F50-series, Orion-series, CT-series

ASCII Commands Protocol Reference Manual

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BARCO

Visibly yours

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1. COMMUNICATION SETTINGS

Overview

- Set up LAN Communication
- Set up RS232 communication

1.1 Set up LAN Communication

General

The supported RS232 settings are as follows:

Parameter	Data
Baud rate	19200
Data bits	8
Parity	None. There is no parity bit used to perform error checking.
Stop bits	1. One stop bit is used to define the end of a character.
Flow control	None.

General

The default settings of the projector when shipped are as follows:

Description	Value
DHCP	On
IP address	0.0.0.0
Subnet mask	0.0.0.0
Default gateway	0.0.0.0
TCP/UDP port	1025

Input IP settings on the projector

Before you connect the projector to your LAN make sure that the IP settings are set correctly, according to your LAN configuration.

IP settings can be changed using the projector On Screen Display (OSD) Settings menu.

Set up can be done automatically using DHCP (Dynamic Host Configuration Protocol). When DHCP is enabled, it may take up to a minute for the projector to receive IP settings from the DHCP server. The IP address will be updated and shown in the OSD. If there is no DHCP server in the network the projector will be assigned a “zero configuration” address, 169.254.0.0/16.

Alternatively, DHCP can be manually disabled and the user can manually input the projector IP address, Subnet mask and Gateway in the LAN network menu of the OSD.

To renew an IP address, select “renew” in the OSD LAN settings menu.

Connect the projector and the host

As soon as the projector IP settings are set correctly, you can physically connect the selected host, for example a computer, and the projector. This can be done in two ways:

- use a crossover twisted pair (TP) cable directly from the computer to the projector
- use two straight-through TP cables with a HUB or a switch between them

1.2 Set up RS232 communication

Connect to the projector

Connect the projector and host using a standard straight through serial cable (host : female, projector : male).

Pin 2 connects to Pin 2, Pin 3 connects to Pin 3, and Pin 5 connects to Pin 5.

Maximum length of the RS-232 cable is 15.25m (50ft).

2. COMMUNICATION PROTOCOL DEFINITIONS

About

This section describes the definitions used in the communications protocol. When the projectors are connected to either RS232 or LAN you can control the projectors through this ASCII based protocol.

Some commands will generate OSD feedback. This can be stopped by turning off the OSD from the projector's menu system or by setting "OSDC" to value 0 (OSD off) or value 1 (OSD show only warnings).

Overview

- Timing
- Serial Communications Protocol
- Examples

2.1 Timing

General timing constraints

Behavior	Constraint
Power on (wake from standby)	At least 30 seconds wait after power up complete before sending next command
Command	Response required before sending next command
No response received	At least 2 seconds before re-sending if no response received
Between commands	Minimum 500 ms delay required between commands
After sending 20 commands	Minimum 5 seconds delay required

2.2 Serial Communications Protocol

Definitions

Like every communication method the serial communication uses a particular protocol (ANSI) which must be respected in order to allow communication to take place.

The header is ASCII colon ':' character.

Use of a separator is optional in the command protocol. The protocol accepts one ASCII SPACE between fields, or no ASCII SPACE between fields.

All acknowledgement protocol use an ASCII SPACE (single) as a separator.

The terminator is ASCII value carriage return (CR)/hex value 0x0D.

The following table gives a summary of the predefined communication terms.

	Header	Message body	Terminator
Limitations	1 byte	N bytes	1 byte
Definition	ASCII colon **:**	Mnemonic Modifier Value Target	Carriage Return (Hex 0x0D)
Example	**:**	**POWR1**	**CR**

Header

The header informs the projector (in case of transmission) or the computer (in case of reception) that a new data transfer will take place.

Message body

The message body defines the action to be performed. The message body is built up of several fields:

	Mnemonic	Modifier	Value	Target
Limitations	4 bytes	1 byte	N bytes, max 6 bytes	N bytes, max 4
Inclusion	Required	Optional	Optional	Optional
Example	`POWR`	`A`	`1`	`CR`

Mnemonic bytes (4 bytes)

The mnemonic is a 4 byte ASCII command (key identifier). This is required in all serial communications.

Modifier byte (1–2 bytes)

The modifier is used to constrain or modify the mnemonic command.

