

Split 16 Communication Protocol

1. Basic Definitions

The commands always consist in a minimum of 2 bytes ; the first byte is the command section of the frame and the following bytes (if present) consist in the data section, then a confirmation byte is sent which is the same of the command but has the 2 MSBs reversed.

The Serial Port is connected in a Daisy chain architecture in which the connected devices receive from the previous device (RX of input Serial Port) and transmit towards the next (TX of output Serial Port); the last device, which is connected to a termination, simply transmits data back, through the previous senders to the controlling device (the TX of the input Serial Port connected to the RX of the output Serial Port).

The Serial Port settings have to be fixed to 9600, N,8,1.

2. Protocol

The commands are the following :

OpCode	Function	Parameters	Legend
1000 0000	Download Configuration	6 bytes ⁽¹⁾	
1000 0001	Execute	-	
1000 0010	Download and Execute full Configuration	86 bytes ⁽²⁾	
1000 0011	Select a Preset	1 byte	
1000 0100	Select Unit	1 byte	
1000 0101	Deselect Unit	1 byte	
1000 0110	Select All	-	
1000 0111	Deselect all/Select 1	1 byte	
1000 1000	Upload Configuration		
1000 1001	Store to EEPROM	1 byte	
1000 1xxx	Reserved		
1001 00dd	Download Y Position	2 bytes	
1001 01dd	Download Y Magnification	2 bytes ⁽³⁾	dd : Row Number
1001 1xxx	Reserved		
1010 dddd	Download X Position	2 bytes	dddd: Column Number
1011 dddd	Download X Magnification	2 bytes ⁽³⁾	dddd: Column Number

General Notes :

Bold items are implemented at the time of writing.

All 16 bit data is to be intended in little endian format (LSB first, MSB Last.)

NOTE (1)

Configuration words is arranged in the following manner :

2 bytes as internal flags :

MSb	14	13	12	11	10	9	8	7	6	5	4	3	2	1	LSb
Reserved							roll	2x	Visual Execute	Video	Freeze	Color Wash	Interpolation	Columns	

2 bytes as color in 5 :6 :5 format

2 bytes as color masks of monitors.

NOTE (2)

Data will be queued as following :

32 bytes as Horiz. Magnification

8 bytes as Vert. Magnification

32 bytes as Horiz. Position

8 bytes as Ver, Position

6 bytes as Configuration.

NOTE (3)

Magnification word must be calculated as $0x8000/magnification$. For reference we report the following examples :

$1x=0x8000$, $2x=0x4000$, $3x=0x2aaa$.