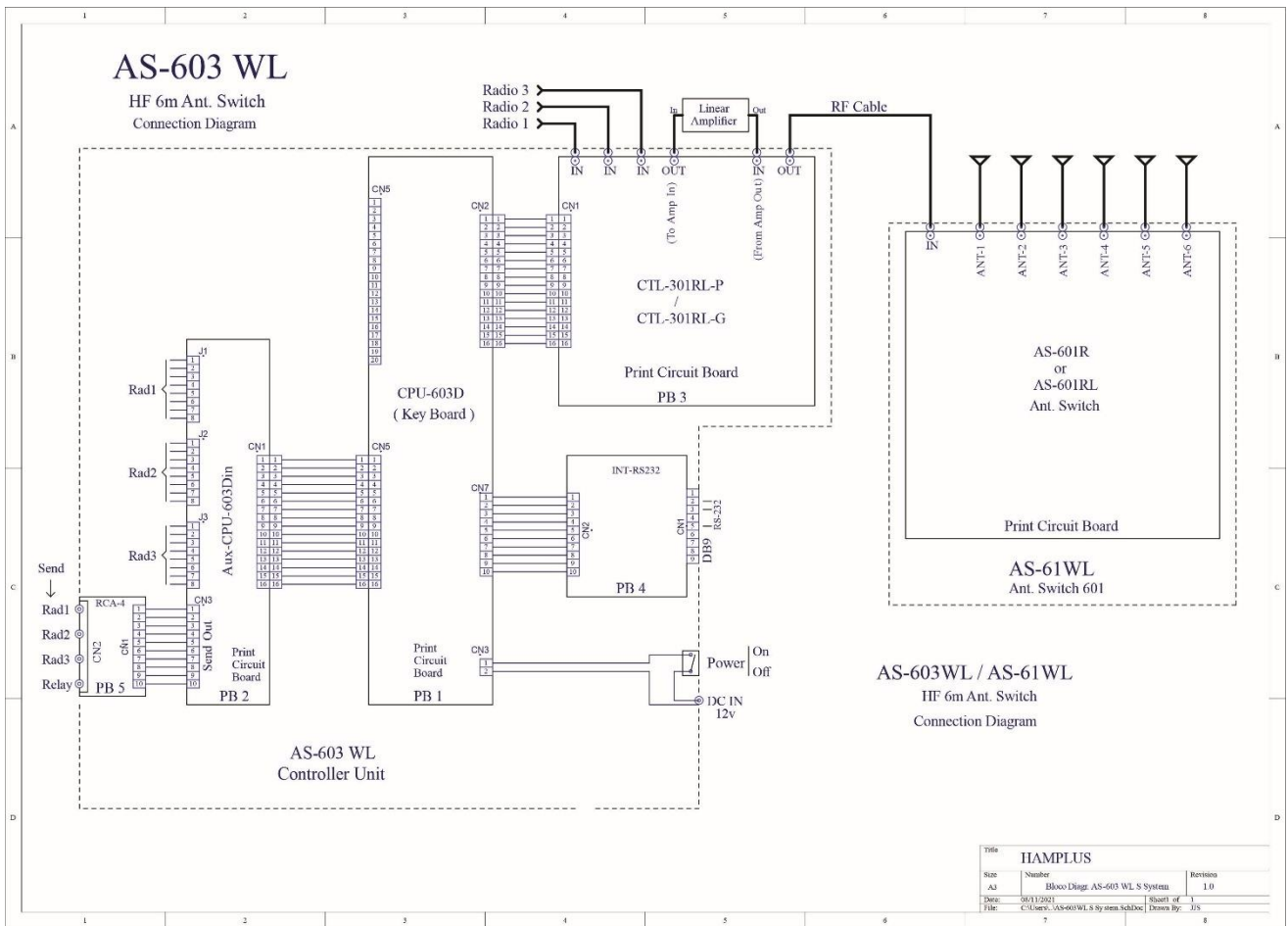
-----X-----



- |                                      |                                 |
|--------------------------------------|---------------------------------|
| 1- Auxiliar Power Supply In 13.8 VDC | 9- RF + DC + Com Out to AS-61WL |
| 2- Send 2 In/Out                     | 10- Control Cable to Radio 1    |
| 3- Send 1 In/Out                     | 11- Control Cable to Radio 2    |
| 4- Send 3 In/Out                     | 12- RF from Radio 1             |
| 5- Switched Relay Send Out           | 13- RF from Radio 2             |
| 6- RS-232 Serial Port                | 14- RF from Radio 2             |
| 7- RF from Radio 2                   | 15- RF In from Linear Amp. Out  |
| 8- RF Out to Linear Amp. In          | 16- GND                         |

# AS-603WL








**Labels** - print on transparent paper with laser printer

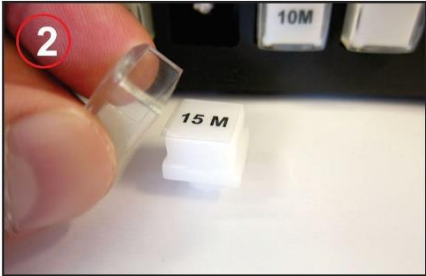
160 m	80 m	40 m	20 m	18 m	17 m	15 m	12 m	10 m	6 m	2 m	70 cm
80 m 40 m	20 m 15 m 10 m	MULTI BAND	LOG	IC 756	IC 7300	IC 7600	IC 7610	IC 7700	FT 897D	FT 1000	WARC
KEN WOOD	KEN WOOD 1	KEN WOOD 2	KEN WOOD 3	K3	K3 1	K3 2	K3 3	YAESU	YAESU 1	YAESU 2	YAESU 3
ICOM	ICOM 1	ICOM 2	ICOM 3	FLEX	FLEX 1	FLEX 2	FLEX 3				

Procedure to place labels on the keys

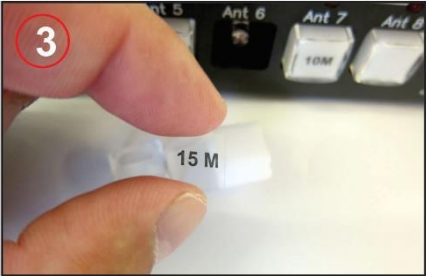
### Push Button Labels



1



2



3

HAMPLUS		
Size: A4	Number: Push Button Labels	Rev: 1.0
Date: 25 / 04 / 2019	By: Valmor	
Filename: Labels	Page: 1 / 1	