Modifier	Description
R	Relative change. Given value will be relative to existing value. e.g. BRIG10 will increase brightness by 10 steps.
A	Not normally used. Manually request acknowledgement/read back the result of the command.
?	Get current value
?M	Get maximum value
?N	Get minimum value
?D	Get default value
?S	Get default step value

Terminator

The terminator informs the projector (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.

Acknowledgement

If the command is understood by the projector then an 'ACK' command is sent back. The 'ACK' command uses the following protocol:

	Ack.	Address	Separator	Command	Separator	Value	Terminator
Limitations	1 byte	1–3 bytes	1 byte	4 bytes	1 byte	6 bytes	1 byte
Definition	ASCII %	Projector address	ASCII space	Mnemonic	ASCII space	Numeric value	Carriage Return (Hex 0x0D)
Example	`%`	`001`	`Space`	`POWR`	`Space`	`000001`	`CR`

Some commands could return a value that is more than 6 bytes, for example, strings. This is identified by the acknowledgement including the alphanumeric value 'eXXXXX'.

Address functionality is no longer used. Address bytes will always be `001`.

For example:

```
> :seri ?
> %001 SERI e00001 07010001
```

Invalid command

If the input command is not valid, then the projector acknowledgement may include an error message in the value field.

	Ack.	Address	Separator	Command	Separator	Value	Terminator
Limitations	1 byte	1–3 bytes	1 byte	4 bytes	1 byte	6 bytes	1 byte
Definition	ASCII %	Projector address	ASCII space	Mnemonic	ASCII space	Numeric value of error	Carriage Return (Hex 0x0D)
Example	`%`	`001`	`Space`	`POWR`	`Space`	`!00001`	`CR`

Error code	Error message	Description
!00001	Access denied	User does not have sufficient access rights to perform this command.

Error code	Error message	Description
!00002	Not available	Logic conflict prevents command being available. For example, contrast is not available when the projector is searching for sources.
!00003	Not implemented	Command not available for this projector configuration. See relevant comments section in ASCII commands for information.
!00004	Value out of range	Value is not within valid range.

2.3 Examples

SET commands

Command	Description
`:POWR1'CR'`	Set power on
`%001 POWR 000001'CR'`	Acknowledge power on

Command	Description
`:BRIG 60'CR'`	Set brightness to 60
`%001 BRIG 000060'CR'`	Acknowledge brightness

Command	Description
`:CNTR R1'CR'`	Increase contrast
`%001 CNTR 000061'CR'`	Acknowledge increase contrast

Command	Description
`:CNTR R-2'CR'`	Decrease contrast
`%001 CNTR 000059'CR'`	Acknowledge decrease contrast

SET commands with target

Command	Description
`:TATB 1 3'CR'`	Set aspect trigger behavior 16:10 to off
`%001 TATB 000001'CR'`	Acknowledge set aspect trigger behavior 16:10 to off

GET commands

Command	Description
`:CNTR?'CR'`	Get current value contrast
`%001 CNTR 000059'CR'`	Acknowledge get current value contrast

Command	Description
`:BRIG ?N'CR'`	Get minimum value brightness
`%001 CNTR 000000'CR'`	Acknowledge get minimum value brightness

GET commands with target

Command	Description
`:TATB ? 3`	Get aspect trigger behavior 16:10
`%001 TATB 000001 'CR'`	Acknowledge get aspect trigger behavior 16:10

Command	Description	Platform	Operations supported	Value	Target	Comments
Power						
POWR	Power	GP9	Get, Set	0 - power off, 1 - power on		
POST	Power state	GP9	Get	See value table POST		
Source selection						
IABS	Set source abs values	GP9	Get, Set	See value table IABS		
IVGA	Select VGA	GP9	Get, Set			
IDVI	Select DVI	GP9	Get, Set			
IHDM	Select HDMI	GP9	Get, Set			
IDIP	DisplayPort	GP9	Get, Set	1 - DisplayPort 1, 2 - DisplayPort 2		
IHDB	HDBaseT	GP9	Get, Set			
ISDI	SDI	GP9	Get, Set	1 - SDI 1, 2 - SDI 2		
ISTS	Signal Status	GP9	Get	0 - searching; 1 - locked to source		
3D						
TDSM	3D	GP9	Get, Set	See value table TDSM		
TDGT	Glass type	GP9	Get, Set	0 - DLP Link™, 1 - IR		
TDGD	Genlock phase delay	GP9	Get, Set			
TDSE	Swap eyes	GP9	Get, Set	0 - off, 1 - on		
3D->Dual head setup						
IABS	Set source abs value for left eye	GP9		See value table IABS	0	
IABS	Set source abs value for right eye	GP9		See value table IABS	1	

