



Professional Method for  
Digital signage World

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# SICP V2.0 PROTOCOL Manual

Standard Edition for Digital Signage

RS-232C

APPLICATION for MODEL "A"

Version 1.0

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Application Professional Resource

## SICP (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

SICP stands for “Serial Interface Communication Protocol”.

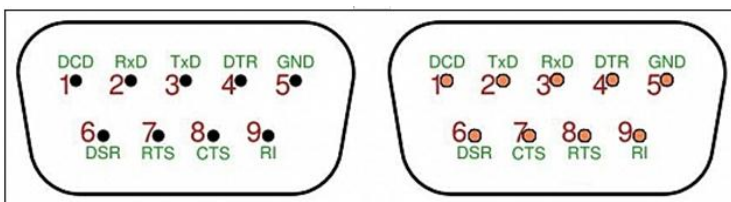
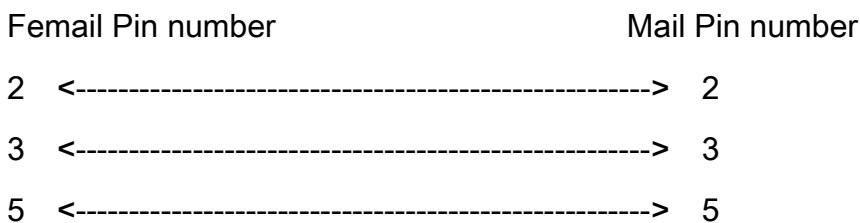
The protocol is specifically designed to allow data communication in half duplex multi-point environments, but it can also be used for half duplex point-to-point RS-232C communication.

### 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



Output

Input

**4. Hardware Protocol**

Baud rate : 9600 bps

Data bits : 8 bit

Parity bits : None

Stop bits : 1 bit

Handshake : None

**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
- 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. How to choose display ID number

### ◆ Read Set ID Number

\* Attention : Read SetID Function must be only one connect Monitor (1 pc : 1 monitor)

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

- ID1 ~ ID3 : "FFF" ( Set ID )

- DA1 ~ DA3 : "000" ( Don't care )

Ex) <STX>FFFSIDR0000<ETX> ( Read Set ID )

Acknowledge => <STX>001SID#001#<ETX> ( Set ID : 1 )

### ◆ Write Set ID Number

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\* Attention : Write SetID Function must be only one connect Monitor (1 pc : 1 monitor)

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

- ID1 ~ ID3 : "FFF" ( Set ID )

- DA1 ~ DA3 : "001" ( Set ID Number )

Ex) <STX>FFFSIDR0010<ETX> ( Write Set ID : 1 )

Acknowledge => <STX>001SID#001#<ETX>

## 9. Command List

### ◆ Mute On/Off (MUT)

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0f				M	U	T	W				0	0x0d
Hex	ASCII (capital letter)										Hex	

- ID1 ~ ID3 : Set ID ( "001" ~ "100" )

- DA1 ~ DA3 : "-ON" ( Mute On )

"OFF" ( Mute Off )

Ex) <STX>001MUTW-ON0<ETX> ( Mute On )

Acknowledge => <STX>001MUT#-ON#<ETX>

### ◆ Power On/Off (PWR)

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

- ID1 ~ ID3 : Set ID ( "001" ~ "100" )

## SICP V2.0 PROTOCOL MANUAL

- DA1 ~ DA3 : "-ON" : Power On

"OFF" : Power Off

Ex) <STX>001PWRWOFF0<ETX> ( Power Off )

Acknowledge => <STX>001PWR#OFF#<ETX>

### ◆ Remote Control Lock On/Off (RML)

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

- ID1 ~ ID3 : Set ID ("001" ~ "100")

- DA1 ~ DA3 : "-ON" : Lock On

"OFF" : Lock Off

Ex) <STX>001RMLW-ON0<ETX> ( Lock On )

Acknowledge => <STX>001RML#-ON#<ETX>

### ◆ Keypad Control Lock On/Off (KPL)

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

- ID1 ~ ID3 : Set ID ("001" ~ "100")

- DA1 ~ DA3 : "-ON" : Lock On

"OFF" : Lock Off

Ex) <STX>001KPLW-ON0<ETX> ( Lock ON )

Acknowledge => <STX>001KPL#-ON#<ETX>

### ◆ Source Change (MIN)

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

## SICP V2.0 PROTOCOL MANUAL

0x0f				M	I	N	W				0	0x0d
Hex	ASCII (capital letter)										Hex	

- ID1 ~ ID3 : Set ID ("001" ~ "100")

- DA1 ~ DA3 : "DVI" : DVI(HDMI)

"COM" : Component

"-PC" : PC(D-SUB)

