MBD-62
RS232 Serial Protocol Specifications

Rev 1.0 - March, 20th - 2024

1 - Overview

This document describes the RS232 serial communication protocol used by MBD-62 controllers for data exchange between the equipment and other devices.

2 - Protocol Specifications

2.1 - Connector

The MBD-62 uses a female DB9 connector for the RS232 interface (highlighted in red):

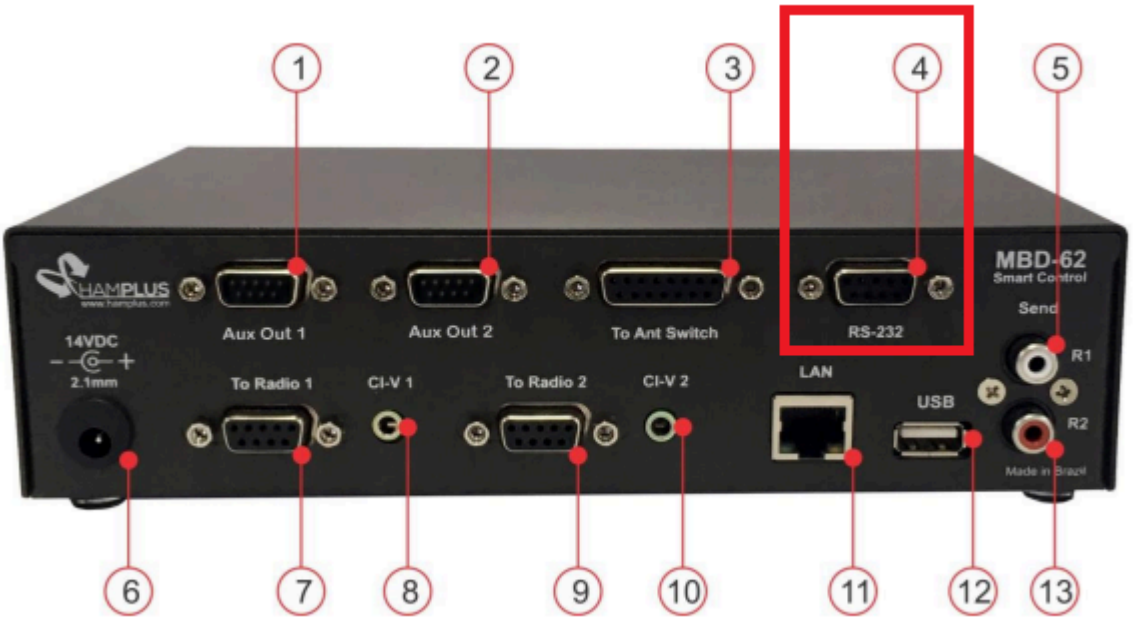

Figure 1: MBD-62 - Connectors (RS-232 highlighted in red)