Picture						
PRES	Select profile	GP9	Get, Set	See value table PRES		
GABS	Set Gamma abs value	GP9	Get, Set	See value table GABS		
GAFI	Select Gamma Film	GP9	Get, Set	1 - Film 2.2, 2 - Film 2.6, 3 - Film 2.4, 4 - Film 2.8		
GAVI	Select Gamma Video	GP9	Get, Set	1 - Video 1, 2 - Video2		
GACO	Select Gamma Computer	GP9	Get, Set	1 - Computer 1, 2 - Computer 2		
LPW1	Lamp Power	GP9	Get, Set			
RESP	Select profile to reset	GP9	Get, Set	0 - current profile, 1 - all profiles	1	
RESP	Reset selected profile	GP9	Get, Set		0	
ENAP	Enable power user profiles	GP9	Get, Set	0 - disable, 1 - enable		
BRIG	Brightness	GP9	Get, Set			
CNTR	Contrast	GP9	Get, Set			
CSAT	Saturation	GP9	Get, Set			
SABS	Set Scaling abs value	GP9	Get, Set	See value table SABS		
S1T1	Select Scaling 1:1	GP9	Get, Set			
S169	Select Scaling 16:9	GP9	Get, Set			
SS43	Select Scaling 4:3	GP9	Get, Set			
SFLA	Select Scaling Fill All	GP9	Get, Set			
SFAR	Select Scaling Fill Aspect Ratio	GP9	Get, Set			
S235	Select Scaling Fill 2.35:1	GP9	Get, Set			
PRST	Picture Reset	GP9	Get, Set			
PMUT	Picture Mute	GP9	Get, Set	0 - disable, 1 - enable		
AUTO	Auto adjust current source	GP9	Set			
FRZE	Freeze Image	GP9	Get, Set	0 - disable, 1 - enable		Not implemented
Picture->RealColor						
BCCR	BrilliantColor Control	GP9	Get, Set	See value table BCCR		
CMOD	Color Management Enable	GP9	Get, Set	0 - disable, 1- enable		
CMWH	Color Management White	GP9	Get, Set	0 - temperature, 1 - coordinate		
CMTV	Color Management Temperature	GP9	Get, Set	3200 - 9300		
CMXV	Color Management X-Coord	GP9	Get, Set			
CMYV	Color Management Y-Coord	GP9	Get, Set			
RD65	Reset to D65	GP9	Set			
RWHN	Reset white point to native	GP9	Set			

Picture->RealColor->desired values						
DSCR	Desired Coords Mode	GP9	Get, Set	See value table DSCR		
BAGA	Balanced Gains	GP9	Get, Set	0 - disable, 1- enable		
DSRX	Desired Red X	GP9	Get, Set			
DSRY	Desired Red Y	GP9	Get, Set			
DSRG	Desired Red Gain	GP9	Get, Set			
DSGX	Desired Green X	GP9	Get, Set			
DSGY	Desired Green Y	GP9	Get, Set			
DSGG	Desired Green Gain	GP9	Get, Set			
DSBX	Desired Blue X	GP9	Get, Set			
DSBY	Desired Blue Y	GP9	Get, Set			
DSBG	Desired Blue Gain	GP9	Get, Set			
DSCX	Desired Cyan X	GP9	Get, Set			
DSCY	Desired Cyan Y	GP9	Get, Set			
DSCG	Desired Cyan Gain	GP9	Get, Set			
DSMX	Desired Magenta X	GP9	Get, Set			
DSMY	Desired Magenta Y	GP9	Get, Set			
DSMG	Desired Magenta Gain	GP9	Get, Set			
DSYX	Desired Yellow X	GP9	Get, Set			
DSYY	Desired Yellow Y	GP9	Get, Set			
DSYG	Desired Yellow Gain	GP9	Get, Set			
DSWX	Desired White X	GP9	Get, Set			
DSWY	Desired White Y	GP9	Get, Set			
DSWG	Desired White Gain	GP9	Get, Set			
RCMN	Reset desired values to native	GP9	Set			
Service->factory RealColor->factory desired values						
DFRX	Factory Desired Red X	GP9	Get, Set			
DFRY	Factory Desired Red Y	GP9	Get, Set			
DFRG	Factory Desired Red Gain	GP9	Get, Set			
DFGX	Factory Desired Green X	GP9	Get, Set			
DFGY	Factory Desired Green Y	GP9	Get, Set			
DFGG	Factory Desired Green Gain	GP9	Get, Set			
DFBX	Factory Desired Blue X	GP9	Get, Set			
DFBY	Factory Desired Blue Y	GP9	Get, Set			
DFBG	Factory Desired Blue Gain	GP9	Get, Set			
DFCX	Factory Desired Cyan X	GP9	Get, Set			
DFCY	Factory Desired Cyan Y	GP9	Get, Set			
DFCG	Factory Desired Cyan Gain	GP9	Get, Set			

