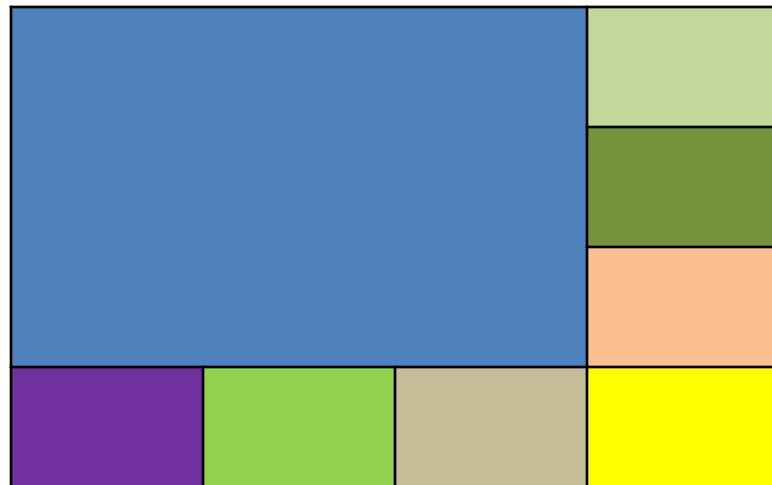


# Quick Preset Serial command

[M-SICP Protocol v2.1]

**Models: NSV Series**



# M-SICP

## (Multi-window Serial Interface Communication Protocol)

This document defines all the command and messages exchanged between the Master (a PC or the other controller) and the Slave (the displays).

It also describes the ways to send or read the commands or the messages.

### 1. Protocol definition

M-SICP stands for “Multi-window Serial Interface Communication Protocol”.

The protocol is specifically designed to allow data communication in half duplex multi-point environments, but it can also be used for half duplex point-to-point RS-232C communication.

### 2. Communication characteristics

A half duplex communication is implemented starting from the concept of a master-slave structure, where the display is supposed to be the slave.

The first action is always taken by the master, which can be either a PC or any controlling device (acting as server) interfaced to the monitor. After sending a command or a request in the appropriate format the master receives from the slave an acknowledgement, which tells the transmitter whether the command is not valid (or not executable, anyway) or it is accepted. In case of a request, the requested information is sent back and it becomes the acknowledgement by itself.

### 3. How to connect a external equipment

Female Pin number	Male Pin number
2 <----->	2
3 <----->	3
5 <----->	5

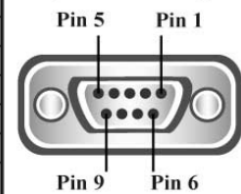
### 4. Hardware Protocol

- Baud rate : 9600 bps
- Data bits : 8 bit
- Parity bits : None
- Stop bits : 1 bit
- Handshake : None

[Display side]

Pin 1	RI
Pin 2	TXD
Pin 3	RXD
Pin 4	DSR
Pin 5	GND
Pin 6	DTR
Pin 7	CTS
Pin 8	RTS
Pin 9	Power Input /DCD

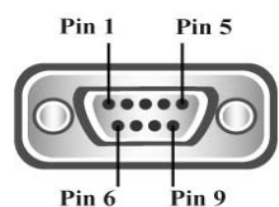
RS232 Pinout (9 Pin Female)



[PC side]

Pin 1	DCD
Pin 2	RXD
Pin 3	TXD
Pin 4	DTR
Pin 5	GND
Pin 6	DSR
Pin 7	RTS
Pin 8	CTS
Pin 9	RI

RS232 Pinout (9 Pin Male)



## 5. Transmission Formats

This is the format that the computer will send to the display to execute commands .

The format for this command transmission is as follows:

( total 13 byte )

ex ) <STX>001PWRWOF0<ETX> ( Set ID : 1 , Power Off Send )

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0f	0	0	1	P	W	R	W	O	F	F	0	0x0d
Hex	ASCII (capital letter)										Hex	

- STX : Start of Text ( 0x0f )
- ID1 ~ ID3 : Set ID ( 001~100 )
- CM1 ~ CM3 : Command ( PWR, MIN, MUT,RML,KPL..... )
- R/W : Read/Write Only use "Read"(R) or "Write" (W) as set forth in this document
- DA1 ~ DA3 : Data ( Values )
- IND : Index
- ETX : End of Text ( 0x0d )

## 6. OK Acknowledgement

The acknowledgement will be sent by the display to the computer to verify that the command has been successfully received and executed. This format for this acknowledgement is as follows:

ex ) <STX>001PWR#OFF#<ETX> ( Set ID : 1 , Power Off Acknowledgement )

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0f	0	0	1	P	W	R	#	O	F	F	#	0x0d
Hex	ASCII (capital letter)										Hex	

## 7. Error Acknowledgement

The Error Values will be sent by the display to the computer to verify that the command has been successfully received and executed.