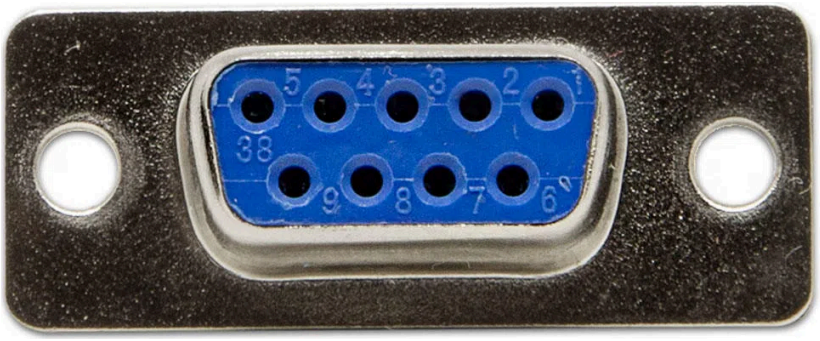

Figure 2: Female DB9 connector pinout Front View

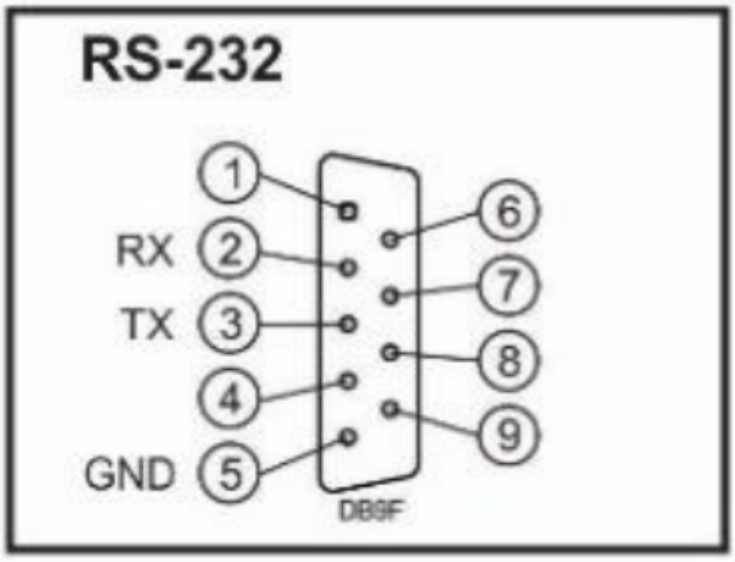

Figure 3: Female DB9 connector pinout

COM Pin No.	COM Pin Name (Ref.: MBD-62)	Function (Ref.: MBD-62)	I/O (Ref.: MBD-62)
1	NC	—	—
2	RXD	Receive data	Input
3	TXD	Transmit data	Output
4	NC	—	—
5	GND	Signal ground	
6	NC	—	—
7	NC	—	—
8	CTS	—	—
9	NC	—	—

Table 1: Connector pinout description

2.2 - Baud Rate

The default baud rate of the MBD-62 is 9600 bps (bits per second). However, it is possible to configure different baud rates through the MBD-62 Controller (19200, 38400, 57600 or 115200 bps).

2.3 - Data Bits

The MBD-62 uses 8 data bits per byte.

2.4 - Parity

The default parity is none.

2.5 - Stop Bits

The MBD-62 uses 1 stop bit per byte.

2.6 - Flow Control

The MBD-62 does not use hardware flow control.

2.7 - List of Commands

Commands are sent as byte sequences. A computer control command is composed of a start with 2 bytes, command byte, various parameters, and the terminator byte that signals the end of the control command.

Start	Description	Byte in Hex
STX_1	Start Byte (1st)	0x49
STX_2	Start Byte (2nd)	0x47

Table 2: Start 2 Bytes

Command	Description	Byte in Hex
CMD_READ_FIRMWARE_VERSION	Command to get the firmware version	0x57
CMD_WR_POSITION_1	Command to set the Antenna Selection of Radio 1	0x01
CMD_WR_POSITION_2	Command to set the Antenna Selection of Radio 2	0x02
CMD_ENABLE_SPLIT_1	To set the MBD-62 Antenna Split of Radio 1	0x03
CMD_ENABLE_SPLIT_2	To set the MBD-62 Antenna Split of Radio 2	0x04
CMD_READ_STATUS	Command to get the full status of MBD-62	0x05

Table 3: Commands

Command	Description	Byte in Hex
EOM	End of Message Byte	0x3B

Table 4: Terminator Byte

3 - Communication - Commands and Responses

Below is a example of communication between the MBD-62 and a host computer:

3.1 - To get the firmware version: CMD_READ_FIRMWARE_VERSION

The host computer sends the sequence:

1st byte	2nd byte	3rd byte	4th byte	5th byte	6th byte	7th byte	8th byte
0x49	0x47	0x57	0x3B				

The MBD-62 sends the resulting data back to the host computer:

1st byte	2nd byte	3rd byte	4th byte	5th byte	6th byte	7th byte	8th byte
0x49	0x47	0x57	Return Byte0: Firmware Version	Return Byte1: Firmware SubVersion	0x3B		

Firmware number information: "Return Byte0" . "Return Byte1".

