BARCO

SERIAL COMMUNICATION
CINE VERSUM

USERS MANUAL

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1. Index

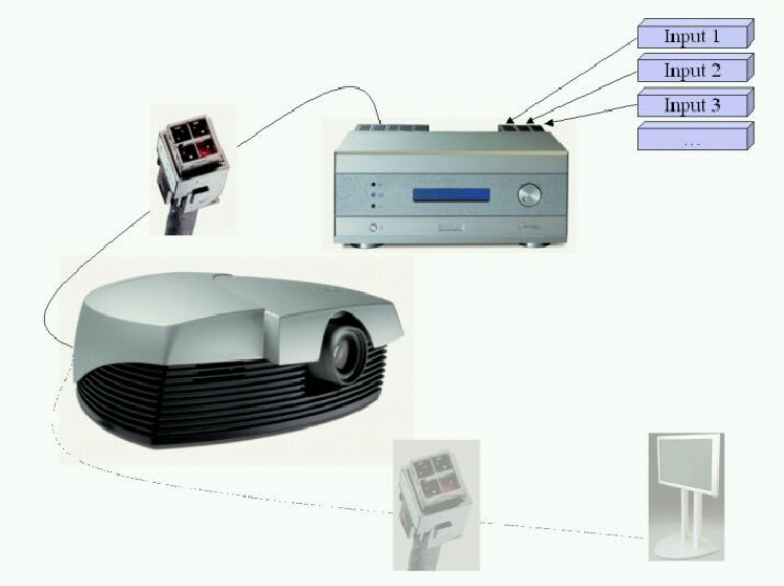
2. Introduction to Cine VERSUM

- Cine VERSUM is a modular system. Different modules of the range interact closely with each other and form a single transparent unity for the user

- This means that each device in the system has it own functionality and specific address.

- Therefore when programming the RS 232 codes one should take in mind the layout of the system.

  - Cine VERSUM Master: Video Switcher and Processor unit
  - Cine VERSUM 50/80: different display modules in the Cine VERSUM range



- For more detailed information on the system read the Owners and Installation manual.

3. Communication basics

Communication protocol summary

Start byte	\xfe
CV Master	
Command byte(s)	
Data bytes(OPTIONAL)	
Checksum byte	
Stop byte	\xff

- Start byte

  The "start byte" informs the Cine VERSUM Master (in case of transmission) or the computer (in case of reception) that a new data transfer will take place.

- CV Master :

  The "CV Master" defines the address of the Cine VERSUM Master the computer wants to talk to (in case of transmission) or the address of the Cine VERSUM Master that answers (in case of reception).
  The maximum number of devices that can be addressed by one computer is 256.

- Command byte(s) :

  There is at least one command byte to define the action to be performed. Commands that are not often used or complex commands can take more than one byte.
  All command bytes that are sent by the computer to get information out of the Cine VERSUM Master are repeated in the answer-data-transfer of the Cine VERSUM Master.

- Data bytes(OPTIONAL) :

  Wheather the command bytes are followed by one or more data bytes depends on the contents of the command bytes. (Some commands are not followed by data bytes at all !)

- Checksum byte :

  The "checksum byte" is used to detect errors during transmission or reception.
  Formula :
  Checksum byte
  = (CV Master + Command bytes + Data bytes) modulo 256

- Stop byte :

  The "stop byte" informs the Cine VERSUM Master (in case of transmission) or the computer (in case of reception) that the data transfer is complete and that the interpretation of the command and data bytes can start.

Any command byte, data byte or checksum byte that equals \x80, \xfe or \xff has to be converted !
Transmission :
- Instead of \x80, send \x80 followed by \x00.
- Instead of \xfe, send \x80 followed by \x7e.
- Instead of \xff, send \x80 followed by \x7f.

Reception :
- Replace \x80 followed by \x00 with \x80.
- Replace \x80 followed by \x7e with \xfe.
- Replace \x80 followed by \x7f with \xff..

Communication settings summary

Baud rate	see Owner's Manual
Data bits	8
Parity	no
Stop bits	1

- Baud Rate :

  Defines the speed of the data transfer.

  Consult the Owner's Manual of the Cine VERSUM Master on how to change the baud rate setting !

- Data Bits :

  Eight data bits are used for each character of the data transfer.

- Parity :

  There is NO parity bit used to perform error checking.

- Stop Bits :

  One stop bit is used to define the end of a character.

- Connector labelled "RS232 IN" :

  This female D9-pin connector is used to connect the Cine VERSUM Master with the computer.

- Connector labelled "RS232 OUT" :

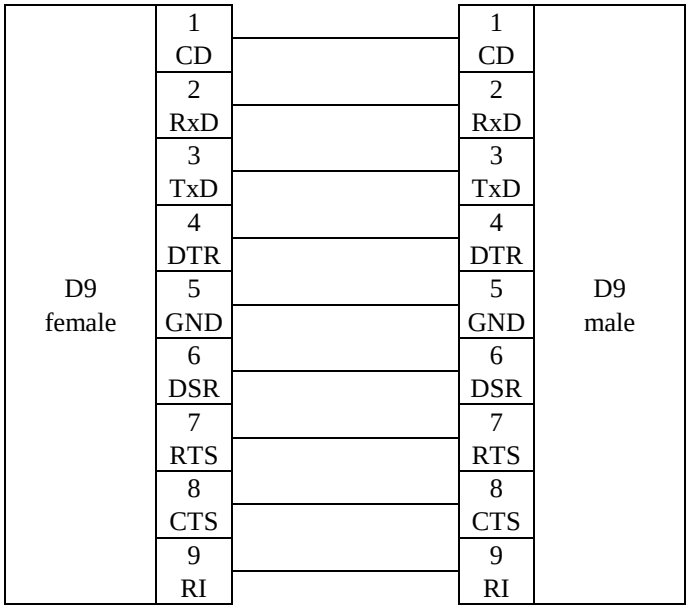
  This male D9-pin connector is used to drive the next Cine VERSUM Master in a chain.

- Pin-out :

  The pin-out is the 'standard' PC-AT convention, which is :

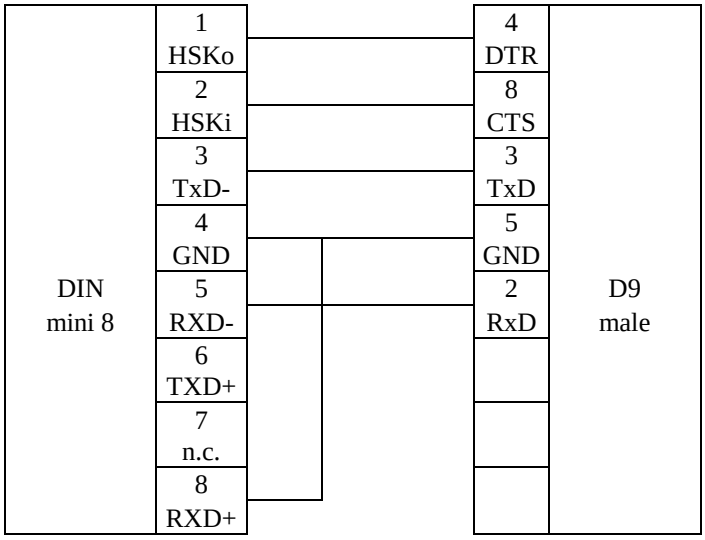
Pin #	Name	Full name
1	CD	Carrier Detect
2	RxD	Received Data
3	TxD	Transmitted Data
4	DTR	Data Terminal Ready
5	GND	Signal Ground
6	DSR	Data Set Ready
7	RTS	Request To Send
8	CTS	Clear To Send
9	RI	Ring Indicator

- Cable (IBM PC or compatible ⇔ Cine VERSUM Master):



order number R9827560 (cable length = 15m)
order number R9827570 (cable length = 30m)

- Cable (MAC ⇔ Cine VERSUM Master) :



order number R9827640 (D9-DIN mini8; cable length = 1m)
order number R9827560 (D9-D9; cable length = 15m)
order number R9827570 (D9-D9; cable length = 30m)

- Signal levels :

State	Voltage
off = 1	-9V
on = 0	+9V

- Characters :

  In this manual, all characters are expressed using the C-language syntax :

decimal values	*ddd*	*ddd* = 0..255
hexadecimal values	\x*hh*	*hh* = 00..ff

- Negative values/numbers :

  The 2s complement number system is used to express negative numbers.

- Pascal-language string :

  A Pascal-language string consists of one or more characters. The first character of the string contains the length of the string. Therefore, a Pascal-language string is limited to 255 characters.
  Example : "hello world"

length	\x0b
'h'	\x68
'e'	\x65
'l'	\x6c
'l'	\x6c
'o'	\x6f
' '	\x20
'w'	\x77
'o'	\x6f
'r'	\x72
'l'	\x6c
'd'	\x64

- C-language string :

  A C-language string consists of one or more characters. The last character of the string is always the NULL (\x00) character. Therefore, the length of a C-language string is determined by the position of the NULL character. Example : "hello world"

'h'	\x68
'e'	\x65
'l'	\x6c
'l'	\x6c
'o'	\x6f
' '	\x20
'w'	\x77
'o'	\x6f
'r'	\x72
'l'	\x6c
'd'	\x64
NULL	\x00

■ Filename

A filename is specified as a C-language string. This string has to follow some rules :

Filename

0	1	2	3	4	5	6	7	8	9	10	11	12
x	x	x	x	x	x	x	x	.	y	z	z	NULL

- length string = 12
- x = character of the base name (= 8 characters)

'a'	'b'	'c'	'd'	'e'	'f'	'g'	'h'	'i'	'j'
'k'	'l'	'm'	'n'	'o'	'p'	'q'	'r'	's'	't'
'u'	'v'	'w'	'x'	'y'	'z'	'0'	'1'	'2'	'3'
'4'	'5'	'6'	'7'	'8'	'9'	'_'	'-'	' '	

- y = kind of file (= 1 character)

's'	standard file predefined file stored in read-only memory
'c'	custom file file created by the user and stored in non-volatile read-write memory

- z = file index (= 2 characters)

'0'	'1'	'2'	'3'	'4'	'5'	'6'	'7'	'8'	'9'

- zz specifies the location in memory where the file is stored
- for standard files : zz = 00..maximum standard files
- for custom files : zz = 00..63 where 00 is reserved for the file 'none .c00' (file loaded when no signal is applied).