"-AV" : AV(Composite)

Ex) <STX>001MINWDVI0<ETX> ( Source DVI )

Acknowledge => <STX>001MIN#DVI#<ETX>

### ◆ Volume Control (VOL)

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

- ID1 ~ ID3 : Set ID ("001" ~ "100")

- DA1 ~ DA3 : "000" ~ "100"

Ex) <STX>001VOLW0500<ETX> ( Volume 50 )

Acknowledge => <STX>001VOL#050#<ETX>

### ◆ Virtual Remote Control (RMT)

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

- ID1 ~ ID3 : Set ID ("001" ~ "100")

- DA1 ~ DA3 : "MEN" (Menu)

"SOU" (Source)

- “LEF” (Left & Volume-)
- “RIG” (Right & Volume+)
- “ENT” (Enter)
- “-UP” (Up)
- “DOW” (Down)
- “EXI” (Exit)

Ex) <STX>001RMTWSOU0<ETX> ( Remote Source Button)

Acknowledge => <STX>001RMT#SOU#<ETX>

**◆ Horizontal Set Count (HSC)**

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0f				<b>H</b>	<b>S</b>	<b>C</b>	<b>W</b>				0	0x0d
Hex	ASCII (capital letter)										Hex	

- ID1 ~ ID3 : Set ID (“001” ~ “100”)
- DA1 ~ DA3 : “001” ~ “010”

Ex) <STX>001HSCW0100<ETX> ( H-Set Count 10 )

Acknowledge => <STX>001HSC#010#<ETX>

**◆ Vertical Set Count (VSC)**

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0f				<b>V</b>	<b>S</b>	<b>C</b>	<b>W</b>				0	0x0d
Hex	ASCII (capital letter)										Hex	

- ID1 ~ ID3 : Set ID (“001” ~ “100”)
- DA1 ~ DA3 : “001” ~ “010”

Ex) <STX>001VSCW0100<ETX> ( V-Set Count 10 )

Acknowledge => <STX>001VSC#010#<ETX>

**◆ Display Sequence (SDS)**

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0f				<b>S</b>	<b>D</b>	<b>S</b>	<b>W</b>				0	0x0d
Hex	ASCII (capital letter)										Hex	

- ID1 ~ ID3 : Set ID (“001” ~ “100”)

- DA1 ~ DA3 : “001” ~ “100”

Ex) <STX>001SDSW0010<ETX> ( Display Sequence 1 )

Acknowledge => <STX>001SDS#001#<ETX>

**◆ Horizontal Edge Adjust (HEG)**

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0f				<b>H</b>	<b>E</b>	<b>G</b>	<b>W</b>				0	0x0d
Hex	ASCII (capital letter)										Hex	

- ID1 ~ ID3 : Set ID (“001” ~ “100”)

- DA1 ~ DA3 : “000” ~ “200”

Ex) <STX>001HEGW0300<ETX> ( H-Edge Adjust 30 )

Acknowledge => <STX>001HEG#030#<ETX>

**◆ Vertical Edge Adjust (VEG)**

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0f				<b>V</b>	<b>E</b>	<b>G</b>	<b>W</b>				0	0x0d
Hex	ASCII (capital letter)										Hex	

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- ID1 ~ ID3 : Set ID (“001” ~ “100”)
- DA1 ~ DA3 : “000” ~ “200”

Ex) <STX>001VEGW0400<ETX> ( V-Edge Adjust 40 )

Acknowledge => <STX>001VEG#040#<ETX>

### ◆ Color Adjust HDMI (FCD)

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0f				<b>F</b>	<b>C</b>	<b>D</b>						0x0d
Hex	ASCII (capital letter)										Hex	

- ID1 ~ ID3 : Set ID (“001” ~ “100”)
- DA1 ~ DA3 : “000” ~ “255” ( Color Value )
- R/W : “W” (Write)  
“R” (Read)
- IND : “0” ( Sub-Brightness)  
“1” ( R-Offset )  
“2” ( G-Offset )  
“3” ( B-Offset )  
“4” (Sub-Contrast )  
“5” ( R-Gain )  
“6” ( G-Gain )  
“7” ( B-Gain )

Ex) <STX>001FCDW1004<ETX> ( Write : DVI Sub-Contrast 100 )

Acknowledge => <STX>001FCD#1004<ETX>

Ex) <STX>001FCDR0002<ETX> ( Read : DVI G-Offset )

Acknowledge => <STX>001FCD#1102<ETX> ( G-Offset:110 )