3.2 - To set the MBD-62 Antenna Selection of Radio 1: CMD_WR_POSITION_1

The host computer sends the sequence:

1st byte	2nd byte	3rd byte	4th byte	5th byte	6th byte	7th byte	8th byte
0x49	0x47	0x01	0x00: to Ant 1; 0x01: to Ant 2; 0x02: to Ant 3; 0x03: to Ant 4; 0x04: to Ant 5; 0x05: to Ant 6; 0x0f: to Release all Antennas;	0x3B			

The MBD-62 sends the resulting data back to the host computer:

1st byte	2nd byte	3rd byte	4th byte	5th byte	6th byte	7th byte	8th byte
0x49	0x47	0x01	Selected Antenna (0x00 to 0x05) or Release (0x0f)	0x3B			

3.3 - To set the MBD-62 Antenna Selection of Radio 2: CMD_WR_POSITION_2

The host computer sends the sequence:

1st byte	2nd byte	3rd byte	4th byte	5th byte	6th byte	7th byte	8th byte
0x49	0x47	0x02	0x00: to Ant 1; 0x01: to Ant 2; 0x02: to Ant 3; 0x03: to Ant 4; 0x04: to Ant 5; 0x05: to Ant 6; 0x0f: to Release all Antennas;	0x3B			

The MBD-62 sends the resulting data back to the host computer:

1st byte	2nd byte	3rd byte	4th byte	5th byte	6th byte	7th byte	8th byte
0x49	0x47	0x02	Selected Antenna (0x00 to 0x05) or Release (0x0f)	0x3B			

3.4 - To set the MBD-62 Antenna Split of Radio 1: CMD_ENABLE_SPLIT_1

The host computer sends the sequence:

1st byte	2nd byte	3rd byte	4th byte	5th byte	6th byte	7th byte	8th byte
0x49	0x47	0x03	Antenna to Split from 0x00 to 0x05 (Ant 1 to Ant 6);	Antenna Active Position from 0x00 to 0x05 (Ant 1 to Ant 6);	0x00: to Disable Split or 0x01 to Enable Split	0x3B	

The MBD-62 sends the resulting data back to the host computer:

1st byte	2nd byte	3rd byte	4th byte	5th byte	6th byte	7th byte	8th byte
0x49	0x47	0x03	Antenna to Split from 0x00 to 0x05 (Ant 1 to Ant 6);	Antenna Active Position from 0x00 to 0x05 (Ant 1 to Ant 6);	0x00: to Disable Split or 0x01 to Enable Split	0x3B	

3.5 - To set the MBD-62 Antenna Split of Radio 2: CMD_ENABLE_SPLIT_2

The host computer sends the sequence:

1st byte	2nd byte	3rd byte	4th byte	5th byte	6th byte	7th byte	8th byte
0x49	0x47	0x04	Antenna to Split from 0x00 to 0x05 (Ant 1 to Ant 6);	Antenna Active Position from 0x00 to 0x05 (Ant 1 to Ant 6);	0x00: to Disable Split or 0x01 to Enable Split	0x3B	

The MBD-62 sends the resulting data back to the host computer:

1st byte	2nd byte	3rd byte	4th byte	5th byte	6th byte	7th byte	8th byte
0x49	0x47	0x04	Antenna to Split from 0x00 to 0x05 (Ant 1 to Ant 6);	Antenna Active Position from 0x00 to 0x05 (Ant 1 to Ant 6);	0x00: to Disable Split or 0x01 to Enable Split	0x3B	

3.6 - To get the MBD-62 Status: CMD_READ_STATUS

The host computer sends the sequence:

1st byte	2nd byte	3rd byte	4th byte	5th byte	6th byte	7th byte	8th byte
0x49	0x47	0x05	0x33	0x3B			

The MBD-62 sends the resulting data back to the host computer:

1st byte	2nd byte	3rd byte	4th byte	5th byte	6th byte	7th byte	8th byte
0x49	0x47	0x05	Antenna Position 1	Antenna Position 2	Split mode 1	Split mode 2	Antenna Split 1

9th byte	10th byte	11th byte	12th byte	13th byte	14th byte	15th byte	16th byte
Antenna Split 2	Send Active 1	Send Active 2	BP 1	BP 2	0x3B		

4 - Final Considerations

This document provides an overview of the RS232 serial protocol used by the MBD-62. For more detailed information about the equipment refer to Hamplus MBD-62 Official Page: http://hamplus.com/mbd62.htm