This format for this Error Values is as follows:

ex ) <STX>001PWRERROR<ETX> ( Set ID : 1 , Power Off Error )

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0f	0	0	1	P	W	R	E	R	R	O	R	0x0d
Hex	ASCII (capital letter)										Hex	

## 8. Command List

### ◆ Zoom IN/OUT(ZOM)

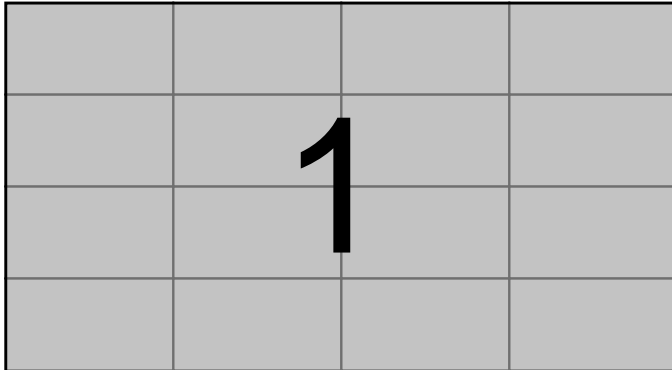
STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	MH	MV	DA3	IND	ETX
0x0f	0	0	0	Z	O	M	W					0x0d
HEX	ASCII (capital letter)										HEX	

- ID1 ~ ID3 : “000” ( Set ID )
- R/W : “W” (Write)
- MH : “1”, “2”, ”3” ... “9”, ”0” ( H-Set Count Of Main Window )
- MV : “1”, “2”, ”3” ... “9”, ”0” ( V-Set Count Of Main Window )
  - Ex) 3x3 Multivision => 33 , 10x10 Multivision => 00
- DA3 : “I” or “O” ( Zoom IN, Zoom OUT )
- R/W : “W”(Write)
- IND : Don’t care

Ex) <STX>000ZOMW44O0<ETX> ( 4x4, Zoom OUT, DVI)

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16

Ex) <STX>000ZOMW44IO<ETX> ( 4x4, Zoom IN, DVI )



◆ Multi Window (MLW)

*\* Before sending the Multi Window Command, set the display to "Zoom Out" (Individual Display).*

STX	LT1	LT2	LT3	CM1	CM2	CM3	R/W	MH	MV	SH	SV	ETX
0x0f				M	L	W	W					0x0d
HEX	ASCII										HEX	

- LT1 ~ LT3 : "001" ~ "100" ( Left Top Edge Of Sub window )
- R/W : "W" ( Write )
- MH : "1", "2", "3" ... "9", "0" ( H-Set Count Of Main Window )
- MV : "1", "2", "3" ... "9", "0" ( V-Set Count Of Main Window )
- Ex) 3x3 Multivision => 33 , 10x10 Multivision => 00
- SH : "1", "2", "3" ... "9", "0" ( H-Set Count Of Sub Window )
- SV : "1", "2", "3" ... "9", "0" ( V-Set Count Of Sub Window )

# Example (4x4 configuration)

## Preset 1. [4x4, Zoom OUT, DVI]

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16




→ <STX>000ZOMW44O0<ETX>

## Preset 2. [4x4, Zoom IN, DVI]

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16



--	--	--	--

→ <STX>000ZOMW44I0<ETX>

**Preset 3.** [Left top 6 , Main 4x4 , Sub 2x2]

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16




→ <STX>006MLWW4422<ETX>

**Preset 4.** [Left top 1 , Main 4x4 , Sub 3x3]

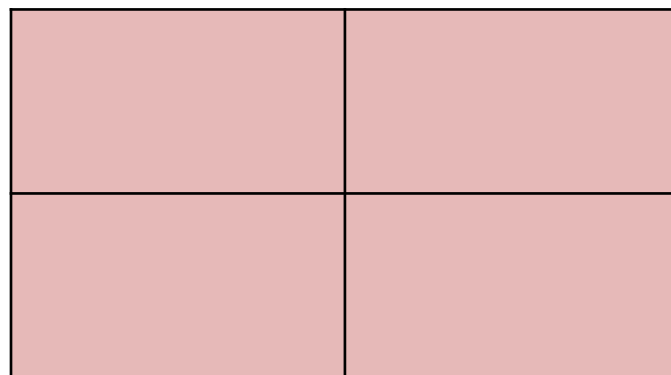
1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16