- yzz is a unique combination. In other words, no two files can exist with the same extension yzz.

To specify more than one file you can use the question mark (?) wildcard character for x, y and z. This wildcard character can represent any possible character on that location.
Examples : "ntsc .c01", "svga_60v.s?7", "????????.???"

- CV 50/80

  Cine VERSUM 50 or Cine VERSUM 80.

- CV Master

  Cine VERSUM Master.

- CLO

  Constant Light Output.

- LSB

  Least Significant Byte.
  In some exceptional cases : Least Significant Bit.

- MSB

  Most Significant Byte.
  In some exceptional cases : Most Significant Bit.

- OSD

  On Screen Display.

4. Elementary commands

- Description :

  When the Cine VERSUM Master receives a command, the command format is checked (see communication protocol), including the address and the checksum. If the command format contains an error, the command is ignored.
  If the command format is correct, the Cine VERSUM Master checks if the command is a valid command. If so, the Cine VERSUM Master answers with an acknowledge and starts executing the command. If not, the Cine VERSUM Master answers with a no acknowledge.

- Acknowledge command :

Command[0]	\x00
Command[1]	\x06

  No acknowledge command :

Command[0]	\x00
Command[1]	\x15

- Example :

  Acknowledge received on a Cine VERSUM Master with address \x01.

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Select Aspect Ratio

- Command :

Command[0]	\xa0
Command[1]	\xaa

- Data :

Aspect Ratio	Data[ ]
Fit	\x00
16 x 9	\x01
4 x 3	\x02
5 x 4	\x03
2.35	\x04
1.88	\x05
1.78	\x06
Letterbox	\x07

- Example :

  Set Aspect Ratio on Cine VERSUM Master with address \x01 to 4 x 3

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\xa0
Command[1]	\xaa
Data [0]	\x02
Checksum	\x4D
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Decrement brightness.

- Command :

Command[0]	\x04

- Data :

  No data bytes.

- Example :

  Decrement the brightness on a Cine VERSUM Master with address \x01 by one.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x04
Checksum	\x05
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Increment brightness.

- Command :

Command[0]	\x03

- Data :

  No data bytes.

- Example :

  Increment the brightness on a Cine VERSUM Master with address \x01 by one.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x03
Checksum	\x04
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Decrement color (saturation).

- Command :

Command[0]	\x06

- Data :

  No data bytes.

- Example :

  Decrement the color on a Cine VERSUM Master with address \x01 by one.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x06
Checksum	\x07
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Increment color (saturation).

- Command :

Command[0]	\x05

- Data :

  No data bytes.

- Example :

  Increment the color on a Cine VERSUM Master with address \x01 by one.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x05
Checksum	\x06
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Decrement contrast.

- Command :

Command[0]	\x02

- Data :

  No data bytes.

- Example :

  Decrement contrast on a Cine VERSUM Master with address \x01 by one.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x02
Checksum	\x03
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Increment contrast.

- Command :

Command[0]	\x01

- Data :

  No data bytes.

- Example :

  Increment contrast on a Cine VERSUM Master with address \x01 by one.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x01
Checksum	\x02
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Simulation of the infrared remote control unit.
  The codes act in the same way as if they were sent by an infrared remote control unit or the local keypad.

- Command :

Command[0]	\x30

- Data :

  Possible codes used for Data[0] :

Key	Data[0]
*	\x77
0	\x19
1	\x10
2	\x11
3	\x12
4	\x13
5	\x14
6	\x15
7	\x16
8	\x17
9	\x18
ADDR	\x20
ADJUST	\x09
ARROW DOWN	\x05
ARROW LEFT	\x07
ARROW RIGHT	\x06
ARROW UP	\x04

BRIGHTNESS	\x27
BRIGHTNESS+	\x2a
BRIGHTNESS-	\x2b
COLOR	\x30
COLOR+	\x2c
COLOR-	\x2d
CONTRAST	\x25
CONTRAST+	\x28
CONTRAST-	\x29
ENTER	\x0a
EXIT	\x08
F1	\x6b
F2	\x6c
F3	\x6d
F4	\x6e
F5	\x6f
FREEZ	\x1b
HELP	\x1e
MUTE	\x1f
PAUSE	\x0f
PHASE	\x32
PHASE+	\x34
PHASE-	\x35
STDBY	\x0e
TEXT	\x0d
TINT	\x31
TINT+	\x2e
TINT-	\x2f

- Example :

  Select source 3 on a Cine VERSUM Master with address \x01.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x30
Data[0]	\x12
Checksum	\x43
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Read the status of mute video.

- Command :

Command[0]	\x21
Command[1]	\x3e

- Data :

  No data bytes.

- Return data :

  Data[0] = status mute video.

Mute audio	Data[0]
Disabled	\x00
Enabled	\x01

- Example :

  Read the status of mute video on a Cine VERSUM Master with address \x01. Suppose the video is muted.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x3e
Checksum	\x60
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

Receive (answer)	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x3e
Data[0]	\x01
Checksum	\x61
Stop	\xff

- Description :

  Disable video mute.

- Command :

Command[0]	\x26
Command[1]	\x3e

- Data :

  No data bytes.

- Example :

  Disable video mute on a Cine VERSUM Master with address \x01.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x26
Command[1]	\x3e
Checksum	\x65
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Enable video mute.
  The on-screen-display will be muted too !

- Command :

Command[0]	\x27
Command[1]	\x3e

- Data :

  No data bytes.

- Example :

  Enable video mute on a Cine VERSUM Master with address \x01.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x27
Command[1]	\x3e
Checksum	\x66
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Decrement phase.

- Command :

Command[0]	\x0c

- Data :

  No data bytes.

- Example :

  Decrement phase on a Cine VERSUM Master with address \x01 by one.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x0c
Checksum	\x0d
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Increment phase.

- Command :

Command[0]	\x0b

- Data :

  No data bytes.

- Example :

  Increment phase on a Cine VERSUM Master with address \x01 by one.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x0b
Checksum	\x0c
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Read the Cine VERSUM Master status.

- Command :

Command[0]	\x67

- Data :

  No data bytes.

- Return data :

  The return data consists of one data byte containing the Cine VERSUM Master status. Only bit0 (least significant bit) to bit3

bit#	bit = 0	bit = 1
bit0	Cine VERSUM Master is off	Cine VERSUM Master is on
bit1	text is off	text is on
bit2	video mute is off	video mute is on
bit3	picture is not frozen	picture is frozen

- Example :

  Read the status of a Cine VERSUM Master with address \x01.
  Suppose the status is Cine VERSUM Master on, text on, video mute off.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x67
Checksum	\x68
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

Receive (answer)	
Start	\xfe
CV Master	\x01
Command[0]	\x67
Data[0]	\x0b
Checksum	\x73
Stop	\xff

- Description :

  Set the Cine VERSUM Master off.

- Command :

Command[0]	\x66

- Data :

  No data bytes.

- Example :

  Set the Cine VERSUM Master with address \x01 off.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x66
Checksum	\x67
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Set the Cine VERSUM Master on.

- Command :

Command[0]	\x65

- Data :

  No data bytes.

- Example :

  Set the Cine VERSUM Master with address \x01 on.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x65
Checksum	\x66
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Read the Cine VERSUM 50/80 status.

- Command :

Command[0]	\xA0

- Data :

Data[1]	\x05

- Return data :

  The return data can consists of data containing the IR information received by the CV 50/80 or the data string described below. When probing for the status of the CV 50/80, one should check the return command[0] byte. If not equal to \xA0, resend the query.

Command[0]	\xA0
Data[0]	\x06

Status	Data[1]
CV 50/80 off/ CDM[1] off	\x00
CV 50/80 off/ CDM[1] on	\x40
CV 50/80 on/ CDM[1] off	\x02
CV 50/80 on/ CDM[1] on	\x42

[1] CDM=Cool down mode: cool-down period after switching the CineVERSUM 80 off. The CineVERSUM 80 can be switched on during this period, but the lamp will restart only when cool-down period is over.

- Example :

  Read the status of a Cine VERSUM 80 with address \x01. Suppose the status is Cine VERSUM 80 on, cool down off.

Transmit	
Start	\xfe
IR address CV 80	\x01
Command[0]	\xA0
Data[0]	\x05
Checksum	\xA5
Stop	\xff

Receive (answer)	
Start	\xfe
IR address CV 80	\x01
Command[0]	\xA0
Data[0]	\x06
Data[1]	\x02
Checksum	\xA8
Stop	\xff

- Description :

  This command will only switch the Cine VERSUM 50/80 on with the correct address. At the same time the Cine VERSUM Master will power up.

- Command :

Command[0]	\xa0

- Data :

Data[0]	\x0b

- Example :

  Set the Cine VERSUM 80 with address \x01 on.

Transmit	
Start	\xfe
CV 80	\x01
Command[0]	\xa0
Command[1]	\x0b
Checksum	\xac
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Switch off the addressed Cine VERSUM 50/80

- Command :

Command[0]	\xa0

- Data :

Data[0]	\x0a

- Example :

  Switch off the Cine VERSUM 80 with address \x01.

Transmit	
Start	\xfe
CV 80	\x01
Command[0]	\xa0
Command[1]	\x0a
Checksum	\xab
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Read active source or slot.

- Command :

Command[0]	\x32

- Data :

  No data bytes.

- Return data :

  Source or slot number (\x01..).

- Example :

  Read the active source/slot number on a Cine VERSUM Master with address \x01. Suppose the answer is \x03.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x32
Checksum	\x33
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

Receive (answer)	
Start	\xfe
CV Master	\x01
Command[0]	\x32
Data[0]	\x03
Checksum	\x36
Stop	\xff

- Description :

  Select a source or slot.

- Command :

Command[0]	\x31

- Data :

  Source or slot number (\x01..).

- Example :

  Select source 1 on a Cine VERSUM Master with address \x01.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x31
Data[0]	\x01
Checksum	\x33
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Decrement tint (hue).

- Command :

Command[0]	\x08

- Data :

  No data bytes.