### ◆ Color Adjust PC(D-SUB) (FCP)

## SICP V2.0 PROTOCOL MANUAL

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

- ID1 ~ ID3 : Set ID ("001" ~ "100")
- DA1 ~ DA3 : "000" ~ "255" ( Color Value )
- R/W : "W" (Write)  
"R" (Read)
- IND : "0" ( Sub-Brightness)  
"1" ( R-Offset )  
"2" ( G-Offset )  
"3" ( B-Offset )  
"4" (Sub-Contrast )  
"5" ( R-Gain )  
"6" ( G-Gain )  
"7" ( B-Gain )

Ex) <STX>001FCPW1100<ETX> ( Write : PC Sub-Brightness 110 )

Acknowledge => <STX>001FCP#1100<ETX>

Ex) <STX>001FCPR0001<ETX> ( Read : PC R-Offset )

Acknowledge => <STX>001FCP#1202<ETX> ( G-Offset : 120)

### ◆ Color Adjust COMPONENT (FCC)

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0f				<b>F</b>	<b>C</b>	<b>C</b>						0x0d
Hex	ASCII (capital letter)										Hex	

- ID1 ~ ID3 : Set ID ("001" ~ "100")
- DA1 ~ DA3 : "000" ~ "255" ( Color Value )

- R/W : "W" (Write)
  - "R" (Read)
- IND : "0" ( Sub-Brightness)
  - "1" ( R-Offset )
  - "2" ( G-Offset )
  - "3" ( B-Offset )
  - "4" (Sub-Contrast )
  - "5" ( R-Gain )
  - "6" ( G-Gain )
  - "7" ( B-Gain )

Ex) <STX>001FCCW1004<ETX> ( Write : Component Sub-Contrast 100 )

Acknowledge => <STX>001FCC#1004<ETX>

Ex) <STX>001FCCR0002<ETX> ( Read : Component G-Offset )

Acknowledge => <STX>001FCC#1102<ETX> ( G-Offset : 110 )

### ◆ Color Adjust AV (FCA)

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

- ID1 ~ ID3 : Set ID ("001" ~ "100")
- DA1 ~ DA3 : "000" ~ "255" ( Color Value )
- R/W : "W" (Write)
  - "R" (Read)
- IND : "0" ( Sub-Brightness)
  - "1" ( R-Offset )
  - "2" ( G-Offset )
  - "3" ( B-Offset )
  - "4" (Sub-Contrast )

“5” ( R-Gain )

“6” ( G-Gain )

“7” ( B-Gain )

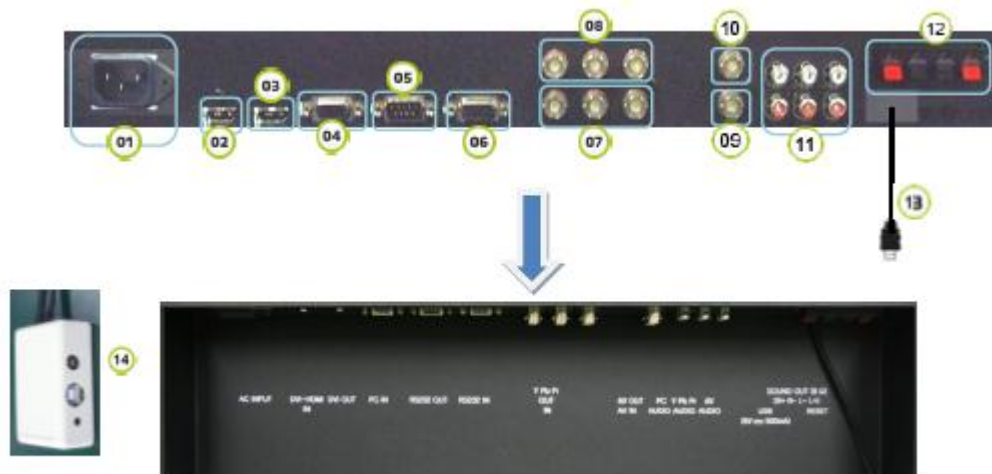
Ex) <STX>001FCAW1004<ETX> ( Write : AV Sub-Contrast 100 )

Acknowledge => <STX>001FCA#1004<ETX>

Ex) <STX>001FCAR0002<ETX> ( Read : AV G-Offset )

Acknowledge => <STX>001FCA#1102<ETX> ( G-Offset : 110 )

### Application for below A/D board



1. AC Power In.(100V ~ 240V)
2. HDMI Input.
3. DVI (HDMI Jack)Out.
4. PC Input.
5. RS-232 Out.
6. RS-232 Input.
7. Component.(Input)
8. Component.(Out)
9. AV Input.
10. AV Out.
11. Sound Input.(PC/ Component/ AV)
12. Sound Out.(8 Ohm)
13. USB(for Touch)
14. USB for Touch ( 82inch only use/, Adapter DC12V )