→ <STX>001MLWW4433<ETX>

**Preset 5.** [Left top 1 , Main 4x4 , Sub 2x2] , [Left top 3 , Main 4x4 , Sub 2x2]  
 [Left top 9 , Main 4x4 , Sub 2x2] , [Left top 11 , Main 4x4 , Sub 2x2]

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16



→<STX>00**1**MLWW4422<ETX>

→<STX>00**3**MLWW4422<ETX>

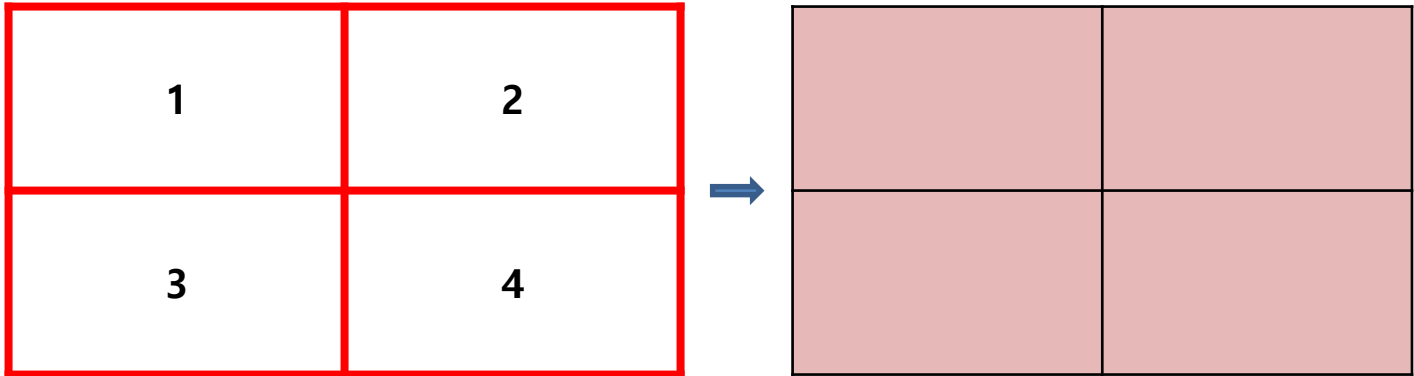
→<STX>00**9**MLWW4422<ETX>

→<STX>0**11**MLWW4422<ETX>



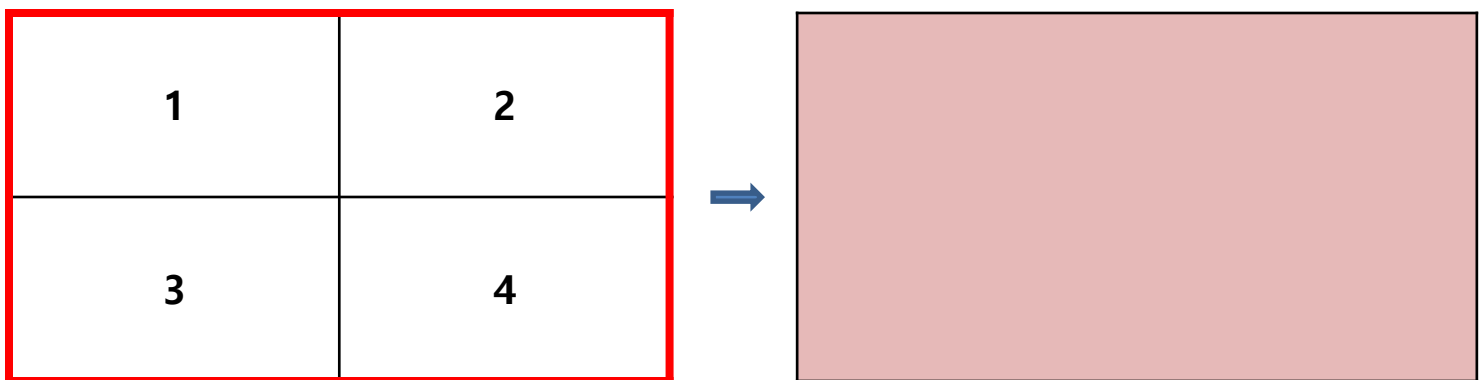
# Example (2x2 configuration)