- Example :

  Decrement tint on a Cine VERSUM Master with address \x01 by one.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x08
Checksum	\x09
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Increment tint (hue).

- Command :

Command[0]	\x07

- Data :

  No data bytes.

- Example :

  Increment tint on a Cine VERSUM Master with address \x01 by one.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x07
Checksum	\x08
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

4. Advanced Commands

- Description :

  Change de pc baudrate.

- Command :

Command[0]	\x75

- Data :

Data[]	c-language string

- Notes :

  - The acknowledge is sent at the same baudrate as the question. The baudrate will be changed after transmission of the acknowledge sequence.
  - If the data contains a non-valid c-language string or an invalid baudrate, the baudrate will be set to 9600.

- Example :

  Change the pc baudrate to 2400 baud on a Cine VERSUM Master with address \x01.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x75
Data[0]	\x32 (= ‘2’)
Data[1]	\x34 (= ‘4’)
Data[2]	\x30 (= ‘0’)
Data[3]	\x30 (= ‘0’)
Data[4]	\x00
Checksum	\x3c
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Decrement blanking bottom.

- Command :

Command[0]	\x23
Command[1]	\x4d

- Data :

  No data bytes.

- Example :

  Decrement blanking bottom on a Cine VERSUM Master with address \x01 by one.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x23
Command[1]	\x4d
Checksum	\x71
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Increment blanking bottom.

- Command :

Command[0]	\x22
Command[1]	\x4d

- Data :

  No data bytes.

- Example :

  Increment blanking bottom on a Cine VERSUM Master with address \x01 by one.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x22
Command[1]	\x4d
Checksum	\x70
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Read the actual value of blanking bottom.

- Command :

Command[0]	\x21
Command[1]	\x4d

- Data :

  No data bytes.

- Return data :

  Data[0..1] = value of blanking bottom.

Data[0]	MSB of value
Data[1]	LSB of value

- Example :

  Read the actual value of blanking bottom on a Cine VERSUM Master with address \x01. Suppose the blanking bottom equals 0.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x4d
Checksum	\x6f
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

Receive (answer)	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x4d
Data[0]	\x00
Data[1]	\x00
Checksum	\x6f
Stop	\xff

- Description :

  Write a new value for blanking bottom.

- Command :

Command[0]	\x20
Command[1]	\x4d

- Data :

  Data[0..1] = value of blanking bottom.

Data[0]	MSB of value
Data[1]	LSB of value

- Example :

  Set the blanking bottom to 0 on a Cine VERSUM Master with address \x01.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x20
Command[1]	\x4d
Data[0]	\x00
Data[1]	\x00
Checksum	\x6e
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Decrement blanking left.

- Command :

Command[0]	\x23
Command[1]	\x4e

- Data :

  No data bytes.

- Example :

  Decrement blanking left on a Cine VERSUM Master with address \x01 by one.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x23
Command[1]	\x4e
Checksum	\x72
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Increment blanking left.

- Command :

Command[0]	\x22
Command[1]	\x4e

- Data :

  No data bytes.

- Example :

  Increment blanking left on a Cine VERSUM Master with address \x01 by one.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x22
Command[1]	\x4e
Checksum	\x71
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Read the actual value of blanking left.

- Command :

Command[0]	\x21
Command[1]	\x4e

- Data :

  No data bytes.

- Return data :

  Data[0..1] = value of blanking left.

Data[0]	MSB of value
Data[1]	LSB of value

- Example :

  Read the actual value of blanking left on a Cine VERSUM Master with address \x01. Suppose the blanking left equals 0.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x4e
Checksum	\x70
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

Receive (answer)	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x4e
Data[0]	\x00
Data[1]	\x00
Checksum	\x70
Stop	\xff

- Description :

  Write a new value for blanking left.

- Command :

Command[0]	\x20
Command[1]	\x4e

- Data :

  Data[0..1] = value of blanking left.

Data[0]	MSB of value
Data[1]	LSB of value

- Example :

  Set the blanking left to 0 on a Cine VERSUM Master with address \x01.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x20
Command[1]	\x4e
Data[0]	\x00
Data[1]	\x00
Checksum	\x6f
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Decrement blanking right.

- Command :

Command[0]	\x23
Command[1]	\x4f

- Data :

  No data bytes.

- Example :

  Decrement blanking right on a Cine VERSUM Master with address \x01 by one.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x23
Command[1]	\x4f
Checksum	\x73
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Increment blanking right.

- Command :

Command[0]	\x22
Command[1]	\x4f

- Data :

  No data bytes.

- Example :

  Increment blanking right on a Cine VERSUM Master with address \x01 by one.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x22
Command[1]	\x4f
Checksum	\x72
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Read the actual value of blanking right.

- Command :

Command[0]	\x21
Command[1]	\x4f

- Data :

  No data bytes.

- Return data :

  Data[0..1] = value of blanking right.

Data[0]	MSB of value
Data[1]	LSB of value

- Example :

  Read the actual value of blanking right on a Cine VERSUM Master with address \x01. Suppose the blanking right equals 0.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x4f
Checksum	\x71
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

Receive (answer)	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x4f
Data[0]	\x00
Data[1]	\x00
Checksum	\x71
Stop	\xff

- Description :

  Write a new value for blanking right.

- Command :

Command[0]	\x20
Command[1]	\x4f

- Data :

  Data[0..1] = value of blanking right.

Data[0]	MSB of value
Data[1]	LSB of value

- Example :

  Set the blanking right to 0 on a Cine VERSUM Master with address \x01.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x20
Command[1]	\x4f
Data[0]	\x00
Data[1]	\x00
Checksum	\x70
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Decrement blanking top.

- Command :

Command[0]	\x23
Command[1]	\x4c

- Data :

  No data bytes.

- Example :

  Decrement blanking top on a Cine VERSUM Master with address \x01 by one.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x23
Command[1]	\x4c
Checksum	\x70
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Increment blanking top.

- Command :

Command[0]	\x22
Command[1]	\x4c

- Data :

  No data bytes.

- Example :

  Increment blanking top on a Cine VERSUM Master with address \x01 by one.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x22
Command[1]	\x4c
Checksum	\x6f
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Read the actual value of blanking top.

- Command :

Command[0]	\x21
Command[1]	\x4c

- Data :

  No data bytes.

- Return data :

  Data[0..1] = value of blanking top.

Data[0]	MSB of value
Data[1]	LSB of value

- Example :

  Read the actual value of blanking top on a Cine VERSUM Master with address \x01. Suppose the blanking top equals 0.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x4c
Checksum	\x6e
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

Receive (answer)	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x4c
Data[0]	\x00
Data[1]	\x00
Checksum	\x6e
Stop	\xff

- Description :

  Write a new value for blanking top.

- Command :

Command[0]	\x20
Command[1]	\x4c

- Data :

  Data[0..1] = value of blanking top.

Data[0]	MSB of value
Data[1]	LSB of value

- Example :

  Set the blanking top to 0 on a Cine VERSUM Master with address \x01.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x20
Command[1]	\x4c
Data[0]	\x00
Data[1]	\x00
Checksum	\x6d
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Read the actual brightness value.

- Command :

Command[0]	\x21
Command[1]	\x02

- Data :

  No data bytes.

- Return data :

  Data[0] = brightness value.

- Example :

  Read the actual brightness value on a Cine VERSUM Master with address \x01. Suppose the brightness equals \x20.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x02
Checksum	\x24
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

Receive (answer)	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x02
Data[0]	\x20
Checksum	\x44
Stop	\xff

- Description :

  Write a new brightness value.

- Command :

Command[0]	\x20
Command[1]	\x02

- Data :

  Data[0] = brightness value.

- Example :

  Set the brightness to \x20 on a Cine VERSUM Master with address \x01.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x20
Command[1]	\x02
Data[0]	\x20
Checksum	\x43
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Read the Cine VERSUM Master run time in seconds.

- Command :

Command[0]	\x62

- Data :

  No data bytes.

- Return data :

  The return data-transfer being the Cine VERSUM Master run time in seconds consists of four data bytes. The first byte is the most significant byte !
  Formula :
  Cine VERSUM Master run time (seconds)
  $= Data[0]*256^3 + Data[1]*256^2 + Data[2]*256 + Data[3]$

- Example :

  Read the Cine VERSUM Master run time on a Cine VERSUM Master with address \x01. Suppose the Cine VERSUM Master run time is 3000 hours (10800000 seconds).

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x62
Checksum	\x63
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

Receive (answer)	
Start	\xfe
CV Master	\x01
Command[0]	\x62
Data[0]	\x00
Data[1]	\xa4
Data[2]	\xcb
Data[3]	\x80
	\x00
Checksum	\x52
Stop	\xff

Cine VERSUM Master run time =
\x00 * 256^3 + \xa4 * 256^2 + \xcb * 256 + \x80

- Description :

  Read the serial number of the Cine VERSUM Master.

- Command :

Command[0]	\x61

- Data :

  No data bytes.

- Return data :

  The return data-transfer being the Cine VERSUM Master serial number is a pascal-language string (see syntax).

- Example :

  Read the serial number on a Cine VERSUM Master with address \x01. Suppose the Cine VERSUM Master serial number is '0000001'.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x61
Checksum	\x62
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

Receive (answer)	
Start	\xfe
CV Master	\x01
Command[0]	\x61
Data[0]	\x07
Data[1]	\x30 (= '0')
Data[2]	\x30 (= '0')
Data[3]	\x30 (= '0')
Data[4]	\x30 (= '0')
Data[5]	\x30 (= '0')
Data[6]	\x30 (= '0')
Data[7]	\x31 (= '1')
Checksum	\xba
Stop	\xff

- Description :

  Determine the type of Cine VERSUM Master you are communicating with.

- Command :

Command[0]	\x6b

- Data :No data bytes.

- Return data :

  The return data-transfer being the Cine VERSUM Master type is a pascal-language string (see syntax).