DFMX	Factory Desired Magenta X	GP9	Get, Set			
DFMY	Factory Desired Magenta Y	GP9	Get, Set			
DFMG	Factory Desired Magenta Gain	GP9	Get, Set			
DFYX	Factory Desired Yellow X	GP9	Get, Set			
DFYY	Factory Desired Yellow Y	GP9	Get, Set			
DFYG	Factory Desired Yellow Gain	GP9	Get, Set			
DFWX	Factory Desired White X	GP9	Get, Set			
DFWY	Factory Desired White Y	GP9	Get, Set			
DFWG	Factory Desired White Gain	GP9	Get, Set			
Picture->RealColor calibration						
CMTP	Color calibration test image	GP9	Get, Set	See value table CMTP		
CMPP	Color processed test image	GP9	Get, Set	See value table CMPP		
Picture->RealColor calibration->measured values						
MSWX	Measured White X	GP9	Get, Set			
MSWY	Measured White Y	GP9	Get, Set			
MSWL	Measured White Luminance	GP9	Get			
MSRX	Measured Red X	GP9	Get, Set			
MSRY	Measured Red Y	GP9	Get, Set			
MSRL	Measured Red Luminance	GP9	Get, Set			
MSGX	Measured Green X	GP9	Get, Set			
MSGY	Measured Green Y	GP9	Get, Set			
MSGL	Measured Green Luminance	GP9	Get, Set			
MSBX	Measured Blue X	GP9	Get, Set			
MSBY	Measured Blue Y	GP9	Get, Set			
MSBL	Measured Blue Luminance	GP9	Get, Set			
MSDX	Measured BC1 X	GP9	Get, Set			
MSDY	Measured BC1 Y	GP9	Get, Set			
MSDL	Measured BC1 Luminance	GP9	Get, Set			
MSEX	Measured BC2 X	GP9	Get, Set			
MSEY	Measured BC2 Y	GP9	Get, Set			
MSEL	Measured BC2 Luminance	GP9	Get, Set			

Service->factory RealColor->factory measured values						
MFWX	Factory Measured White X	GP9	Get, Set			
MFWY	Factory Measured White Y	GP9	Get, Set			
MFWL	Factory Measured White Luminance	GP9	Get			
MFRX	Factory Measured Red X	GP9	Get, Set			
MFRY	Factory Measured Red Y	GP9	Get, Set			
MFRL	Factory Measured Red Luminance	GP9	Get, Set			
MFGX	Factory Measured Green X	GP9	Get, Set			
MFGY	Factory Measured Green Y	GP9	Get, Set			
MFGL	Factory Measured Green Luminance	GP9	Get, Set			
MFBX	Factory Measured Blue X	GP9	Get, Set			
MFBY	Factory Measured Blue Y	GP9	Get, Set			
MFBL	Factory Measured Blue Luminance	GP9	Get, Set			
Picture->Advanced						
HPOS	Horizontal positon	GP9	Get, Set	For VGA only		
VPOS	Vertical position	GP9	Get, Set	For VGA only		
PHSE	Phase	GP9	Get, Set	For VGA only		
FREQ	Frequency	GP9	Get, Set	For VGA only		
DCSP	Color Space	GP9	Get, Set	0 - auto, 1 - RGB, 2 - YCbCr 709, 3 - YCbCr 601		
DVST	Input Level	GP9	Get, Set	0 - auto, 1 - computer, 2 - video		
Picture->Advanced->source correction						
IBCO	Individual brightness and contrast offset adjustments	GP9	Get, Set	0 - disable, 1 - enable		Not implemented
BOR0	Brightness offset red	GP9	Get, Set			
BOG0	Brightness offset green	GP9	Get, Set			
BOB0	Brightness offset blue	GP9	Get, Set			
COR0	Contrast offset red	GP9	Get, Set			
COG0	Contrast offset green	GP9	Get, Set			
COB0	Contrast offset blue	GP9	Get, Set			
ACAL	AD calibration	GP9	Set			

