

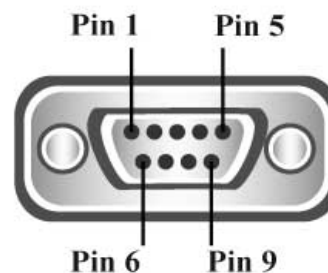
Serial Interface Communication Protocol

for Models: DK Series [4K Display]
TS Series [4K Touch Display] - Capella

RS232

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)



◆ 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

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

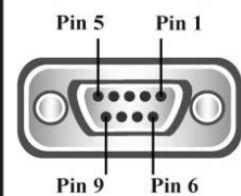
Stop bits : 1 bit

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

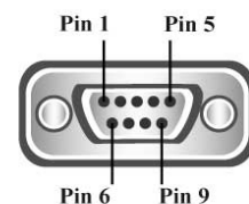
RS232 Pinout (9 Pin Female)



[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)



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>001PWRWOFF0<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)

OK Acknowledgement

An 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	

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	

How to choose display ID number

◆ Read Set ID Number

* Attention : “Read Set ID” Function requires requires serial connection to only one display (no serial daisy-chain or distribution)

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)

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

◆ Write Set ID Number

* Attention : “Write Set ID” Function requires serial connection to only one display (no serial daisy-chain or distribution)

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 “001 ~100”)

Ex) <STX>FFFSIDW0010<ETX> (Write Set ID : 1)

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

Command List

◆ Set 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”)

-DA1 ~ DA3 : “-ON” : Power On / “OFF” : Power Off

Ex) <STX>001PWRW0FF0<ETX> (Power Off)

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

Note: Do not substitute “R” for “W” in the “R/W” column in order to read display power state.. Please see NEXT page for “Get Power State (PWS)” read command.

◆ Get Power State (PWS)

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

- ID1 ~ ID3 : Set ID (001~100)
- DA1 ~ DA3 : "000" (don't care)
- IND : "0" (don't care)

Ex) <STX>001PWSR0000<ETX> (ID:001 , Get Power Status)
 Acknowledge => <STX>001PWS#OFF#<ETX>

- DA1 ~ DA3 : "-ON" : Power On
 "OFF" : Power Off
 "DPM" : DPMS mode

◆ Set Virtual Remote Control (RMT)

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

- ID1 ~ ID3 : Set ID (001~100)
- DA1 ~ DA3 : "MEN" (Menu)
 "SOU" (Source)
 "LEF" (Left)
 "RIG" (Right)
 "ENT" (Enter & PC Auto Adjust)
 "-UP" (Up)
 "DOW" (Down)
 "EXI" (Exit)
- IND : "0" (don't care)

Ex) <STX>001RMTWSOU0<ETX> (Remote Source Button)
 Acknowledge => <STX>001RMT#SOU#<ETX>

◆ Set Source Change (MIN)

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

- ID1 ~ ID3 : Set ID (001~100)
 - DA1 ~ DA3 : “HD1” : HDMI1, “HD2” : HDMI2, “HD3” : HDMI3 , “DP1” : DP1, “DP2” : DP2
 - IND : “0” (don’t care)
- Ex) <STX>001MINWHD10<ETX> (Source HDMI1)
 Acknowledge => <STX>001MIN#HD1#<ETX>

◆ Get Source State (MIS)

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

- ID1 ~ ID3 : Set ID (001~100)
 - DA1 ~ DA3 : “000” (don’t care)
 - IND : “0” (don’t care)
- Ex) <STX>001MISR0000<ETX> (ID: 001 , Get Source Status)
 Acknowledge => <STX>001MIS#HD1#<ETX>
- DA1 ~ DA3 : “HD1” : HDMI1, “HD2” : HDMI2, “HD3” : HDMI3 , “DP1” : DP1, “DP2” : DP2

◆ Get Signal State (SGS)

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

- ID1 ~ ID3 : Set ID (001~100)
 - DA1 ~ DA3 : “000” (don’t care)
 - IND : “0” (don’t care)
- Ex) <STX>001SGSR0000<ETX> (ID: 001 , Get Signal Status)
 Acknowledge => <STX>001SGS#COM#<ETX>
- DA1 ~ DA3 : “000” : Power Off, “001” : Normal, “002” : No Signal , “003” : DPMS, “004” : Abnormal