- Example :

  Read the Cine VERSUM Master type on a Cine VERSUM Master with address \x01. Suppose the Cine VERSUM Master is a 'BARCODATA 8100'.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x6b
Checksum	\x6c
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

Receive (answer)	
Start	\xfe
CV Master	\x01
Command[0]	\x6b
Data[0]	\x0e
Data[1]	\x42 (= 'B')
Data[2]	\x41 (= 'A')
Data[3]	\x52 (= 'R')
Data[4]	\x43 (= 'C')
Data[5]	\x4f (= 'O')
Data[6]	\x44 (= 'D')
Data[7]	\x41 (= 'A')
Data[8]	\x54 (= 'T')
Data[9]	\x41 (= 'A')
Data[10]	\x20 (= ' ')
Data[11]	\x38 (= '8')
Data[12]	\x31 (= '1')
Data[13]	\x30 (= '0')
Data[14]	\x30 (= '0')
Checksum	\xe4
Stop	\xff

- Description :

  Write the CV Master.

- Command :

Command[0]	\x6d

- Data :

  Data[0] = CV Master.

Data[0]	\x00..\xff

- Note :

  The acknowledge will be sent with the original CV Master.

- Example :

  Set the address on a Cine VERSUM Master with address \x01 to \x20.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x6d
Data[0]	\x20
Checksum	\x8e
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Decrement the clamp delay.

- Command :

Command[0]	\x23
Command[1]	\x67

- Data :

  No data bytes.

- Example :

  Decrement the clamp delay on a Cine VERSUM Master with address \x01 by one.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x23
Command[1]	\x67
Checksum	\x8b
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Increment the clamp delay.

- Command :

Command[0]	\x22
Command[1]	\x67

- Data :

  No data bytes.

- Example :

  Increment the clamp delay on a Cine VERSUM Master with address \x01 by one.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x22
Command[1]	\x67
Checksum	\x8a
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Read the actual value of the clamp delay.

- Command :

Command[0]	\x21
Command[1]	\x67

- Data :

  No data bytes.

- Return data :

  Data[0] = value of the clamp delay.

- Example :

  Read the actual value of the clamp delay on a Cine VERSUM Master with address \x01. Suppose the clamp delay equals \x00.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x67
Checksum	\x89
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

Receive (answer)	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x67
Data[0]	\x00
Checksum	\x89
Stop	\xff

- Description :

  Write a new value for the clamp delay.

- Command :

Command[0]	\x20
Command[1]	\x67

- Data :

  Data[0] = value of the clamp delay.

- Example :

  Set the clamp delay to \x00 on a Cine VERSUM Master with address \x01.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x20
Command[1]	\x67
Data[0]	\x00
Checksum	\x88
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Read the actual value of the clamp edge.

- Command :

Command[0]	\x21
Command[1]	\x66

- Data :

  No data bytes.

- Return data :

  Data[0] = value of the clamp edge.

	Data[0]
Leading	\x00
Trailing	\x01

- Example :

  Read the actual value of the clamp edge on a Cine VERSUM Master with address \x01. Suppose the clamp edge is leading.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x66
Checksum	\x88
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

Receive (answer)	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x66
Data[0]	\x00
Checksum	\x88
Stop	\xff

- Description :

  Set the clamp edge to leading.

- Command :

Command[0]	\x26
Command[1]	\x66

- Data :

  No data bytes.

- Example :

  Set the clamp edge to leading on a Cine VERSUM Master with address \x01.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x26
Command[1]	\x66
Checksum	\x8d
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Set the clamp edge to trailing.

- Command :

Command[0]	\x27
Command[1]	\x66

- Data :

  No data bytes.

- Example :

  Set the clamp edge to trailing on a Cine VERSUM Master with address \x01.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x27
Command[1]	\x66
Checksum	\x8e
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Decrement the clamp width.

- Command :

Command[0]	\x23
Command[1]	\x68

- Data :

  No data bytes.

- Example :

  Decrement the clamp width on a Cine VERSUM Master with address \x01 by one.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x23
Command[1]	\x68
Checksum	\x8c
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Increment the clamp width.

- Command :

Command[0]	\x22
Command[1]	\x68

- Data :

  No data bytes.

- Example :

  Increment the clamp width on a Cine VERSUM Master with address \x01 by one.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x22
Command[1]	\x68
Checksum	\x8b
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Read the actual value of the clamp width.

- Command :

Command[0]	\x21
Command[1]	\x68

- Data :

  No data bytes.

- Return data :

  Data[0] = value of the clamp width.

- Example :

  Read the actual value of the clamp width on a Cine VERSUM Master with address \x01. Suppose the clamp width equals \x32.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x68
Checksum	\x8a
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

Receive (answer)	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x68
Data[0]	\x32
Checksum	\xbc
Stop	\xff

- Description :

  Write a new value for the clamp width.

- Command :

Command[0]	\x20
Command[1]	\x68

- Data :

  Data[0] = value of the clamp width.

- Example :

  Set the clamp width to \x32 on a Cine VERSUM Master with address \x01.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x20
Command[1]	\x68
Data[0]	\x32
Checksum	\xbb
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Read the actual color (saturation) value.

- Command :

Command[0]	\x21
Command[1]	\x03

- Data :

  No data bytes.

- Return data :

  Data[0] = color value.

- Example :

  Read the actual color value on a Cine VERSUM Master with address \x01. Suppose the color equals \x20.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x03
Checksum	\x25
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

Receive (answer)	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x03
Data[0]	\x20
Checksum	\x45
Stop	\xff

- Description :

  Write a new color (saturation) value.

- Command :

Command[0]	\x20
Command[1]	\x03

- Data :

  Data[0] = color value.

- Example :

  Set the color to \x20 on a Cine VERSUM Master with address \x01.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x20
Command[1]	\x03
Data[0]	\x20
Checksum	\x44
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Read the actual contrast value.

- Command :

Command[0]	\x21
Command[1]	\x01

- Data :

  No data bytes.

- Return data :

  Data[0] = contrast value.

- Example :

  Read the actual contrast value on a Cine VERSUM Master with address \x01. Suppose the contrast equals \x30.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x01
Checksum	\x23
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

Receive (answer)	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x01
Data[0]	\x30
Checksum	\x53
Stop	\xff

- Description :

  Write a new contrast value.

- Command :

Command[0]	\x20
Command[1]	\x01

- Data :

  Data[0] = contrast value.

- Example :

  Set the contrast to \x30 on a Cine VERSUM Master with address \x01.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x20
Command[1]	\x01
Data[0]	\x30
Checksum	\x52
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Read the actial position of field polarity.

- Command :

Command[0]	\x21
Command[1]	\x62

- Data :

  No data bytes.

- Return data :

  Data[0] = field polarity.

	Data[0]
Negative	\x00
Positive	\x01
Automatic	\x02

- Example :

  Read the actual field polarity on a Cine VERSUM Master with address \x01. Suppose there is automatic installation of the field polarity.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x62
Checksum	\x84
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

Receive (answer)	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x62
Data[0]	\x02
Checksum	\x86
Stop	\xff

- Description :

  Change the field polarity value.

- Command :

Command[0]	\x20
Command[1]	\x62

- Data :

  Data[0] = field polarity.

	Data[0]
Negative	\x00
Positive	\x01
Automatic	\x02

- Example :

  Set the field polarity to automatic on a Cine VERSUM Master with address \x01.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x20
Command[1]	\x62
Data[0]	\x02
Checksum	\x85
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Read what field is actualy selected.

- Command :

Command[0]	\x21
Command[1]	\x63

- Data :

  No data bytes.

- Return data :

  Data[0] = selected field.

	Data[0]
Even	\x00
Odd	\x01
Both	\x02

- Example :

  Read the actual selected field on a Cine VERSUM Master with address \x01. Suppose both fields are displayed.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x63
Checksum	\x85
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

Receive (answer)	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x63
Data[0]	\x02
Checksum	\x87
Stop	\xff

- Description :

  Change the field selection.
  (Only in case of interlaced images.)

- Command :

Command[0]	\x20
Command[1]	\x63

- Data :

  Data[0] = field selection.

	Data[0]
Even	\x00
Odd	\x01
Both	\x02

- Example :

  Select both fields on a Cine VERSUM Master with address \x01.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x20
Command[1]	\x63
Data[0]	\x02
Checksum	\x86
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Copy file1 to file2.
  - File2 (destination file) has to be a custom file.
  - If the location specified by the "file index" of file2 has already been taken up, file2 will overwrite that contents.
  - If file1 and file2 point to the same location, the base name of file1 is replaced by the base name of file2 without affecting other data.

- Command :

Command[0]	\xc2

- Data :

  From filename followed by the to filename (no wildcards allowed).

- Example :

  Copy the file "ntsc .c01" to "camera1 .c05" on a Cine VERSUM Master with address \x01.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\xc2
Data[0]	\x6e (= 'n')
Data[1]	\x74 (= 't')
Data[2]	\x73 (= 's')
Data[3]	\x63 (= 'c')
Data[4]	\x20 (= ' ')
Data[5]	\x20 (= ' ')
Data[6]	\x20 (= ' ')
Data[7]	\x20 (= ' ')
Data[8]	\x2e (= '.')
Data[9]	\x63 (= 'c')
Data[10]	\x30 (= '0')
Data[11]	\x31 (= '1')
Data[12]	\x00
Data[13]	\x63 (= 'c')
Data[14]	\x61 (= 'a')
Data[15]	\x6d (= 'm')
Data[16]	\x65 (= 'e')
Data[17]	\x72 (= 'r')
Data[18]	\x61 (= 'a')
Data[19]	\x31 (= '1')
Data[20]	\x20 (= ' ')
Data[21]	\x2e (= '.')
Data[22]	\x63 (= 'c')
Data[23]	\x30 (= '0')
Data[24]	\x35 (= '5')
Data[25]	\x00
Checksum	\x9d
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Delete one or more files.
  - Only custom files (????????.c??) can be deleted.

- Command :

Command[0]	\xc1

- Data :

  One or more filenames (wildcards allowed).

- Example :

  Delete all files starting with the characters "nt" on a Cine VERSUM Master with address \x01.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\xc1
Data[0]	\x6e (= 'n')
Data[1]	\x74 (= 't')
Data[2]	\x3f (= '?')
Data[3]	\x3f (= '?')
Data[4]	\x3f (= '?')
Data[5]	\x3f (= '?')
Data[6]	\x3f (= '?')
Data[7]	\x3f (= '?')
Data[8]	\x2e (= '.')
Data[9]	\x3f (= '?')
Data[10]	\x3f (= '?')
Data[11]	\x3f (= '?')
Data[12]	\x00
Checksum	\x09
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Get a list of files.