Installation						
ORIE	Select Orientation abs value	GP9	Get, Set	See value table ORIE		
DESK	Select Orientation Desktop Front	GP9	Get, Set			
CEIL	Select Orientation Ceiling Front	GP9	Get, Set			
RDES	Select Orientation Desktop Rear	GP9	Get, Set			
RCEI	Select Orientation Ceiling Rear	GP9	Get, Set			
SCAN	Source Scan	GP9	Get, Set	0 - disable, 1 - enable		
IR01	IR front Enable	GP9	Get, Set	0 - disable, 1 - enable		
IR02	IR rear Enable	GP9	Get, Set	0 - disable, 1 - enable		
OSDC	OSD Enable	GP9	Get, Set	See value table OSDC		
TEST	Test Image	GP9	Get, Set	0 - off, 1 - 7 different test patterns		
SVGA	Sync termination VGA	GP9	Get, Set	0 - 2.2kOhm, 1 - 75Ohm		
SSY1	Sync termination SYNC1	GP9	Get, Set	0 - 2.2kOhm, 1 - 75Ohm		
SSY2	Sync termination SYNC2	GP9	Get, Set	0 - 2.2kOhm, 1 - 75Ohm		
SSY3	Sync termination SYNC3	GP9	Get, Set	0 - 2.2kOhm, 1 - 75Ohm		
DPE1	DisplayPort 1 eq	GP9	Get, Set	0 - normal, 1 - high		
DPE2	DisplayPort 2 eq	GP9	Get, Set	0 - normal, 1 - high		
DHED	Picture by picture	GP9	Get, Set	0 - disable, 1 - enable		
EDIR	EDID resolution	GP9	Get, Set	See value table EDIR		
EDIT	EDID type	GP9	Get, Set	See value table EDIT		
Installation->synchronization						
FLSO	2D frame lock source	GP9	Get, Set	0 - source, 1 - SYNC1, 2 - SYNC 2, 3 - SYNC 3		
FLO1	SYNC 1 2D output mode	GP9	Get, Set			
FLO2	SYNC 2 2D output mode	GP9	Get, Set			
FLO3	SYNC 3 2D output mode	GP9	Get, Set			
TSLR	3D source sync	GP9	Get, Set			
TDLR	3D display sync	GP9	Get, Set			
TBO1	SYNC 1 3D output mode	GP9	Get, Set			
TBO2	SYNC 2 3D output mode	GP9	Get, Set			
TBO3	SYNC 3 3D output mode	GP9	Get, Set			
FLST	Frame Lock Status	GP9	Get			Print current Frame Lock status

Settings						
FCRE	Factory Reset	GP9	Set			
FCRL	Factory reset level	GP9	Get, Set	0 - limited, 1 - full		
PINC	PIN Code	GP9	Set			Must be executed in standby
DHCP	DHCP enable change	GP9	Get, Set			
ETAP	Ethernet apply changes	GP9	Set			
CODE	Service Code	GP9	Set			
RCID	RCID Internal	GP9	Get, Set	0 - 99		
ECOP	standby ECO mode	GP9	Get, Set	0 - disable, 1 - enable		
DPMS	DPMS	GP9	Get, Set	0 - disable, 1 - enable		
DPMT	DPMS Timeout	GP9	Get, Set			in minutes
LMUT	LED indicators mute	GP9	Get, Set	0 - off, 1 - on		
MNUT	Menu Timeout	GP9	Get, Set	See value table MNUT		
BACK	Background color	GP9	Get, Set	0- white, 1 - gray, 2 - black		
SPLH	Splash	GP9	Get, Set	0 - black, 1 - logo		
BAUD	Baud rate	GP9	Get, Set	See value table BAUD		
Language						
LANG	Language	GP9	Get, Set	See value table LANG		
Status						
PART	Part Number String	GP9	Get			Extended Protocol
SERI	Serial Number String	GP9	Get			Extended Protocol
MAYR	Manufacture Year	GP9	Get			Extended Protocol
MAWE	Manufacture Week	GP9	Get			
SVER	Software Version	GP9	Get			
CWT1	Color wheel type	GP9	Get			
LRM1	Lamp1 Estimated Remaining Lamp Time	GP9	Get			
LTR1	Lamp1 Runtime	GP9	Get			
UTOT	Unit Time Total	GP9	Get			
LPW1	Lamp Power	GP9	Get, Set			
IPAD	IP address	GP9	Get	target 0 - LAN, target 10 - HDBaseT		