RC-603WL - IDENTIFICATION PIN

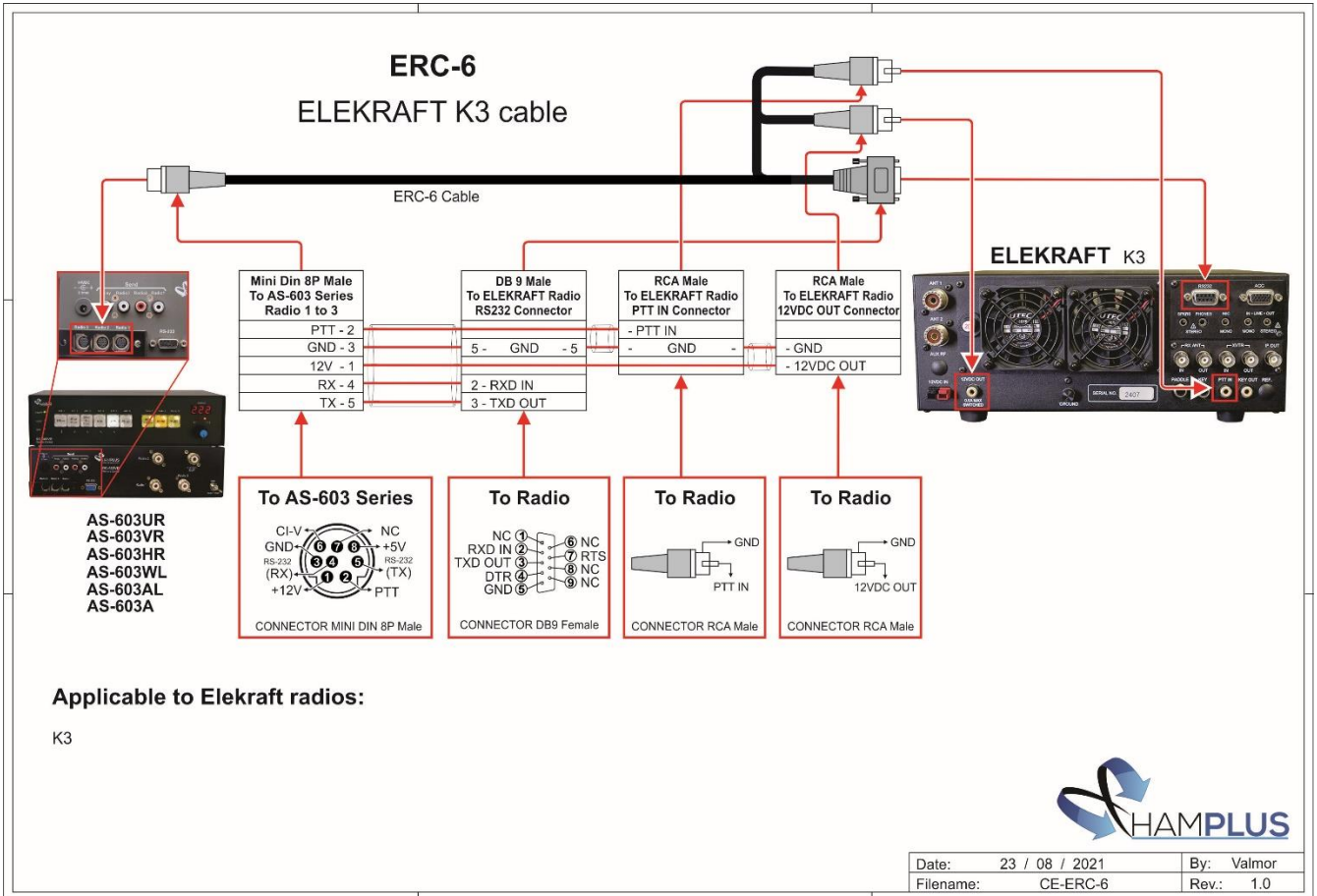


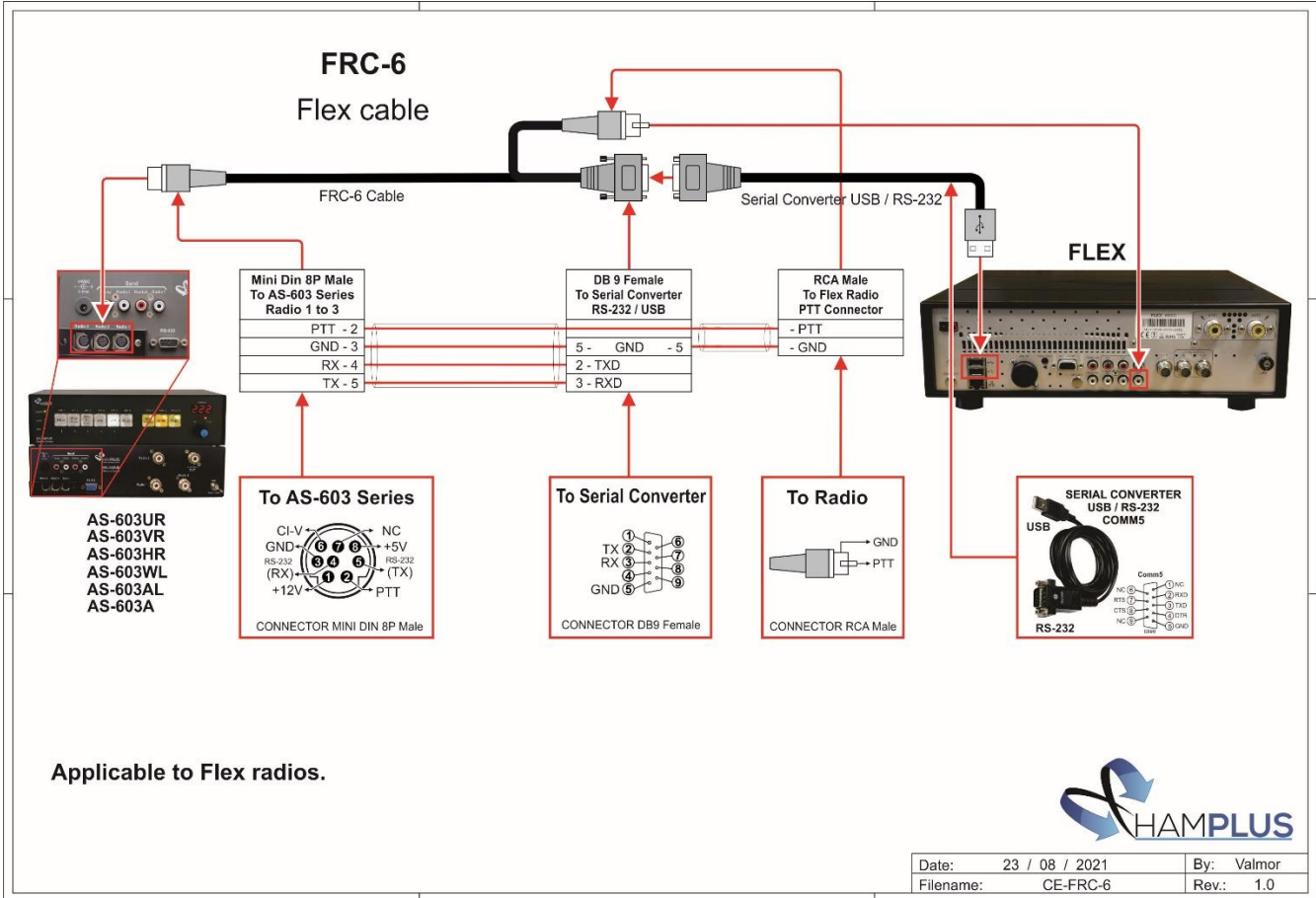
**RC-603WL**

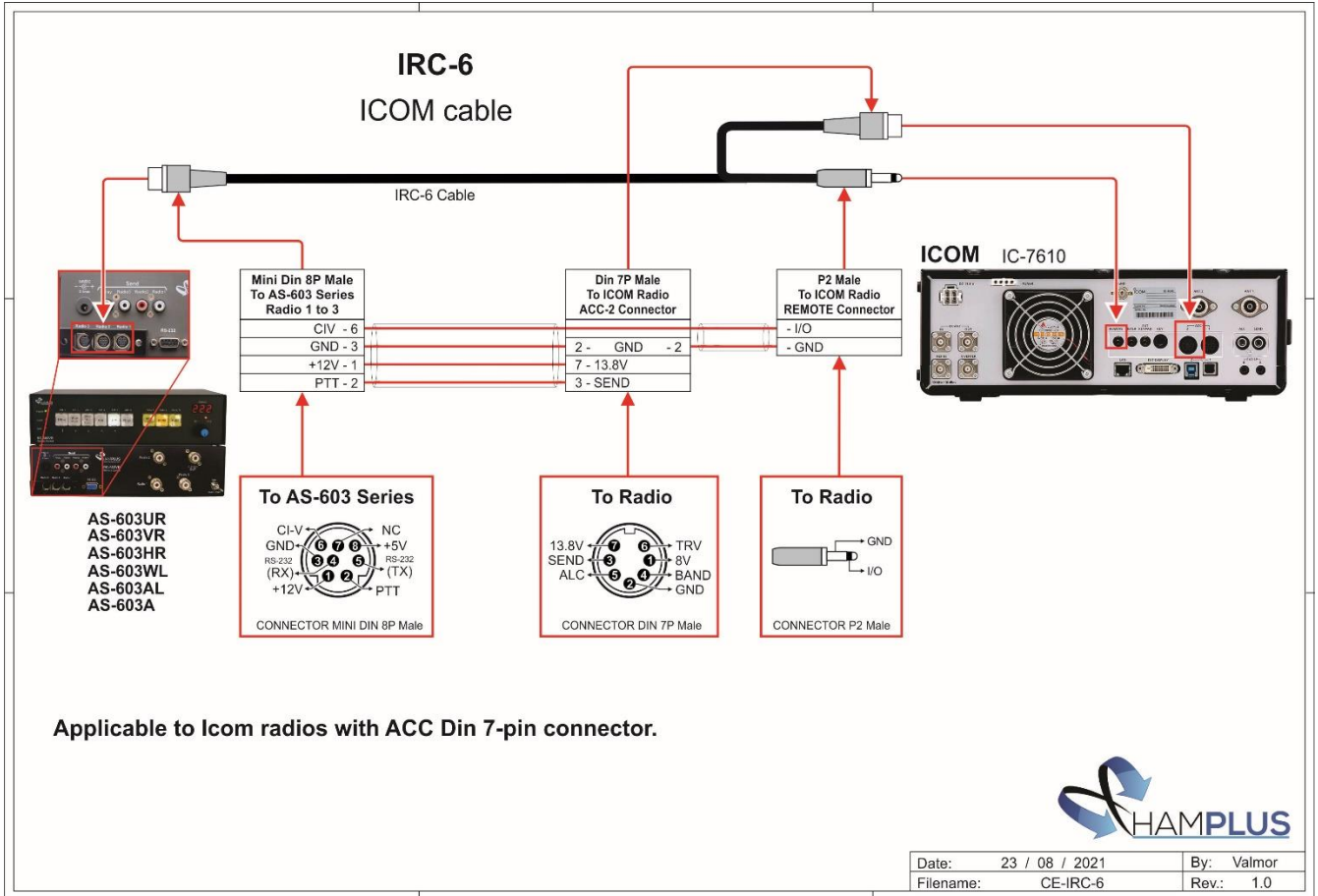