- Command :

Command[0]	\xc0

- Data :

  One or more filenames (wildcards allowed).

- Example :

  Get a list of all files starting with the characters "nt" on a Cine VERSUM Master with address \x01. Suppose there are 2 files : "ntsc .s02" and "ntsc_rgb.c01".

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\xc0
Data[0]	\x6e (= 'n')
Data[1]	\x74 (= 't')
Data[2]	\x3f (= '?')
Data[3]	\x3f (= '?')
Data[4]	\x3f (= '?')
Data[5]	\x3f (= '?')
Data[6]	\x3f (= '?')
Data[7]	\x3f (= '?')
Data[8]	\x2e (= '.')
Data[9]	\x3f (= '?')
Data[10]	\x3f (= '?')
Data[11]	\x3f (= '?')
Data[12]	\x00
Checksum	\x08
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

Receive (answer)	
Start	\xfe
CV Master	\x01
Command[0]	\xc0
Data[0]	\x6e (= 'n')
Data[1]	\x74 (= 't')
Data[2]	\x73 (= 's')
Data[3]	\x63 (= 'c')
Data[4]	\x20 (= ' ')
Data[5]	\x20 (= ' ')
Data[6]	\x20 (= ' ')
Data[7]	\x20 (= ' ')
Data[8]	\x2e (= '.')
Data[9]	\x73 (= 's')
Data[10]	\x30 (= '0')
Data[11]	\x32 (= '2')
Data[12]	\x00
Data[13]	\x6e (= 'n')
Data[14]	\x74 (= 't')
Data[15]	\x73 (= 's')
Data[16]	\x63 (= 'c')
Data[17]	\x5f (= '_')
Data[18]	\x72 (= 'r')
Data[19]	\x67 (= 'g')
Data[20]	\x62 (= 'b')
Data[21]	\x2e (= '.')
Data[22]	\x63 (= 'c')
Data[23]	\x30 (= '0')
Data[24]	\x31 (= '1')
Data[25]	\x00
Checksum	\x40
Stop	\xff

- Description :

  Get the filename of the active file.

- Command :

Command[0]	\xc5

- Data :

  No data bytes.

- Example :

  Get the filename of the active file on a Cine VERSUM Master with address \x01. Suppose the filename is "ntsc .c01".

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\xc5
Checksum	\xc6
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

Receive (answer)	
Start	\xfe
CV Master	\x01
Command[0]	\xc5
Data[0]	\x6e (= 'n')
Data[1]	\x74 (= 't')
Data[2]	\x73 (= 's')
Data[3]	\x63 (= 'c')
Data[4]	\x20 (= ' ')
Data[5]	\x20 (= ' ')
Data[6]	\x20 (= ' ')
Data[7]	\x20 (= ' ')
Data[8]	\x2e (= '.')
Data[9]	\x63 (= 'c')
Data[10]	\x30 (= '0')
Data[11]	\x31 (= '1')
Data[12]	\x00
Checksum	\xf0
Stop	\xff

- Description :

  Get the filename of the active file.

- Command :

Command[0]	\xc5

- Data :

  No data bytes.

- Example :

  Get the filename of the active file on a Cine VERSUM Master with address \x01. Suppose the filename is "ntsc .c01".

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\xc5
Checksum	\xc6
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Load file on selected input
  Only custom files can be renamed.

- Command :

Command[0]	\xa0
Command[1]	\xab

- Data :

  Filename (no wildcards allowed).

- Example :

  Load file "ntsc .c01" on Cine VERSUM Master with address \x01.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\xa0
Command[1]	\xab
Data[0]	\x6e (= 'n')
Data[1]	\x74 (= 't')
Data[2]	\x73 (= 's')
Data[3]	\x63 (= 'c')
Data[4]	\x20 (= ' ')
Data[5]	\x20 (= ' ')
Data[6]	\x20 (= ' ')
Data[7]	\x20 (= ' ')
Data[8]	\x2e (= '.')
Data[9]	\x63 (= 'c')
Data[10]	\x30 (= '0')
Data[11]	\x31 (= '1')
Checksum	\x76
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\xc4
Data[0]	\x6e (= 'n')
Data[1]	\x74 (= 't')
Data[2]	\x73 (= 's')
Data[3]	\x63 (= 'c')
Data[4]	\x20 (= ' ')
Data[5]	\x20 (= ' ')
Data[6]	\x20 (= ' ')
Data[7]	\x20 (= ' ')
Data[8]	\x2e (= '.')
Data[9]	\x63 (= 'c')
Data[10]	\x30 (= '0')
Data[11]	\x31 (= '1')
Data[12]	\x00
Data[13]	\x63 (= 'c')
Data[14]	\x61 (= 'a')
Data[15]	\x6d (= 'm')
Data[16]	\x65 (= 'e')
Data[17]	\x72 (= 'r')
Data[18]	\x61 (= 'a')
Data[19]	\x31 (= '1')
Data[20]	\x20 (= ' ')
Data[21]	\x2e (= '.')
Data[22]	\x63 (= 'c')
Data[23]	\x30 (= '0')
Data[24]	\x35 (= '5')
Data[25]	\x00
Checksum	\x9f
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Read the contents of a file.
  - This command can be used to make a backup of your Cine VERSUM Master files on your hard disk. Use the command “file, write” to restore those files on your Cine VERSUM Master.
  - The file contents is compressed and Cine VERSUM Master-dependent. (It could even be version-dependent.)

- Command :

Command[0]	\xbf

- Data :

  Filename.

- Return data :

  Data[0..12] = filename.
  Data[13] = length of file contents (bytes)
  Data[14..] = file contents

- Example (imaginary) :

  Read the contents of the file "ntsc .c01" on a Cine VERSUM Master with address \x01.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\xbf
Data[0]	\x6e (= 'n')
Data[1]	\x74 (= 't')
Data[2]	\x73 (= 's')
Data[3]	\x63 (= 'c')
Data[4]	\x20 (= ' ')
Data[5]	\x20 (= ' ')
Data[6]	\x20 (= ' ')
Data[7]	\x20 (= ' ')
Data[8]	\x2e (= '.')
Data[9]	\x63 (= 'c')
Data[10]	\x30 (= '0')
Data[11]	\x31 (= '1')
Data[12]	\x00
Checksum	\xea
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

Receive (answer)	
Start	\xfe
CV Master	\x01
Command[0]	\xbf
Data[0]	\x6e (= 'n')
Data[1]	\x74 (= 't')
Data[2]	\x73 (= 's')
Data[3]	\x63 (= 'c')
Data[4]	\x20 (= ' ')
Data[5]	\x20 (= ' ')
Data[6]	\x20 (= ' ')
Data[7]	\x20 (= ' ')
Data[8]	\x2e (= '.')
Data[9]	\x63 (= 'c')
Data[10]	\x30 (= '0')
Data[11]	\x31(= '1)
Data[12]	\x00
Data[13]	\x05
Data[14]	\x56
Data[15]	\x22
Data[16]	\x37
Data[17]	\x19
Data[18]	\x53
Checksum	\x09
Stop	\xff

- Description :

  Rename file1 to file2.
  - Only custom files can be renamed.
  - Only the base name of a file can be renamed. This means that file1 and file2 have to point to the same location (file1 and file2 must have the same "file index")

- Command :

Command[0]	\xc3

- Data :

  Old filename followed by the new filename (no wildcards allowed).

- Example :

  Rename the file "ntsc .c01" to "camera1 .c01" on a Cine VERSUM Master with address \x01.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\xc3
Data[0]	\x6e (= 'n')
Data[1]	\x74 (= 't')
Data[2]	\x73 (= 's')
Data[3]	\x63 (= 'c')
Data[4]	\x20 (= ' ')
Data[5]	\x20 (= ' ')
Data[6]	\x20 (= ' ')
Data[7]	\x20 (= ' ')
Data[8]	\x2e (= '.')
Data[9]	\x63 (= 'c')
Data[10]	\x30 (= '0')
Data[11]	\x31 (= '1')
Data[12]	\x00
Data[13]	\x63 (= 'c')
Data[14]	\x61 (= 'a')
Data[15]	\x6d (= 'm')
Data[16]	\x65 (= 'e')
Data[17]	\x72 (= 'r')
Data[18]	\x61 (= 'a')
Data[19]	\x31 (= '1')
Data[20]	\x20 (= ' ')
Data[21]	\x2e (= '.')
Data[22]	\x63 (= 'c')
Data[23]	\x30 (= '0')
Data[24]	\x31 (= '1')
Data[25]	\x00
Checksum	\x9a
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Write the contents of a file.
  - This command can be used to restore files that were previously backed up on your hard disk to your Cine VERSUM Master. See the command “file, read” for more information on how to backup files to your hard disk.
  - The file contents is compressed and Cine VERSUM Master-dependent. (It could even be version-dependent.)

- Command :

Command[0]	\xbe

- Data :

  Data[0..12] = filename.
  Data[13] = length of file contents (bytes)
  Data[14..] = file contents

- Example (imaginary) :

  Write the contents of the file "ntsc .c01" on a Cine VERSUM Master with address \x01.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\xbe
Data[0]	\x6e (= 'n')
Data[1]	\x74 (= 't')
Data[2]	\x73 (= 's')
Data[3]	\x63 (= 'c')
Data[4]	\x20 (= ' ')
Data[5]	\x20 (= ' ')
Data[6]	\x20 (= ' ')
Data[7]	\x20 (= ' ')
Data[8]	\x2e (= '.')
Data[9]	\x63 (= 'c')
Data[10]	\x30 (= '0')
Data[11]	\x31 (= '1')
Data[12]	\x00
Data[13]	\x05
Data[14]	\x56
Data[15]	\x22
Data[16]	\x37
Data[17]	\x19
Data[18]	\x53
Checksum	\x09
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Disable freeze.

- Command :

Command[0]	\x26
Command[1]	\x23

- Data :

  No data bytes.

- Example :

  Disable freeze on a Cine VERSUM Master with address \x01.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x26
Command[1]	\x23
Checksum	\x4a
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Enable freeze.