◆Set Volume State (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"
- IND : "0" (don't care)

Ex) <STX>001VOLW1000<ETX> (ID:001, Volume 100)
 Acknowledge => <STX>001VOL#100#<ETX>

◆Get Volume State (VOS)

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

- ID1 ~ ID3 : Set ID ("001" ~ "100")
- DA1 ~ DA3 : "000" (don't care)
- IND : "0" (don't care)

Ex) <STX>001VOSR0000<ETX> (ID:001, Get Volume)
 Acknowledge => <STX>001VOS#050#<ETX>

- DA1 ~ DA3 : Volume Value

◆Set Volume Mute (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
- IND : "0" (don't care)

Ex) <STX>001MUTW-ON0<ETX> (ID:001, Mute On)
 Acknowledge => <STX>001MUT#-ON#<ETX>

◆Get Volume Mute (MUS)

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

- ID1 ~ ID3 : Set ID ("001" ~ "100")
- DA1 ~ DA3 : "000" (don't care)
- IND : "0" (don't care)

Ex) <STX>001MUTR0000<ETX> (ID:001, Mute On)
 Acknowledge => <STX>001MUT#-ON#<ETX>

- DA1 ~ DA3 : "-ON" : Mute On, "OFF" : Mute Off

◆Get Current Temperature (TPS)

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

- ID1 ~ ID3 : Set ID ("001" ~ "100")
- DA1 ~ DA3 : "000" (don't care)
- IND : "0" (don't care)

Ex) <STX>001TPSR0000<ETX> (ID:001, Read Current Temperature)
 Acknowledge => <STX>001TPS#050#<ETX>

- DA1 ~ DA3 : Temperature Value

◆Get Fan Control (FAS)

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

- ID1 ~ ID3 : Set ID ("001" ~ "100")
- DA1 ~ DA3 : "000" (don't care)
- IND : "0" (don't care)

Ex) <STX>001FASR0000<ETX> (ID:001, Read Fan Control)
 Acknowledge => <STX>001FAS#AUT#<ETX>

- DA1 ~ DA3 : "AUT" : Auto, "-ON" : Fan On, "OFF" : Fan Off

◆ Set Active Temperature (TAT) - Fan Control (Auto)

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

- ID1 ~ ID3 : Set ID ("001" ~ "100")
- DA1 ~ DA3 : Temperature Value ("000" ~ "100")
- IND : "0" (don't care)

Ex) <STX>001TATW0500<ETX> (ID:001, Active Temperature 50)
 Acknowledge => <STX>001TAT#050#<ETX>

◆ Get Active Temperature (TAS) – Fan Control (Auto)

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

- ID1 ~ ID3 : Set ID ("001" ~ "100")
- DA1 ~ DA3 : "000" (don't care)
- IND : "0" (don't care)

Ex) <STX>001TASR0000<ETX> (ID:001, Read Active Temperature)
 Acknowledge => <STX>001TAS#050#<ETX>

DA1 ~ DA3 : Temperature Value

◆ Set Hysteresis Temperature (THY) - Fan Control (Auto)

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

- ID1 ~ ID3 : Set ID ("001" ~ "100")
- DA1 ~ DA3 : Hysteresis Value ("000" ~ "100")
- IND : "0" (don't care)

Ex) <STX>001THYW0030<ETX> (ID:001, Hysteresis Temperature 3)
 Acknowledge => <STX>001THY#003#<ETX>

◆ Get Hysteresis Temperature (THS) – Fan Control (Auto)

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

- ID1 ~ ID3 : Set ID (“001” ~ “100”)
- DA1 ~ DA3 : “000” (don’t care)
- IND : “0” (don’t care)

Ex) <STX>001TASR0000<ETX> (ID:001, Read Hysteresis Temperature)

Acknowledge => <STX>001TAS#003#<ETX>

DA1 ~ DA3 : Hysteresis Temperature Value

◆ Set Shutdown Temperature (TSD)

