

**PROTOCOL USED FOR 2042 COMMUNICATION ( RS-232 )**

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Communication with the 2042 is done using two bytes of information as defined below. The rate of data is 9600 baud, with no parity, 8 data bits and one stop bit.

1st byte

				ADDRESS				
0	X	0	0	X	X	X	X	
7	6	5	4	3	2	1	0	

2nd byte

			COMMAND						DATA		
1	X	X	X	X	X	X	X	X			
7	6	5	4	3	2	1	0				

**DETAILED DESCRIPTION**

1st BYTE

Bits 0..3 - ADDRESS.

These bits describe the number of the target machine.

Machine number	Bits				
	3	2	1	0	
1	0	0	0	0	<div style="display: flex; align-items: center;"> <span style="font-size: 2em; margin-right: 10px;">}</span> <span>MASTER</span> </div>        <div style="display: flex; align-items: center;"> <span style="font-size: 2em; margin-right: 10px;">}</span> <span>SLAVES</span> </div>
2	0	0	0	1	
3	0	0	1	0	
4	0	0	1	1	
5	0	1	0	0	
6	0	1	0	1	
7	0	1	1	0	
8	0	1	1	1	

Bit 6 - destination bit.

When sending a message FROM the PC to the switcher, this bit should be 0.

When the switcher sends a message TO the PC this bit should be 1.

Bits 4,5,7 - should be set to 0.

2nd byte

Bits 0..3 - DATA.

These bits describe the input which is to be connected to the output.

Input to be connected	bits			
	3	2	1	0
INPUT A	0	0	0	0
INPUT B	0	0	0	1
INPUT C	0	0	1	0
INPUT D	0	0	1	1

Bits 4..6 - COMMAND.

COMMAND	bits		
	6	5	4
Set input to output 1	0	0	0
Set input to output 2	0	0	1
Get output 1 status	0	1	0
Get output 2 status	0	1	1
Get machine type	1	1	1

How to use the protocol:

1) To change the input which is connected to output 1:

\*1st byte

ADDRESS - Set the number of the controlled machine (machine number 1-8).

\*2nd byte

DATA - Set the input which is to be connected to the output.

COMMAND - Set the bits of COMMAND "Set input to output 1" ( 000 ).

REPLY - The reply to this command is identical to the two bytes which were sent, except that bit 6 of the 1st byte = 1 ( destination bit ).

2) To change the input which is connected to the output 2:

\*1st byte

ADDRESS - Set the number of the controlled machine (machine number 1-8).

\*2nd byte

DATA - Set the input which is to be connected to the output.

COMMAND - Set the bits of COMMAND "Set input to output 2" ( 001 ).

REPLY - The reply to this command is identical to the two bytes which were sent, except that bit 6 of the 1st byte = 1 ( destination bit ).

3) To get the status of a machine, ie, which input is connected to output 1:

\*1st byte

ADDRESS - Set the number of the controlled machine (machine number 1 - 8).

\*2nd byte

DATA - don't care.

COMMAND - Set the bits of COMMAND "Get output 1 status" (010).

REPLY - The reply is the same as the reply of COMMAND - "Set input to output 1" (the DATA location contains the number of the input which is connected to the output).

- 4) To get the status of a machine, ie, which input is connected to output 2:

\*1st byte

ADDRESS - Set the number of the controlled machine (machine number 1 - 8).

\*2nd byte

DATA - don't care.

COMMAND - Set the bits of COMMAND "Get output 2 status" (011).

REPLY - The reply is the same as the reply of COMMAND - "Set input to output 2" (the DATA location contains the number of the input that is connected to the output).

- 5) To get the machine type (code of machine type):

\*1st byte

ADDRESS - Set the number of the target machine (machine number 1 - 8).

\*2nd byte

DATA - don't care.

COMMAND - Set the bits of the COMMAND "Get machine type" (111).

REPLY - The reply of the command "Get machine type" is identical to the two bytes which were sent, except that bit 6 of the 1st byte = 1 (destination bit), and the machine type is present in the 2nd byte at DATA location.

For the machine 2042, the machine type is 04(hex) (0100B).

NOTE:

If any button on the machine is pressed, the machine sends two bytes of information to the PC - the same reply bytes that would have been received had the COMMAND: "Set input to output 1" or "Set input to output 2" been sent.