**CONNECTOR MINI DIN 8P**



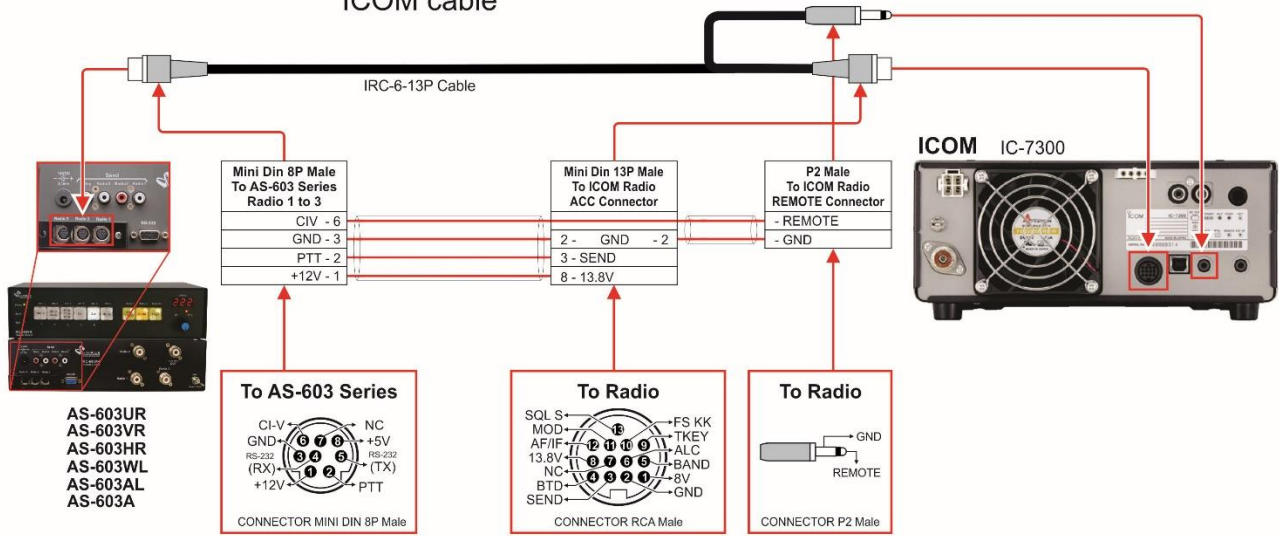
HAMPLUS		
Size: A4	Number: Identification Pin	Rev: 1.1
Date: 12 / 02 / 2021	By: Valmor	
Filename: PLRC603WL	Page: 1 / 1	