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

- ID1 ~ ID3 : Set ID (“001” ~ “100”)
- DA1 ~ DA3 : Shutdown Temperature Value (“070” ~ “100”)
- IND : “0” (don’t care)

Ex) <STX>001TSDW0800<ETX> (ID:001, Shutdown Temperature 80)

Acknowledge => <STX>001TSD#080#<ETX>

◆ Get Shutdown Temperature (TSS)

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

- ID1 ~ ID3 : Set ID (“001” ~ “100”)
- DA1 ~ DA3 : “000” (don’t care)
- IND : “0” (don’t care)

Ex) <STX>001TSSR0000<ETX> (ID:001, Read Shutdown Temperature)

Acknowledge => <STX>001TSS#080#<ETX>

DA1 ~ DA3 : Shutdown Temperature Value

◆Set Dimming Setting (DIM)

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

- ID1 ~ ID3 : Set ID ("001" ~ "100")
- DA1 ~ DA3 : "000" ~ "100"
- IND : "0" (don't care)

Ex) <STX>001DIMW1000<ETX> (ID:001, Dimming 100) Acknowledge =>
 <STX>001DIM#100#<ETX>

◆Get Dimming Setting (DIS)

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

- ID1 ~ ID3 : Set ID ("001" ~ "100")
- DA1 ~ DA3 : "000" (don't care)
- IND : "0" (don't care)

Ex) <STX>001DISR0000<ETX> (ID:001, Read Dimming)
 Acknowledge => <STX>001DIS#100#<ETX>

◆Set Auto Dimming Control (ADC)

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

- ID1 ~ ID3 : Set ID (“001” ~ “100”)
- DA1 ~ DA3 : “-ON” : Auto Dimming On “OFF” : Auto Dimming Off
- IND : “0” (don’t care)

Ex) <STX>001ADCW-ON0<ETX> (ID:001, Auto Dimming On)
 Acknowledge => <STX>001ADC#-ON#<ETX>

◆Get Auto Dimming Control (ADS)

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

- ID1 ~ ID3 : Set ID (“001” ~ “100”)
- DA1 ~ DA3 : “000” (don’t care)
- IND : “0” (don’t care)

Ex) <STX>001ADSR0000<ETX> (ID:001, Read Auto Dimming Control)
 Acknowledge => <STX>001ADS#AUT#<ETX>
 DA1 ~ DA3 : “-ON” : Auto Dimming On “OFF” : Auto Dimming Off

◆Set Max Ambient Setting (AMA) – Auto Dimming (On)

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

- ID1 ~ ID3 : Set ID (“001” ~ “100”)
- DA1 ~ IND : “0000” ~ “3000”

Ex) <STX>001AMAW0700<ETX> (ID:001, Max Ambient 700)
 Acknowledge => <STX>001AMA#0700<ETX>

◆ Get Max Ambient Setting (AMS) – Auto Dimming (On)

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

- ID1 ~ ID3 : Set ID (“001” ~ “100”)
- DA1 ~ DA3 : “000” (don’t care)
- IND : “0” (don’t care)

Ex) <STX>001AMSR0000<ETX> (ID:001, Read Max Ambient)
 Acknowledge => <STX>001AMS#0700<ETX>

◆ Set Min Ambient Setting (ANA) – Auto Dimming (On)

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

- ID1 ~ ID3 : Set ID (“001” ~ “100”)
- DA1 ~ IND : “0000” ~ “3000”

Ex) <STX>001ANAW0200<ETX> (ID:001, Min Ambient 200)
 Acknowledge => <STX>001ANA#0200<ETX>

◆ Get Min Ambient Setting (ANS) – Auto Dimming (On)

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

- ID1 ~ ID3 : Set ID (“001” ~ “100”)
- DA1 ~ DA3 : “000” (don’t care)
- IND : “0” (don’t care)

Ex) <STX>001ANSR0000<ETX> (ID:001, Read Min Ambient)
 Acknowledge => <STX>001ANS#0200<ETX>

◆Get Current Lux (LUX)