- Command :

Command[0]	\x27
Command[1]	\x23

- Data :

  No data bytes.

- Example :

  Enable freeze on a Cine VERSUM Master with address \x01.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x27
Command[1]	\x23
Checksum	\x4b
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Read the horizontal period in nanoseconds.

- Command :

Command[0]	\x21
Command[1]	\x5b

- Data :

  No data bytes.

- Return data :

  Data[0..3] = horizontal period in nanoseconds.

Data[0]	MSB of value
Data[1]	
Data[2]	
Data[3]	LSB of value

- Example :

  Read the horizontal period of the active source on a Cine VERSUM Master with address \x01. Suppose the active file is xga_60 with a horizontal period of 48360 ns.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x5b
Checksum	\x7d
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

Receive (answer)	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x5b
Data[0]	\x00
Data[1]	\x00
Data[2]	\xbc
Data[3]	\xe8
Checksum	\x21
Stop	\xff

- Description :

  Write the horizontal period in nanoseconds.

- Command :

Command[0]	\x20
Command[1]	\x5b

- Data :

  Data[0..3] = horizontal period in nanoseconds.

Data[0]	MSB of value
Data[1]	
Data[2]	
Data[3]	LSB of value

- Example :

  Set the horizontal period to 48360 ns (xga_60) on a Cine VERSUM Master with address \x01.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x20
Command[1]	\x5b
Data[0]	\x00
Data[1]	\x00
Data[2]	\xbc
Data[3]	\xe8
Checksum	\x20
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Read the actual value of interlaced.

- Command :

Command[0]	\x21
Command[1]	\x60

- Data :

  No data bytes.

- Return data :

  Data[0] = interlaced value.

	Data[0]
Not interlaced	\x00
Interlaced	\x01

- Example :

  Read the actual value of interlaced on a Cine VERSUM Master with address \x01. Suppose the signal is interlaced.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x60
Checksum	\x82
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

Receive (answer)	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x60
Data[0]	\x00
Checksum	\x82
Stop	\xff

- Description :

  Tell the Cine VERSUM Master the signal applied is not interlaced.

- Command :

Command[0]	\x26
Command[1]	\x60

- Data :

  No data bytes.

- Example :

  Define the signal as not interlaced on a Cine VERSUM Master with address \x01.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x26
Command[1]	\x60
Checksum	\x87
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Tell the Cine VERSUM Master the signal applied is interlaced.

- Command :

Command[0]	\x27
Command[1]	\x60

- Data :

  No data bytes.

- Example :

  Define the signal as interlaced on a Cine VERSUM Master with address \x01.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x27
Command[1]	\x60
Checksum	\x88
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Write an internaly generated pattern.

- Command :

Command[0]	\x41

- Data :

Convergence green

Data[0]	\x01

Convergence red/green

Data[0]	\x02

Convergence blue/green

Data[0]	\x03

Convergence red/blue/green

Data[0]	\x21
Data[1]	\x20

Hatch

Data[0]	\x04

Checkerboard

Data[0]	\x19

Color bars

Data[0]	\x1a

Multiburst

Data[0]	\x1b

Outline

Data[0]	\x1c

Alpha numeric characters

Data[0]	\x23

Page character

Data[0]	\x22
Data[1]	ascii code of an alphabetic character

Purity

Data[0]	\x20

To change the color of the purity pattern, use the command “overlay palette, write” and change palette entry 1.

Leveling pattern (coarse)

Data[0]	\x24
Data[1]	\x01 (red) or \x02 (green) or \x03 (blue)
Data[2]	\x01 (position 1) or \x02 (position 2) or \x03 (position 3) or \x04 (position 4) or \x05 (position 5) or \x06 (position 6)

Leveling pattern (fine)

Data[0]	\x25
Data[1]	\x01 (red) or \x02 (green) or \x03 (blue)
Data[2]	\x01 (position 1) or \x02 (position 2) or \x03 (position 3) or \x04 (position 4) or \x05 (position 5) or \x06 (position 6)
Data[3]	\x00..\x255 (“contrast” level)

Note :
All data bytes mentioned above can optionally be followed by an extra byte to indicate that the pattern must be inverted or not. (exception : Purity)

	Data[next]OPTIONAL
not inverted	\x00
inverted	\x01

- Example :

  Write the purity internal pattern on a Cine VERSUM Master with address \x01.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x41
Data[0]	\x20
Checksum	\x62
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Decrement the horizontal keystone.

- Command :

Command[0]	\x23
Command[1]	\x50

- Data :

  No data bytes.

- Example :

  Decrement the horizontal keystone on a Cine VERSUM Master with address \x01 by one.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x23
Command[1]	\x50
Checksum	\x74
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Increment the horizontal keystone.

- Command :

Command[0]	\x22
Command[1]	\x50

- Data :

  No data bytes.

- Example :

  Increment the horizontal keystone on a Cine VERSUM Master with address \x01 by one.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x22
Command[1]	\x50
Checksum	\x73
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Read the actual value of the horizontal keystone.

- Command :

Command[0]	\x21
Command[1]	\x50

- Data :

  No data bytes.

- Return data :

  Data[0..1] = value of the horizontal keystone.

Data[0]	MSB of value
Data[1]	LSB of value

- Example :

  Read the actual value of the horizontal keystone on a Cine VERSUM Master with address \x01. Suppose the horizontal keystone equals 0.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x50
Checksum	\x72
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

Receive (answer)	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x50
Data[0]	\x00
Data[1]	\x00
Checksum	\x72
Stop	\xff

- Description :

  Write a new value for the horizontal keystone.

- Command :

Command[0]	\x20
Command[1]	\x50

- Data :

  Data[0..1] = value of the horizontal keystone.

Data[0]	MSB of value
Data[1]	LSB of value

- Example :

  Set the horizontal keystone to 0 on a Cine VERSUM Master with address \x01.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x20
Command[1]	\x50
Data[0]	\x00
Data[1]	\x00
Checksum	\x71
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Read the language used for the on-screen-display.

- Command :

Command[0]	\x71

- Data :

  No data bytes.

- Return data :

  Data[0] = language.

Language	Data[0]
English	\x00
Dutch	\x01
French	\x02

- Example :

  Read the language used for the on-screen-display on a Cine VERSUM Master with address \x01. Suppose the language is "English".

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x71
Checksum	\x72
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

Receive (answer)	
Start	\xfe
CV Master	\x01
Command[0]	\x71
Data[0]	\x00
Checksum	\x72
Stop	\xff

- Description :

  Change the language used for the on-screen-display.

- Command :

Command[0]	\x70

- Data :

  Data[0] = language.

Language	Data[0]
English	\x00
Dutch	\x01
French	\x02

  .

- Example :

  Change the language used for the on-screen-display on a Cine VERSUM Master with address \x01 to "English (International)".

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x70
Data[0]	\x00
Checksum	\x71
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Decrement the active number of lines.

- Command :

Command[0]	\x23
Command[1]	\x59

- Data :

  No data bytes.

- Example :

  Decrement the active number of lines on a Cine VERSUM Master with address \x01 by one.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x23
Command[1]	\x59
Checksum	\x7d
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Increment the active number of lines.

- Command :

Command[0]	\x22
Command[1]	\x59

- Data :

  No data bytes.

- Example :

  Increment the active number of lines on a Cine VERSUM Master with address \x01 by one.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x22
Command[1]	\x59
Checksum	\x7c
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Read the active number of lines.

- Command :

Command[0]	\x21
Command[1]	\x59

- Data :

  No data bytes.

- Return data :

  Data[0..1] = active number of lines.

Data[0]	MSB of value
Data[1]	LSB of value

- Example :

  Read the active number of lines on a Cine VERSUM Master with address \x01. Suppose the active number of lines is 480 (\x01e0).

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x59
Checksum	\x7b
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

Receive (answer)	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x59
Data[0]	\x01
Data[1]	\xe0
Checksum	\x5c
Stop	\xff

- Description :

  Change the active number of lines.

- Command :

Command[0]	\x20
Command[1]	\x59

- Data :

  Data[0..1] = active number of lines.

Data[0]	MSB of value
Data[1]	LSB of value

- Example :

  Set the active number of lines to 480 (\x01e0) on a Cine VERSUM Master with address \x01.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x20
Command[1]	\x59
Data[0]	\x01
Data[1]	\xe0
Checksum	\x5b
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Decrement the value of line start.

- Command :

Command[0]	\x23
Command[1]	\x5a

- Data :

  No data bytes.

- Example :

  Decrement line start on a Cine VERSUM Master with address \x01 by one.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x23
Command[1]	\x5a
Checksum	\x7e
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Increment the value of line start.

- Command :

Command[0]	\x22
Command[1]	\x5a

- Data :

  No data bytes.

- Example :

  Increment line start on a Cine VERSUM Master with address \x01 by one.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x22
Command[1]	\x5a
Checksum	\x7d
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Read the value of line start.

- Command :

Command[0]	\x21
Command[1]	\x5a

- Data :

  No data bytes.

- Return data :

  Data[0..1] = line start.

Data[0]	MSB of value
Data[1]	LSB of value

- Example :

  Read the value of line start on a Cine VERSUM Master with address \x01. Suppose the value is 20 (\x0014).

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x5a
Checksum	\x7c
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

Receive (answer)	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x5a
Data[0]	\x00
Data[1]	\x14
Checksum	\x90
Stop	\xff

- Description :

  Change the value of line start.

- Command :

Command[0]	\x20
Command[1]	\x5a

- Data :

  Data[0..1] = line start.

Data[0]	MSB of value
Data[1]	LSB of value

- Example :

  Set the value of line start to 20 (\x0014) on a Cine VERSUM Master with address \x01.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x20
Command[1]	\x5a
Data[0]	\x00
Data[1]	\x14
Checksum	\x8f
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Decrement the total number of lines.

- Command :

Command[0]	\x23
Command[1]	\x58

- Data :

  No data bytes.

- Example :

  Decrement the total number of lines on a Cine VERSUM Master with address \x01 by one.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x23
Command[1]	\x58
Checksum	\x7c
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Increment the total number of lines.

- Command :

Command[0]	\x22
Command[1]	\x58

- Data :

  No data bytes.