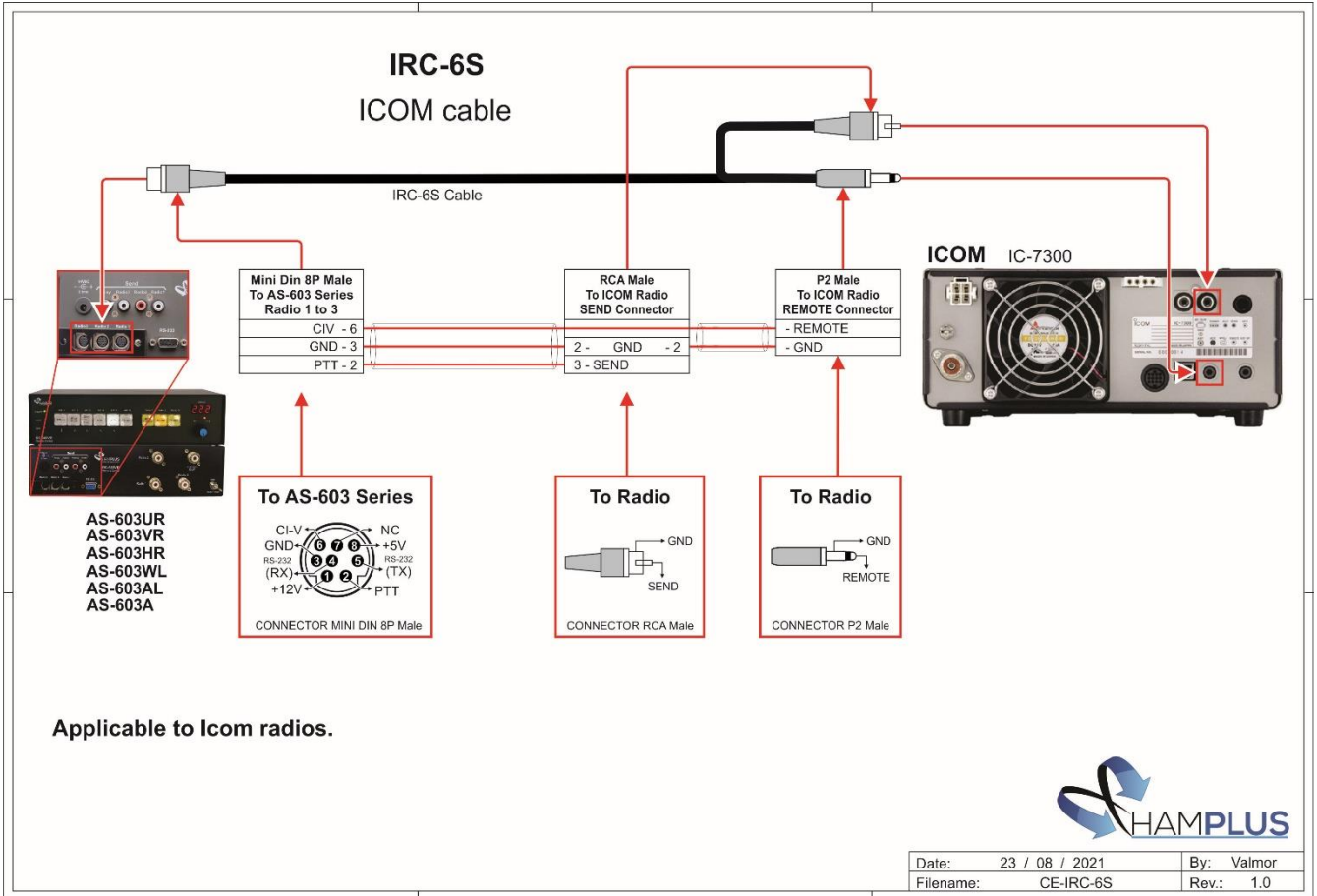
## IRC-6-13P ICOM cable



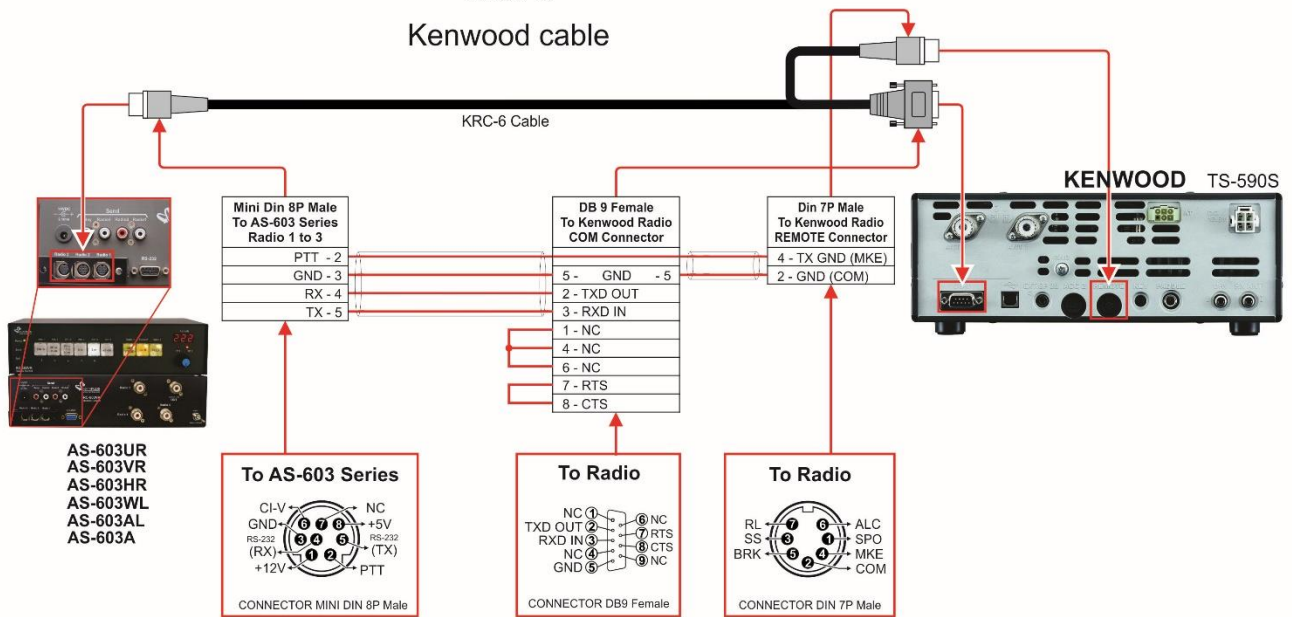
Applicable to Icom radios with ACC Din 13-pin connector.