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

- ID1 ~ ID3 : Set ID ("001" ~ "100")
- DA1 ~ DA3 : "000" (don't care)
- IND : "0" (don't care)

Ex) <STX>001LUXR0000<ETX> (ID:001, Read Current Lux)
 Acknowledge => <STX>001LUX#0650<ETX> (650 Lux)

◆Set Current Time Setting (CTM)

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

- ID1 ~ ID3 : Set ID ("001" ~ "100")
- DA1 : "00~17" (Hour)
- DA2 : "00~3B"(Minute)
- DA3 : "00~3B"(Second)
- IND : "0" : Mode Time (Hour , Minute , Second)

Ex) <STX>001CTMW<0A><0C><0C>0<ETX> (ID:001, 10Hour/12Minute/12Second) – Mode Time
 Acknowledge => <STX>001CTM#<0A><0C><0C>0<ETX>

◆Get Current Time Setting (CTS)

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

- ID1 ~ ID3 : Set ID ("001" ~ "100")
- DA1 ~ DA3 : "000" (don't care)
- IND : "0" : Mode Time (Hour , Minute , Second)

Ex) <STX>001CTSR0000<ETX> (ID:001, Get Current Time) – Mode Time
 Acknowledge => <STX>001CTS#<05><0F><1E>0<ETX> (05 : 15 : 30)

- DA1 : "00~17" (Hour)
- DA2 : "00~3B"(Minute)
- DA3 : "00~3B"(Second)
- IND : "0" : Mode Time (Hour , Minute , Second)

◆Set Off Time Active (FTA)

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

- ID1 ~ ID3 : Set ID ("001" ~ "100")
- DA1 ~ DA3 : "-ON" : On "OFF" : Off
- IND : "0" (don't care)

Ex) <STX>001FTAW-ON0<ETX> (ID:001, Fan Control Auto)
 Acknowledge => <STX>001FTA#-ON#ETX>

◆Get Off Time Active (FTA)

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

- ID1 ~ ID3 : Set ID ("001" ~ "100")
- DA1 ~ DA3 : "-ON" : On "OFF" : Off
- IND : "0" (don't care)

Ex) <STX>001FTAR-ON0<ETX> (ID:001, Fan Control Auto)
 Acknowledge => <STX>001FTA#-ON#ETX>

◆Set Off Time Setting (FTM)

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

- ID1 ~ ID3 : Set ID ("001" ~ "100")
- DA1 : "00~17" (Hour)
- DA2 : "00~3B"(Minute)
- DA3 : "00~3B"(Sec)
- IND : "0" (don't care)

Ex) <STX>001FTMW<12><1E><01>0<ETX> (ID:001, 18 : 30 : 01)
 Acknowledge => <STX>001FTM#<12><1E><01>#<ETX>

◆Set Off Time Active (FTA)

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

- ID1 ~ ID3 : Set ID ("001" ~ "100")
- DA1 ~ DA3 : "-ON" : On "OFF" : Off
- IND : "0" (don't care)

Ex) <STX>001FTAW-ON0<ETX> (ID:001, Fan Control Auto)
 Acknowledge => <STX>001FTA#-ON#ETX>

◆Get Off Time Active (FTA)

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

- ID1 ~ ID3 : Set ID ("001" ~ "100")
- DA1 ~ DA3 : "-ON" : On "OFF" : Off
- IND : "0" (don't care)

Ex) <STX>001FTAR-ON0<ETX> (ID:001, Fan Control Auto)
 Acknowledge => <STX>001FTA#-ON#ETX>

◆Set Off Time Setting (FTM)

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

- ID1 ~ ID3 : Set ID ("001" ~ "100")
- DA1 ~ DA3 : "000" (don't care)
- IND : "0" (don't care)

Ex) <STX>001FTSR0000<ETX> (ID:001, Get Off Time)
 Acknowledge => <STX>001FTS#<12><1E><01>#<ETX> (18 : 30 : 01)

- DA1 : "00~17" (Hour)
- DA2 : "00~3B"(Minute)
- DA3 : "00~3B"(Sec)

◆Get Off Time State (FTS)