- Example :

  Increment the total number of lines on a Cine VERSUM Master with address \x01 by one.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x22
Command[1]	\x58
Checksum	\x7b
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Read the total number of lines.

- Command :

Command[0]	\x21
Command[1]	\x58

- Data :

  No data bytes.

- Return data :

  Data[0..1] = total number of lines.

Data[0]	MSB of value
Data[1]	LSB of value

- Example :

  Read the total number of lines on a Cine VERSUM Master with address \x01. Suppose the total number of lines is 525 (\x020d).

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x58
Checksum	\x7a
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

Receive (answer)	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x58
Data[0]	\x02
Data[1]	\x0d
Checksum	\x89
Stop	\xff

- Description :

  Change the total number of lines.

- Command :

Command[0]	\x20
Command[1]	\x58

- Data :

  Data[0..1] = total number of lines.

Data[0]	MSB of value
Data[1]	LSB of value

- Example :

  Set the total number of lines to 525 (\x020d) on a Cine VERSUM Master with address \x01.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x20
Command[1]	\x58
Data[0]	\x02
Data[1]	\x0d
Checksum	\x88
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Read the actual phase value.

- Command :

Command[0]	\x21
Command[1]	\x06

- Data :

  No data bytes.

- Return data :

  Data[0..1] = phase value (MSB first)

- Example :

  Read the actual phase value on a Cine VERSUM Master with address \x01. Suppose the phase equals \x03.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x06
Checksum	\x28
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

Receive (answer)	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x06
Data[0]	\x00
Data[1]	\x03
Checksum	\x2b
Stop	\xff

- Description :

  Write a new phase value.

- Command :

Command[0]	\x20
Command[1]	\x06

- Data :

  Data[0..1] = phase value (MSB first)

- Example :

  Set the phase to \x03 on a Cine VERSUM Master with address \x01.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x20
Command[1]	\x06
Data[0]	\x00
Data[1]	\x03
Checksum	\x2a
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Read the source number of the source displayed in the pip window.

- Command :

Command[0]	\x21
Command[1]	\x88

- Data :

  No data bytes.

- Return data :

  Data[0] = source number.

- Example :

  Read the source number of the source displayed in the pip window on a Cine VERSUM Master with address \x01. Suppose it is source 1.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x88
Checksum	\xaa
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

Receive (answer)	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x88
Data[0]	\x01
Checksum	\xab
Stop	\xff

- Description :

  Read the status and screen position of the pip window.

- Command :

Command[0]	\x21
Command[1]	\x87

- Data :

  No data bytes.

- Return data :

  Data[0] = status.

Status	Data[0]
Off	\x00
On	\x01

Data[1..8] = screen position.
Data[1..8] is only returned when status is on !

Data[1,2]	x.MSB, x.LSB
Data[3,4]	y.MSB, y.LSB
Data[5,6]	w.MSB, w.LSB
Data[7,8]	h.MSB, h.LSB

where xy is top/left coordinate,
w is width and h is height of window

- Example :

  Read the pip window properties on a Cine VERSUM Master with address \x01. Suppose the pip window is disabled.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x87
Checksum	\xa9
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

Receive (answer)	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x87
Data[0]	\x00
Checksum	\xa9
Stop	\xff

- Description :

  Write a new position for the pip window. Also used to enable/disable the pip window.

- Command :

Command[0]	\x20
Command[1]	\x87

- Data :

Data[0] = status.

Status	Data[0]
Off	\x00
On	\x01

Data[1] = screen position (OPTIONAL).

Screen position	Data[1] OPTIONAL
Top/Left	\x00
Top/Right	\x01
Bottom/Left	\x02
Bottom/Right	\x03

or Data[1..8] = screen position (OPTIONAL).

Data[1,2]	x.MSB, x.LSB
Data[3,4]	y.MSB, y.LSB
Data[5,6]	w.MSB, w.LSB
Data[7,8]	h.MSB, h.LSB

where xy is top/left coordinate,
w is width and h is height of window

- Cine VERSUM Master type :

  The Cine VERSUM Master has to support pip.

- Example :

  Enable the pip window on a Cine VERSUM Master with address \x01 and position it in the top/left corner of the screen.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x20
Command[1]	\x87
Data[0]	\x01
Data[1]	\x00
Checksum	\xa9
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Decrement the active number of pixels.

- Command :

Command[0]	\x23
Command[1]	\x5d

- Data :

  No data bytes.

- Example :

  Decrement the active number of pixels on a Cine VERSUM Master with address \x01 by one.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x23
Command[1]	\x5d
Checksum	\x81
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Increment the active number of pixels.

- Command :

Command[0]	\x22
Command[1]	\x5d

- Data :

  No data bytes.

- Example :

  Increment the active number of pixels on a Cine VERSUM Master with address \x01 by one.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x22
Command[1]	\x5d
Checksum	\x80
	\x00
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Read the active number of pixels.

- Command :

Command[0]	\x21
Command[1]	\x5d

- Data :

  No data bytes.

- Return data :

  Data[0..1] = active number of pixels.

Data[0]	MSB of value
Data[1]	LSB of value

- Example :

  Read the active number of pixels on a Cine VERSUM Master with address \x01. Suppose the active number of pixels is 640 (\x0280).

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x5d
Checksum	\x7f
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

Receive (answer)	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x5d
Data[0]	\x02
Data[1]	\x80
	\x00
Checksum	\x01
Stop	\xff

- Description :

  Change the active number of pixels.

- Command :

Command[0]	\x20
Command[1]	\x5d

- Data :

  Data[0..1] = active number of pixels.

Data[0]	MSB of value
Data[1]	LSB of value

- Example :

  Set the active number of pixels to 640 (\x0280) on a Cine VERSUM Master with address \x01.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x20
Command[1]	\x5d
Data[0]	\x02
Data[1]	\x80
	\x00
Checksum	\x00
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Decrement the value of pixel start.

- Command :

Command[0]	\x23
Command[1]	\x5e

- Data :

  No data bytes.

- Example :

  Decrement pixel start on a Cine VERSUM Master with address \x01 by one.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x23
Command[1]	\x5e
Checksum	\x82
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Increment the value of pixel start.

- Command :

Command[0]	\x22
Command[1]	\x5e

- Data :

  No data bytes.

- Example :

  Increment pixel start on a Cine VERSUM Master with address \x01 by one.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x22
Command[1]	\x5e
Checksum	\x81
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Read the value of pixel start.

- Command :

Command[0]	\x21
Command[1]	\x5e

- Data :

  No data bytes.

- Return data :

  Data[0..1] = pixel start.

Data[0]	MSB of value
Data[1]	LSB of value

- Example :

  Read the value of pixel start on a Cine VERSUM Master with address \x01. Suppose the value is 20 (\x0014).

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x5e
Checksum	\x80
	\x00
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

Receive (answer)	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x5e
Data[0]	\x00
Data[1]	\x14
Checksum	\x94
Stop	\xff

- Description :

  Change the value of pixel start.

- Command :

Command[0]	\x20
Command[1]	\x5e

- Data :

  Data[0..1] = pixel start.

Data[0]	MSB of value
Data[1]	LSB of value

- Example :

  Set the value of pixel start to 20 (\x0014) on a Cine VERSUM Master with address \x01.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x20
Command[1]	\x5e
Data[0]	\x00
Data[1]	\x14
Checksum	\x93
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Decrement the total number of pixels.

- Command :

Command[0]	\x23
Command[1]	\x5c

- Data :

  No data bytes.

- Example :

  Decrement the total number of pixels on a Cine VERSUM Master with address \x01 by one.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x23
Command[1]	\x5c
Checksum	\x80
	\x00
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Increment the total number of pixels.

- Command :

Command[0]	\x22
Command[1]	\x5c

- Data :

  No data bytes.

- Example :

  Increment the total number of pixels on a Cine VERSUM Master with address \x01 by one.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x22
Command[1]	\x5c
Checksum	\x7f
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Read the total number of pixels.

- Command :

Command[0]	\x21
Command[1]	\x5c

- Data :

  No data bytes.

- Return data :

  Data[0..1] = total number of pixels.

Data[0]	MSB of value
Data[1]	LSB of value

- Example :

  Read the total number of pixels on a Cine VERSUM Master with address \x01. Suppose the total number of pixels is 800 (\x0320).

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x5c
Checksum	\x7e
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

Receive (answer)	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x5c
Data[0]	\x03
Data[1]	\x20
Checksum	\xa1
Stop	\xff

- Description :

  Change the total number of pixels.

- Command :

Command[0]	\x20
Command[1]	\x5c

- Data :

  Data[0..1] = total number of pixels.

Data[0]	MSB of value
Data[1]	LSB of value

- Example :

  Set the total number of pixels to 800 (\x0320) on a Cine VERSUM Master with address \x01.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x20
Command[1]	\x5c
Data[0]	\x03
Data[1]	\x20
Checksum	\xa0
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Decrement the horizontal shift.

- Command :

Command[0]	\x23
Command[1]	\x47

- Data :

  No data bytes.

- Example :

  Decrement the horizontal shift on a Cine VERSUM Master with address \x01 by one.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x23
Command[1]	\x47
Checksum	\x6b
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Increment the horizontal shift.

- Command :

Command[0]	\x22
Command[1]	\x47

- Data :

  No data bytes.

- Example :

  Increment the horizontal shift on a Cine VERSUM Master with address \x01 by one.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x22
Command[1]	\x47
Checksum	\x6a
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Read the actual value of the horizontal shift.

- Command :

Command[0]	\x21
Command[1]	\x47

- Data :

  No data bytes.

- Return data :

  Data[0..1] = value of the horizontal shift.

Data[0]	MSB of value
Data[1]	LSB of value

- Example :

  Read the actual value of the horizontal shift on a Cine VERSUM Master with address \x01. Suppose the horizontal shift equals 0.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x47
Checksum	\x69
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

Receive (answer)	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x47
Data[0]	\x00
Data[1]	\x00
Checksum	\x69
Stop	\xff

- Description :

  Write a new value for the horizontal shift.

- Command :

Command[0]	\x20
Command[1]	\x47

- Data :

  Data[0..1] = value of the horizontal shift.