Date: 23 / 08 / 2021	By: Valmor
Filename: CE-IRC-6-13P	Rev.: 1.0



## KRC-6 Kenwood cable



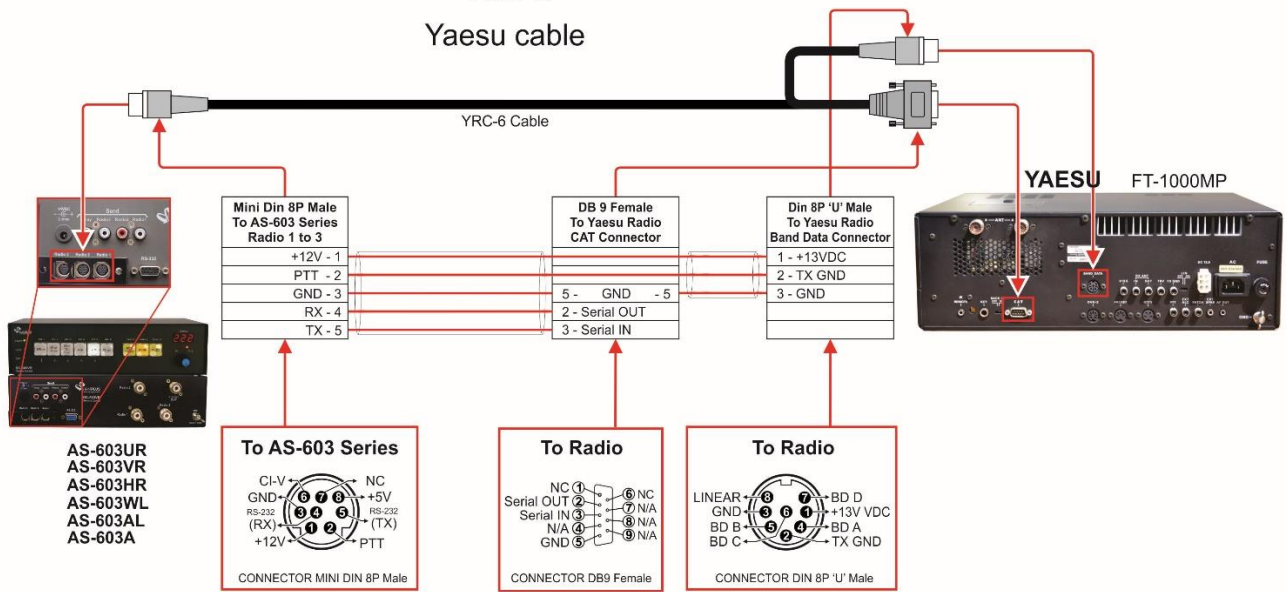
Applicable to Kenwood radios.



Date: 23 / 08 / 2021	By: Valmor
Filename: CE-KRC-6	Rev.: 1.0



## YRC-6 Yaesu cable



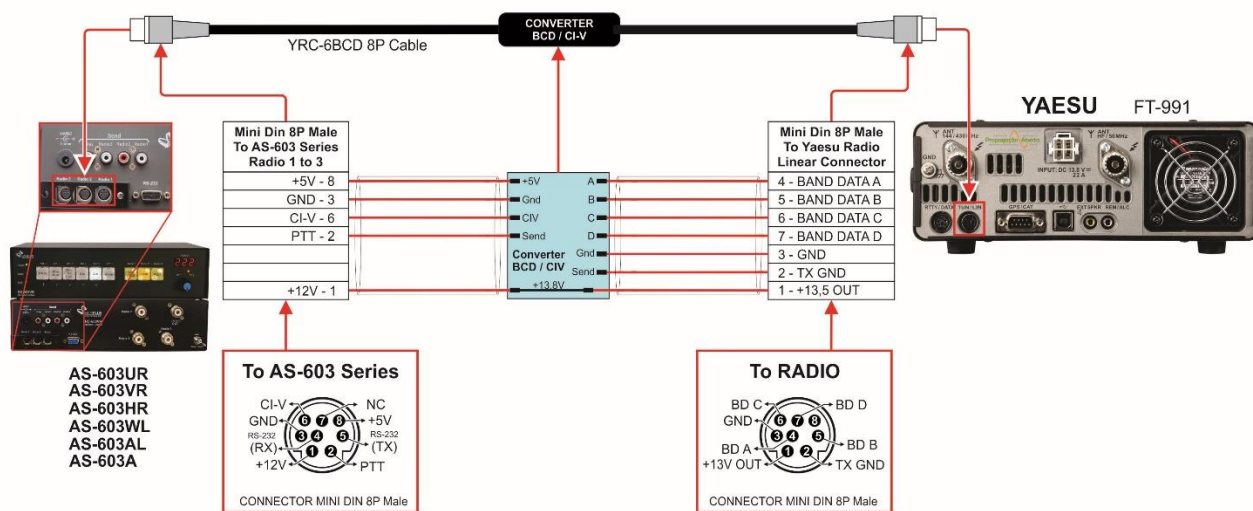
Applicable to Yaesu radios with RS-232 protocol compatible with FT-1000MP model.



Date: 23 / 08 / 2021	By: Valmor
Filename: CE-YRC-6	Rev.: 1.0

## YRC-6BCD 8P Cable

### Yaesu BCD to CI-V converter cable



Applicable for Yaesu radios with Band Data connector compatible with models:

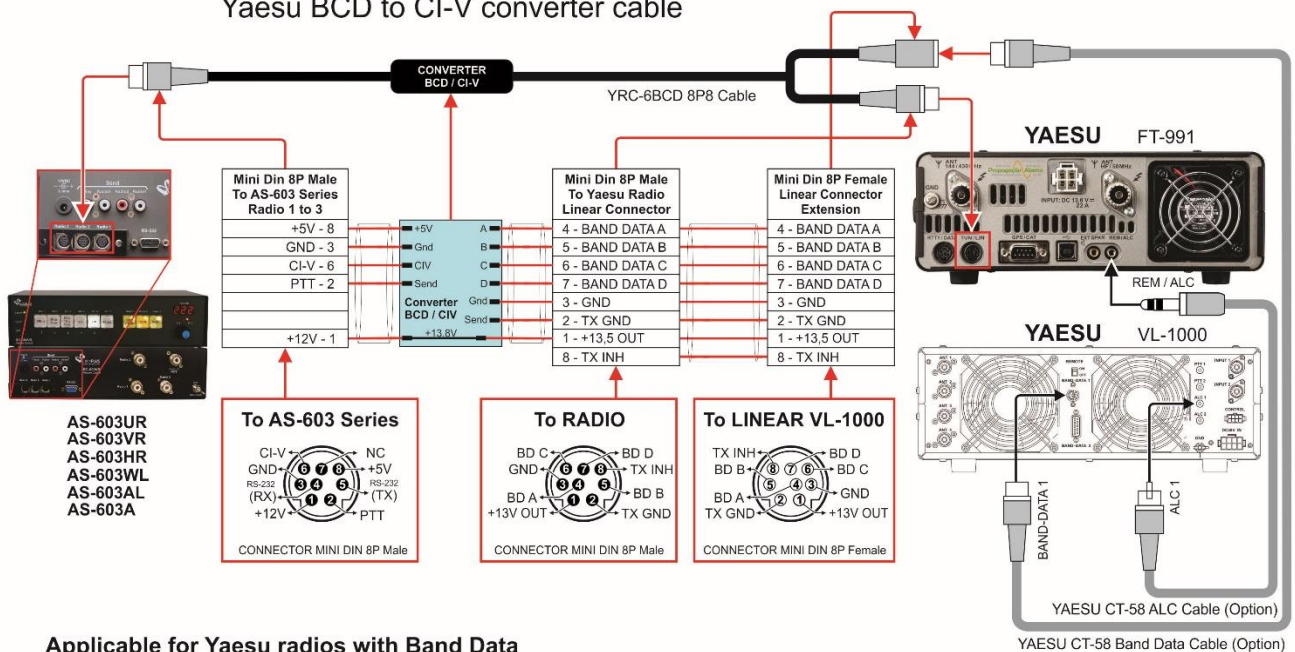
FT-991



Date: 23 / 08 / 2021	By: Valmor
Filename: CE-YRC-6BCB 8P	Rev.: 1.0

## YRC-6BCD 8P8 Cable

### Yaesu BCD to CI-V converter cable



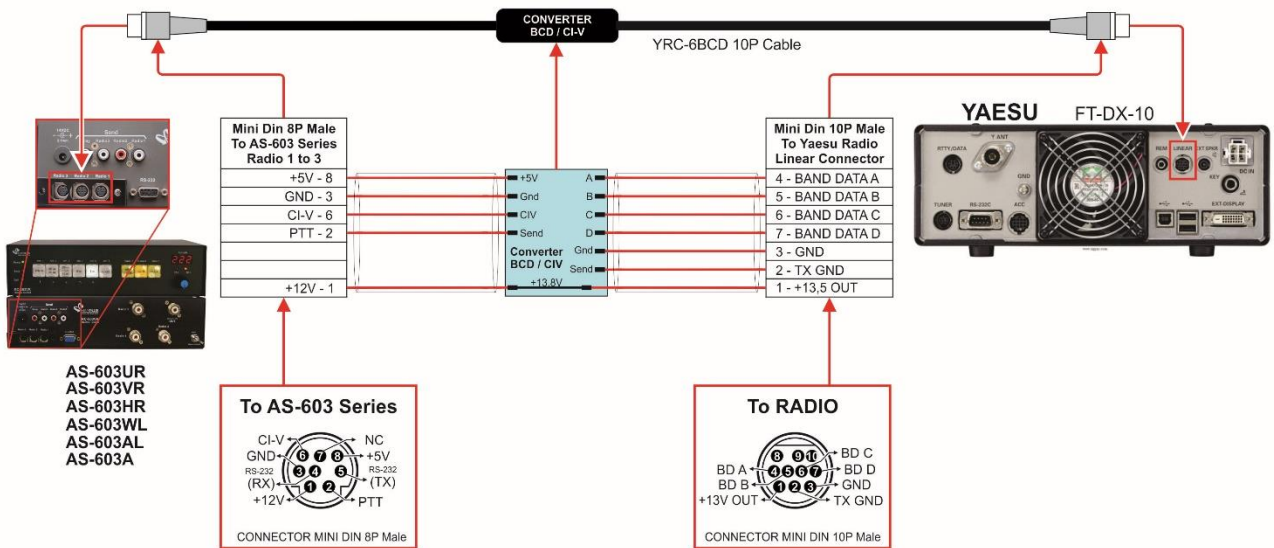
Applicable for Yaesu radios with Band Data connector compatible with models:

FT-991



Date:	23 / 08 / 2021	By:	Valmor
Filename:	CE-YRC-6BCB 8P8	Rev.:	1.0

## YRC-6BCD 10P Cable Yaesu BCD to CI-V converter cable



Applicable for Yaesu radios with Band Data connector compatible with models:

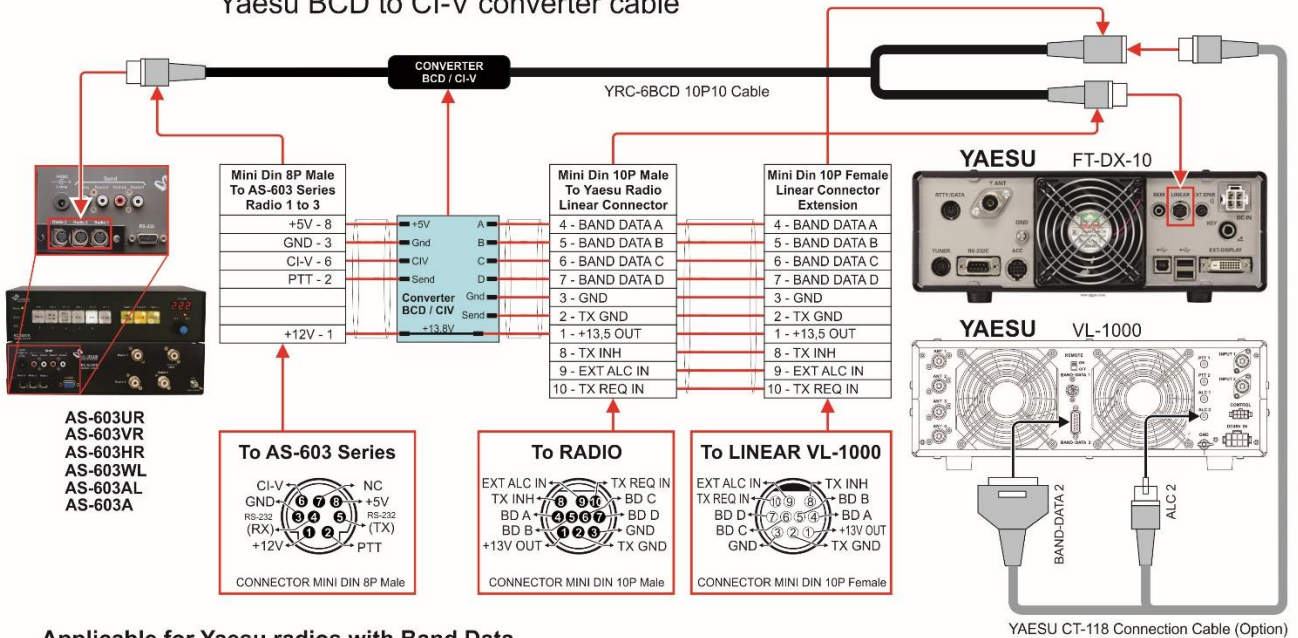
**FT-DX10  
FT-DX1200  
FT-450D**



Date: 23 / 08 / 2021	By: Valmor
Filename: CE-YRC-6BCB 10P	Rev.: 1.0

## YRC-6BCD 10P10 Cable

### Yaesu BCD to CI-V converter cable



Applicable for Yaesu radios with Band Data connector compatible with models:

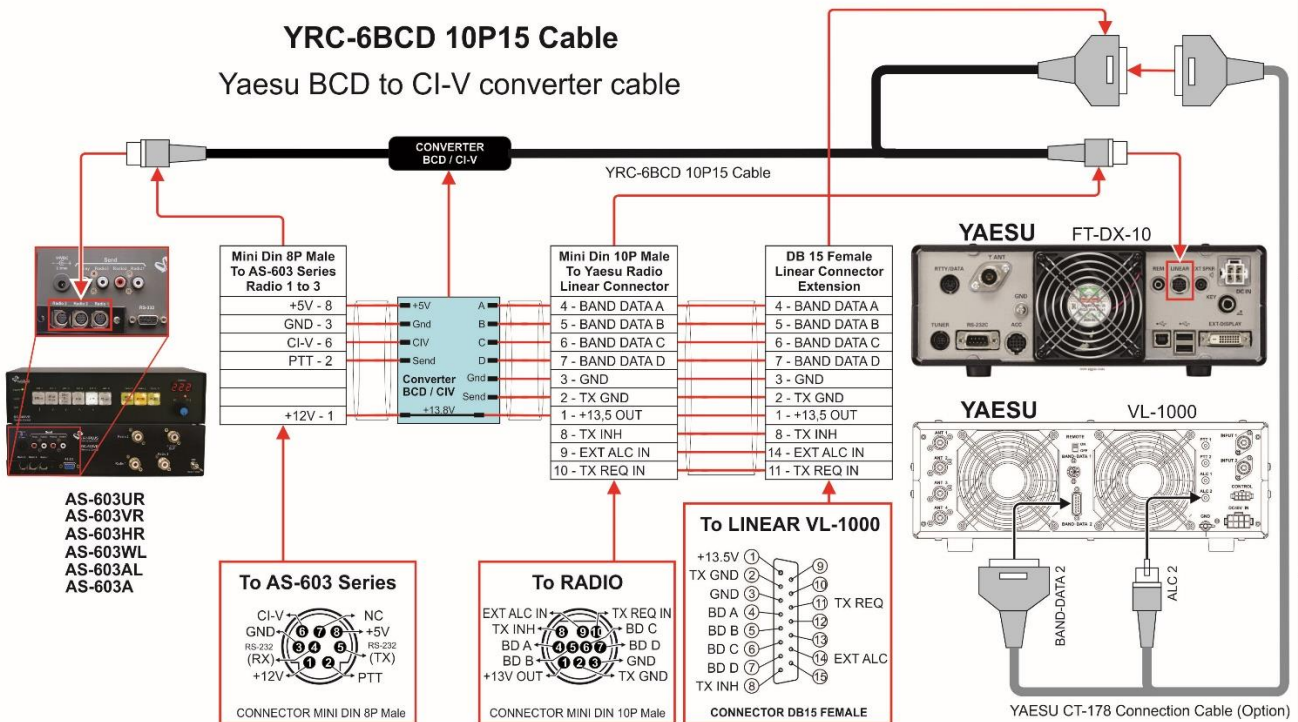
**FT-DX10**  
**FT-DX1200**  
**FT-450D**



Date: 23 / 08 / 2021	By: Valmor
Filename: CE-YRC-6BCB 10P10	Rev.: 1.0

## YRC-6BCD 10P15 Cable

Yaesu BCD to CI-V converter cable



Applicable for Yaesu radios with Band Data connector compatible with models:

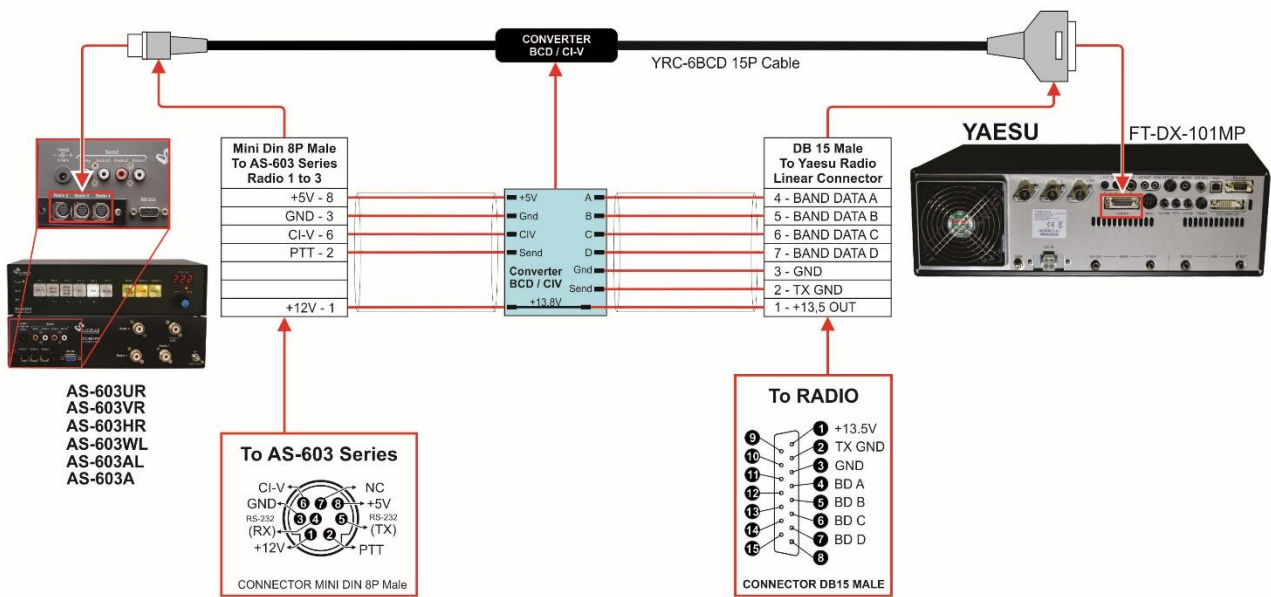
- FT-DX10
- FT-DX1200
- FT-450D



Date: 23 / 8 / 2021	By: Valmor
Filename: CE-YRC-6BCB 10P15	Rev.: 1.0

## YRC-6BCD 15P Cable

### Yaesu BCD to CI-V converter cable



Applicable for Yaesu radios with Band Data connector compatible with models:

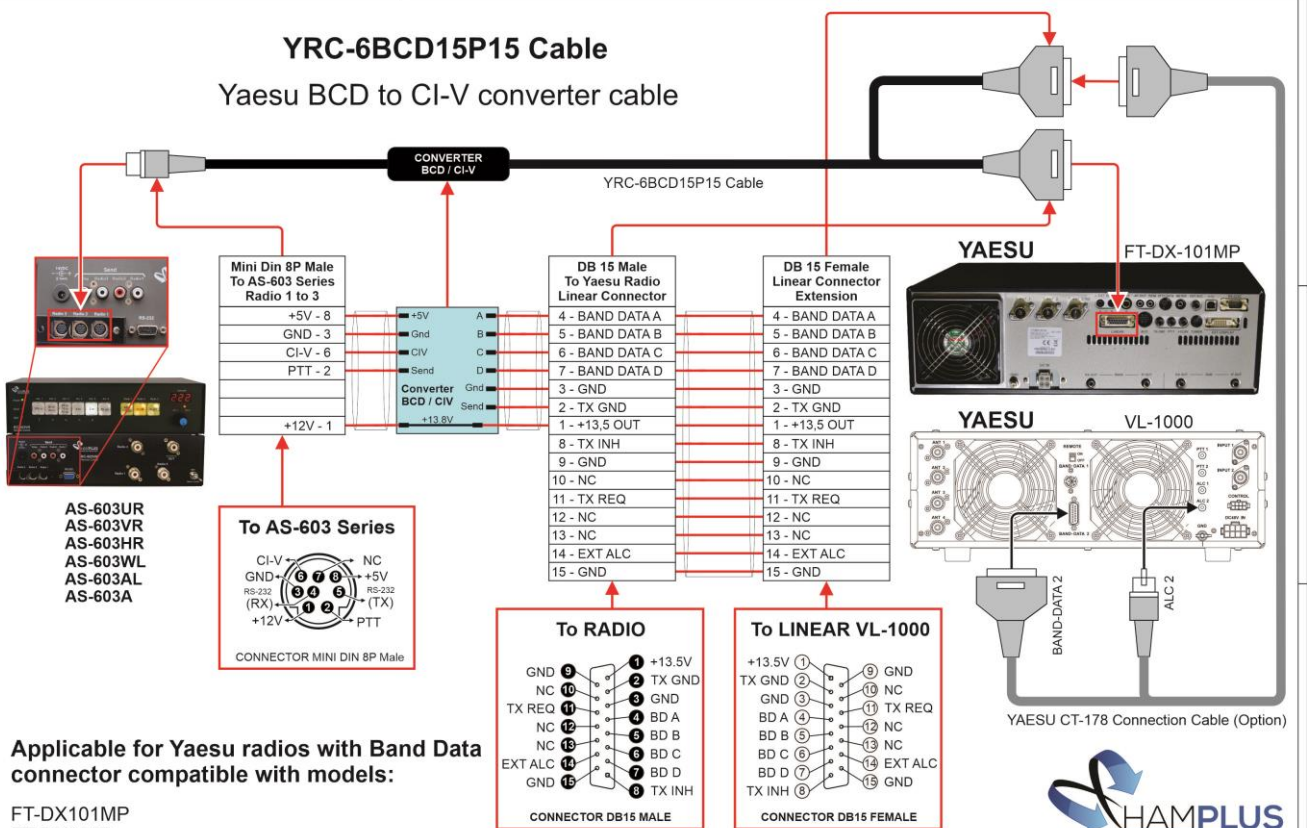
FT-DX101MP  
 FT-DX101D  
 FT-DX3000



Date: 23 / 08 / 2021	By: Valmor
Filename: CE-YRC-6BCB 15P	Rev.: 1.0

## YRC-6BCD15P15 Cable

Yaesu BCD to CI-V converter cable



**Applicable for Yaesu radios with Band Data connector compatible with models:**

FT-DX101MP  
FT-DX101D  
FT-DX3000

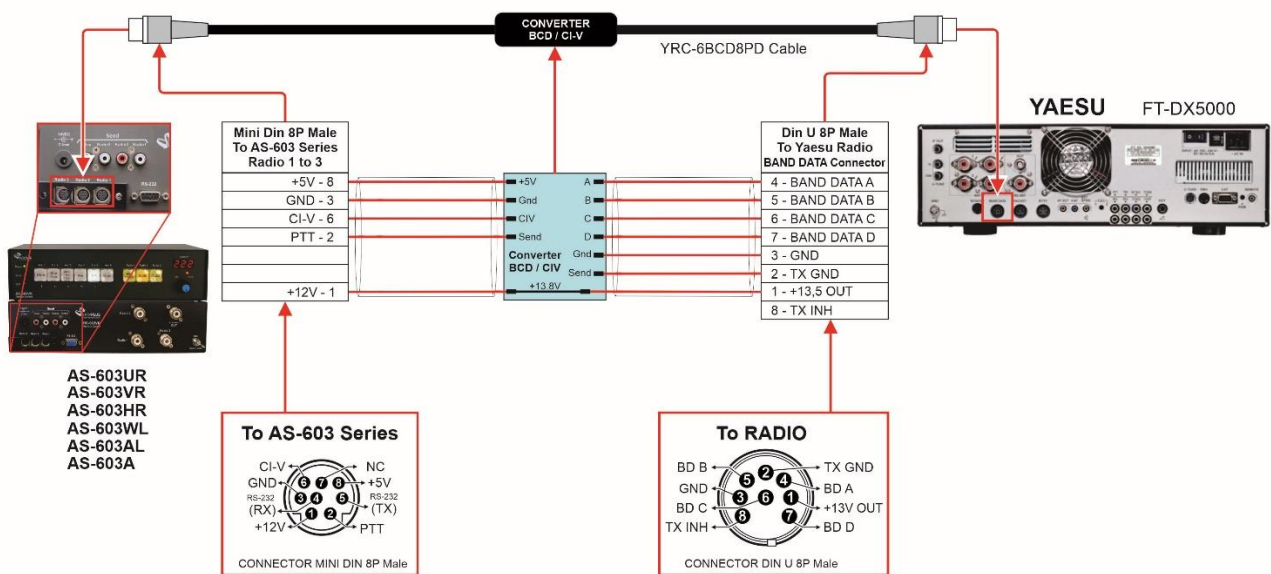


Date: 26 / 11 / 2021 By: Valmor  
Filename: CE-YRC-6BCB15P15 Rev.: 1.0



## YRC-6BCD8PD Cable

### Yaesu BCD to CI-V converter cable



Applicable for Yaesu radios with Band Data connector compatible with models:

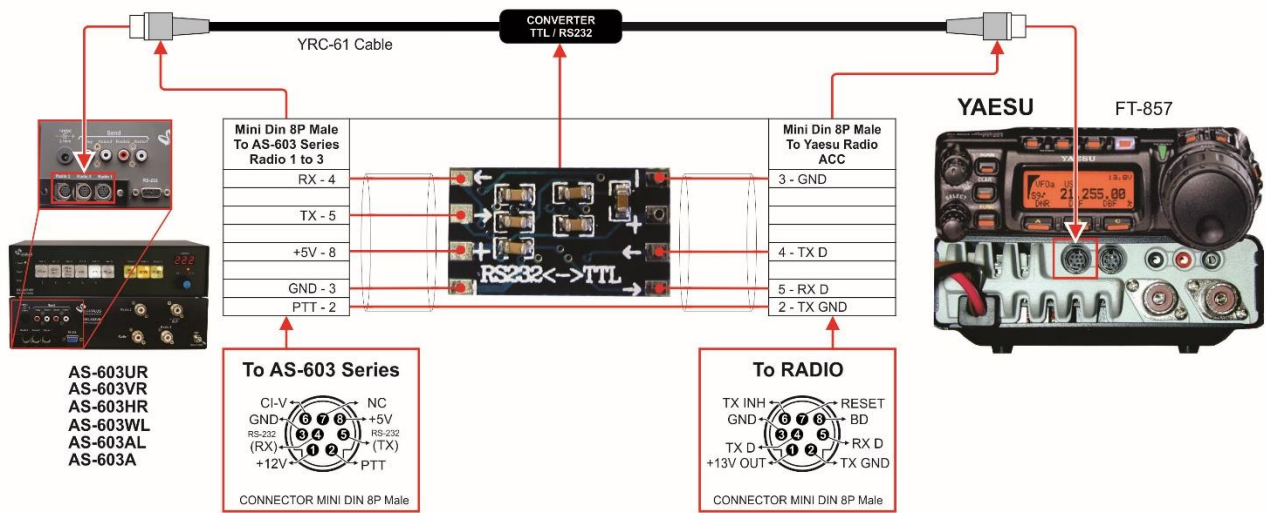
FT-DX5000  
FT-990



Date:	22 / 11 / 2021	By:	Valmor
Filename:	CE-YRC-6BCB8PD	Rev.:	1.0

## YRC-61 Cable

Yaesu TTL to RS232 converter cable



Applicable to Yaesu radios with RS-232 protocol compatible with FT-857 model.



Date:	23 / 08 / 2021	By:	Valmor
Filename:	CE-YRC-61	Rev.:	1.0

Diagram for sharing the radio's RS-232 Comm port with the Hamplus antenna switch and the personal computer using the **SW-02** Serial RS-232 Expander.