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

- ID1 ~ ID3 : Set ID ("001" ~ "100")
- DA1 ~ DA3 : "000" (don't care)
- IND : "0" (don't care)

Ex) <STX>001FTSR0000<ETX> (ID:001, Get Off Time)

Acknowledge => <STX>001FTS#<12><1E><01>#<ETX> (18 : 30 : 01)

- DA1 : "00~17" (Hour)
- DA2 : "00~3B"(Minute)
- DA3 : "00~3B"(Sec)

◆Set On Time Active (NTA)

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

- ID1 ~ ID3 : Set ID ("001" ~ "100")
- DA1 ~ DA3 : "-ON" : On, "OFF" : Off
- IND : "0" (don't care)

Ex) <STX>001NTAW-ON0<ETX> (ID:001, Fan Control Auto)

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

◆Get On Time Active (NTA)

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

- ID1 ~ ID3 : Set ID ("001" ~ "100")
- DA1 ~ DA3 : "-ON" : On, "OFF" : Off
- IND : "0" (don't care)

Ex) <STX>001NTAR-ON0<ETX> (ID:001, Fan Control Auto)

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

◆Set On Time Setting (NTM)

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

- ID1 ~ ID3 : Set ID ("001" ~ "100")
- DA1 : "00~17" (Hour)
- DA2 : "00~3B"(Minute)
- DA3 : "00~3B"(Sec)
- IND : "0" : Mode Time (Hour , Minute , Second)

Ex) <STX>001NTMW<0C><1E><02>0<ETX> (ID:001, 12 : 30 : 02)
 Acknowledge => <STX>001NTM#<0C><1E><02>0<ETX>

◆Get On Time State (NTS)

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

- ID1 ~ ID3 : Set ID ("001" ~ "100")
- DA1 ~ DA3 : "000" (don't care)
- IND : "0" : Mode Time (Hour , Minute , Second)

Ex) <STX>001NTSR0000<ETX> (ID:001, Get On Time) – Mode Time Acknowledge =>
 <STX>001NTS#<0C><1E><02>0<ETX> (12 : 30 : 02)

- DA1 : "00~17" (Hour)
- DA2 : "00~3B"(Minute)
- DA3 : "00~3B" (Sec)
- IND : "0" : Mode Time (Hour , Minute , Second)

◆Video Wall Enable (VDW)

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

- ID1 ~ ID3 : Set ID ("001" ~ "100")
- DA1 ~ DA3 : "-ON" : On, "OFF" : Off
- IND : "0" (don't care)

Ex) <STX>001VDWW0000<ETX> (ID:001, Video Wall Enable On)
 Acknowledge => <STX>001VDW#-ON#<ETX>

◆Get Video Wall Enable (VDW)

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

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

- DA1 ~ DA3 : "000" (don't care), - IND : "0" (don't care)

Ex) <STX>001VDWR0000<ETX> (ID:001, Get Video Wall Enable)

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

◆Set Horizontal Set Count (HSC)

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0f				H	S	C	W				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>

◆Set Vertical Set Count (VSC)

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0f				V	S	C	W				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>

◆Set Display Sequence (SDS)

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0f				S	D	S	W				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>

◆Set Horizontal Edge Adjust (HEG)

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

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

- DA1 ~ DA3 : "001" ~ "100"

Ex) <STX>001SDSR0010<ETX> (Display Sequence 1)

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

◆Vertical Edge Adjust (VEG)

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

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

- DA1 ~ DA3 : "000" ~ "200"

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

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

◆Set DP Speed (DPS)

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

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

- DA1 ~ DA3 : "027" : 2.7G, "054" : 5.4G

- IND : "0" (don't care)

Ex) <STX>001DPSW0270<ETX> (ID:001, DP Speed 2.7G) Acknowledge => <STX>001DPS#027#<ETX>

◆Get DP Speed (DPS)

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

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

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

- IND : "0" (don't care)

Ex) <STX>001DPSR0000<ETX> (ID:001, DP Speed 2.7G)

Acknowledge => <STX>001DPS#027#<ETX>

- DA1 ~ DA3 : "027" : 2.7G, "054" : 5.4G