Data[0]	MSB of value
Data[1]	LSB of value

- Example :

  Set the horizontal shift to 0 on a Cine VERSUM Master with address \x01.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x20
Command[1]	\x47
Data[0]	\x00
Data[1]	\x00
Checksum	\x68
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Decrement the vertical shift.

- Command :

Command[0]	\x23
Command[1]	\x48

- Data :

  No data bytes.

- Example :

  Decrement the vertical shift on a Cine VERSUM Master with address \x01 by one.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x23
Command[1]	\x48
Checksum	\x6c
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Increment the vertical shift.

- Command :

Command[0]	\x22
Command[1]	\x48

- Data :

  No data bytes.

- Example :

  Increment the vertical shift on a Cine VERSUM Master with address \x01 by one.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x22
Command[1]	\x48
Checksum	\x6b
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Read the actual value of the vertical shift.

- Command :

Command[0]	\x21
Command[1]	\x48

- Data :

  No data bytes.

- Return data :

  Data[0..1] = value of the vertical shift.

Data[0]	MSB of value
Data[1]	LSB of value

- Example :

  Read the actual value of the vertical shift on a Cine VERSUM Master with address \x01. Suppose the vertical shift equals 0.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x48
Checksum	\x6a
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

Receive (answer)	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x48
Data[0]	\x00
Data[1]	\x00
Checksum	\x6a
Stop	\xff

- Description :

  Write a new value for the vertical shift.

- Command :

Command[0]	\x20
Command[1]	\x48

- Data :

  Data[0..1] = value of the vertical shift.

Data[0]	MSB of value
Data[1]	LSB of value

- Example :

  Set the vertical shift to 0 on a Cine VERSUM Master with address \x01.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x20
Command[1]	\x48
Data[0]	\x00
Data[1]	\x00
Checksum	\x69
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Decrement the horizontal size.

- Command :

Command[0]	\x23
Command[1]	\x49

- Data :

  No data bytes.

- Example :

  Decrement the horizontal size on a Cine VERSUM Master with address \x01 by one.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x23
Command[1]	\x49
Checksum	\x6d
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Increment the horizontal size.

- Command :

Command[0]	\x22
Command[1]	\x49

- Data :

  No data bytes.

- Example :

  Increment the horizontal size on a Cine VERSUM Master with address \x01 by one.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x22
Command[1]	\x49
Checksum	\x6c
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Read the actual value of the horizontal size.

- Command :

Command[0]	\x21
Command[1]	\x49

- Data :

  No data bytes.

- Return data :

  Data[0..1] = value of the horizontal size.

Data[0]	MSB of value
Data[1]	LSB of value

- Example :

  Read the actual value of the horizontal size on a Cine VERSUM Master with address \x01. Suppose the horizontal size equals 0.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x49
Checksum	\x6b
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

Receive (answer)	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x49
Data[0]	\x00
Data[1]	\x00
Checksum	\x6b
Stop	\xff

- Description :

  Write a new value for the horizontal size.

- Command :

Command[0]	\x20
Command[1]	\x49

- Data :

  Data[0..1] = value of the horizontal size.

Data[0]	MSB of value
Data[1]	LSB of value

- Example :

  Set the horizontal size to 0 on a Cine VERSUM Master with address \x01.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x20
Command[1]	\x49
Data[0]	\x00
Data[1]	\x00
Checksum	\x6a
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Decrement the vertical size.

- Command :

Command[0]	\x23
Command[1]	\x4a

- Data :

  No data bytes.

- Example :

  Decrement the vertical size on a Cine VERSUM Master with address \x01 by one.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x23
Command[1]	\x4a
Checksum	\x6e
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Increment the vertical size.

- Command :

Command[0]	\x22
Command[1]	\x4a

- Data :

  No data bytes.

- Example :

  Increment the vertical size on a Cine VERSUM Master with address \x01 by one.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x22
Command[1]	\x4a
Checksum	\x6d
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Read the actual value of the vertical size.

- Command :

Command[0]	\x21
Command[1]	\x4a

- Data :

  No data bytes.

- Return data :

  Data[0..1] = value of the vertical size.

Data[0]	MSB of value
Data[1]	LSB of value

- Example :

  Read the actual value of the vertical size on a Cine VERSUM Master with address \x01. Suppose the vertical size equals 0.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x4a
Checksum	\x6c
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

Receive (answer)	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x4a
Data[0]	\x00
Data[1]	\x00
Checksum	\x6c
Stop	\xff

- Description :

  Write a new value for the vertical size.

- Command :

Command[0]	\x20
Command[1]	\x4a

- Data :

  Data[0..1] = value of the vertical size.

Data[0]	MSB of value
Data[1]	LSB of value

- Example :

  Set the vertical size to 0 on a Cine VERSUM Master with address \x01.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x20
Command[1]	\x4a
Data[0]	\x00
Data[1]	\x00
Checksum	\x6b
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Read the type of software installed in the Cine VERSUM Master.

- Command :

Command[0]	\x6a

- Data :

  No data bytes.

- Return data :

  The return data-transfer being the software type is a pascal-language string (see syntax).

- Example :

  Read the software type on a Cine VERSUM Master with address \x01. Suppose the lanuage is 'STANDARD'.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x6a
Checksum	\x6b
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

Receive (answer)	
Start	\xfe
CV Master	\x01
Command[0]	\x6a
Data[0]	\x08
Data[1]	\x53 (= 'S')
Data[2]	\x54 (= 'T')
Data[3]	\x41 (= 'A')
Data[4]	\x4e (= 'N')
Data[5]	\x44 (= 'D')
Data[6]	\x41 (= 'A')
Data[7]	\x52 (= 'R')
Data[8]	\x44 (= 'D')
Checksum	\xc4
Stop	\xff

- Description :

  Read the version of the software.

- Command :

Command[0]	\x60

- Data :

  No data bytes.

- Return data :

  The return data-transfer being the software version is a pascal-language string (see syntax).

- Example :

  Read the software version on a Cine VERSUM Master with address \x01. Suppose the version number is '1.02'.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x60
Checksum	\x61
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

Receive (answer)	
Start	\xfe
CV Master	\x01
Command[0]	\x60
Data[0]	\x04
Data[1]	\x31 (= '1')
Data[2]	\x2e (= '.')
Data[3]	\x30 (= '0')
Data[4]	\x32 (= '2')
Checksum	\x26
Stop	\xff

- Description :

  Set text off (identical to TEXT button on infrared remote control).

- Command :

Command[0]	\x0e

- Data :

  No data bytes.

- Example :

  Set text off on a Cine VERSUM Master with address \x01.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x0e
Checksum	\x0f
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Set text on (identical to TEXT button on infrared remote control).

- Command :

Command[0]	\x0d

- Data :

  No data bytes.

- Example :

  Set text on on a Cine VERSUM Master with address \x01.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x0d
Checksum	\x0e
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Read the actual tint value.
  (only active when the internal decoder is used and the signal is NTSC).

- Command :

Command[0]	\x21
Command[1]	\x04

- Data :

  No data bytes.

- Return data :

  Data[0] = tint value.

- Note :

  This command is only active when the internal decoder is used and the signal is NTSC.

- Example :

  Read the actual tint value on a Cine VERSUM Master with address \x01. Suppose the tint equals 0.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x04
Checksum	\x26
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

Receive (answer)	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x04
Data[0]	\x00
Checksum	\x26
Stop	\xff

- Description :

  Write a new tint value.

- Command :

Command[0]	\x20
Command[1]	\x04

- Data :

  Data[0] = tint value.

- Note :

  This command is only active when the internal decoder is used and the signal is NTSC.

- Example :

  Set the tint to 0 on a Cine VERSUM Master with address \x01.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x20
Command[1]	\x04
Data[0]	\x00
Checksum	\x25
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Read the actual value of the vertical refresh.

- Command :

Command[0]	\x21
Command[1]	\x61

- Data :

  No data bytes.

- Return data :

  Data[0] = value of the vertical refresh.

	Data[0]
Sync	\x00
Async	\x01

- Example :

  Read the actual value of the vertical refresh on a Cine VERSUM Master with address \x01. Suppose the vertical refresh is synchronous.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x61
Checksum	\x83
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

Receive (answer)	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x61
Data[0]	\x00
Checksum	\x83
Stop	\xff

- Description :

  Set the vertical refresh to synchronous.

- Command :

Command[0]	\x26
Command[1]	\x61

- Data :

  No data bytes.

- Example :

  Set the vertical refresh to synchronous on a Cine VERSUM Master with address \x01.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x26
Command[1]	\x61
Checksum	\x88
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Set the vertical refresh to asynchronous.

- Command :

Command[0]	\x27
Command[1]	\x61

- Data :

  No data bytes.

- Example :

  Set the vertical refresh to asynchronous on a Cine VERSUM Master with address \x01.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x27
Command[1]	\x61
Checksum	\x89
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Read the actual value of the vertical sync polarity.

- Command :

Command[0]	\x21
Command[1]	\x64

- Data :

  No data bytes.

- Return data :

  Data[0] = value of the vertical sync polarity.

	Data[0]
Leading	\x00
Trailing	\x01

- Example :

  Read the actual value of the vertical sync polarity on a Cine VERSUM Master with address \x01. Suppose the vertical sync polarity is leading.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x64
Checksum	\x86
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

Receive (answer)	
Start	\xfe
CV Master	\x01
Command[0]	\x21
Command[1]	\x64
Data[0]	\x00
Checksum	\x86
Stop	\xff

- Description :

  Set the vertical sync polarity to leading.

- Command :

Command[0]	\x26
Command[1]	\x64

- Data :

  No data bytes.

- Example :

  Set the vertical sync polarity to leading on a Cine VERSUM Master with address \x01.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x26
Command[1]	\x64
Checksum	\x8b
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff

- Description :

  Set the vertical sync polarity to trailing.

- Command :

Command[0]	\x27
Command[1]	\x64

- Data :

  No data bytes.

- Example :

  Set the vertical sync polarity to trailing on a Cine VERSUM Master with address \x01.

Transmit	
Start	\xfe
CV Master	\x01
Command[0]	\x27
Command[1]	\x64
Checksum	\x8c
Stop	\xff

Receive (acknowledge)	
Start	\xfe
CV Master	\x01
Command[0]	\x00
Command[1]	\x06
Checksum	\x07
Stop	\xff