## Preset 1. [2x2, Zoom OUT, DVI]



→ <STX>000ZOMW22O0<ETX>

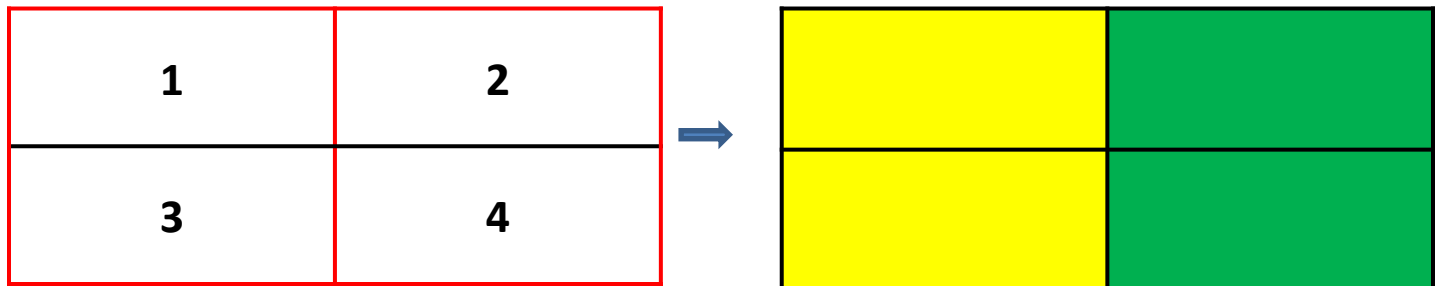
## Preset 2. [2x2, Zoom IN, DVI]



→ <STX>000ZOMW22I0<ETX>

### Preset 3. Side by side portrait

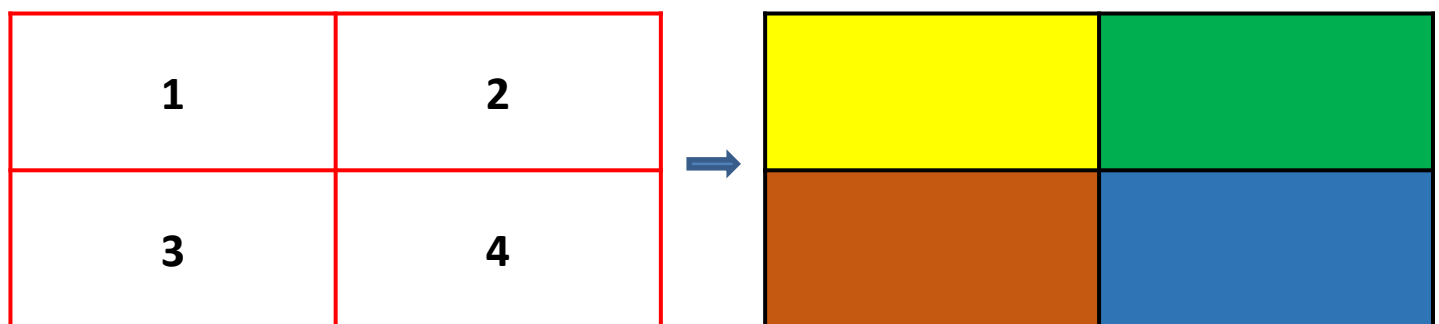
[Left top 1 , Main 2x2 , Sub 1x2] [Left top 2 , Main 2x2 , Sub 1x2]



→ <STX>001MLWW2212<ETX>

→ <STX>002MLWW2212<ETX>

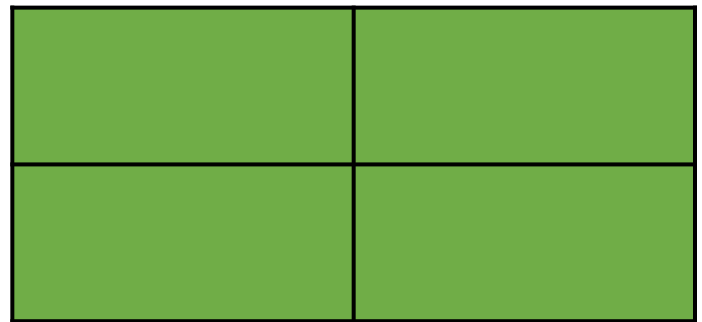
### Preset 4. a quad (four images),



→ <STX>000ZOMW2200<ETX>

## Preset 5. a single (1 image)

1	2
3	4



→<STX>000ZOMW22IO<ETX>