Status->Synchronization information						
TDSM	3D	GP9	Get, Set	See value table TDSM		
FLSO	2D frame lock source	GP9	Get, Set	0 - source, 1 - SYNC1, 2 - SYNC 2, 3 - SYNC 3		
FLFS	2D Frame Lock frequency	GP9	Get			
FLSS	2D Frame Lock status	GP9	Get	See value table FLSS		
FLPH	2D Frame Lock phase	GP9	Get			
TSLR	3D source sync	GP9	Get, Set			
TSLF	3D source sync frequency	GP9	Get			
TSLD	3D source sync duty cycle	GP9	Get			
TSLS	3D source sync status	GP9	Get	See value table TSLS		
TSLP	3D source sync phase	GP9	Get			
TDLR	3D display sync	GP9	Get, Set			
TDLF	3D display sync frequency	GP9	Get			
TDLD	3D display sync duty cycle	GP9	Get			
TDLS	3D display sync status	GP9	Get	See value table TDLS		
TDLP	3D display sync phase	GP9	Get			
Service						
CWI1	Color Wheel Index 1	GP9	Get, Set			
AFCL	AD Factory Calibrate	GP9	Set			
LFMP	LFM performed	GP9	Set			
LFMD	disable LFM messages	GP9	Get, Set			
FCRL	Factory reset level	GP9	Get, Set	0 - limited, 1 - full		
ENAP	Enable power user profiles	GP9	Get, Set	0 - disable, 1 - enable		
LSDI	Lens shift disable	GP9	Get, Set	0 - enable 1 - disable		
LSCA	Lens shift calibration	GP9	Set			
SVER	Software Version	GP9	Get			
PRID	Product ID	GP9	Get			
RCIE	Enable RCID	GP9	Get, Set			
Service->system statistics						
CRST	Reset All Counters	GP9	Set			
CTPO	Total time powered (seconds)	GP9	Get			
UTOT	Unit Time Total (hrs)	GP9	Get			
CTSB	Time since last boot (seconds)	GP9	Get			
LRM1	Lamp1 Estimated Remaining Lamp Time (hrs)	GP9	Get			
LTR1	Lamp Runtime (hrs)	GP9	Get			
LHO1	Lamp Channel Total Time (hrs)	GP9	Get			
CTF0	Fan run time	GP9	Get	0 - main fan, 1 - top fan, 2 - bottom fan, 3 - FPGA fan		

Service->temperature control						
THRM	Thermal Status	GP9	Get			
FAN1	Fan Speed 1	GP9	Get			
FAN2	Fan Speed 2	GP9	Get			
FAN3	Fan Speed 3	GP9	Get			
FAN4	Fan Speed 4	GP9	Get			
SNS1	Sensor Value 1	GP9	Get			
SNS2	Sensor Value 2	GP9	Get			
SNS3	Sensor Value 3	GP9	Get			
SNS4	Sensor Value 4	GP9	Get			
SNS5	Sensor Value 5	GP9	Get			
SNS6	Sensor Value 6	GP9	Get			
SNS7	Sensor Value 7	GP9	Get			
SNS8	Sensor Value 8	GP9	Get			
SNS9	Sensor Value 9	GP9	Get			
SN10	Sensor Value 10	GP9	Get			
SN11	Sensor Value 11	GP9	Get			
SN12	Sensor Value 12	GP9	Get			
SN13	Sensor Value 13	GP9	Get			
SN14	Sensor Value 14	GP9	Get			
SN15	Sensor Value 15	GP9	Get			
SN16	Sensor Value 16	GP9	Get			
Lens control						
LSDW	Lens Shift Down	GP9	Set	0 - 1000 steps		
LSUP	Lens Shift Up	GP9	Set	0 - 1000 steps		
LSLF	Lens Shift Left	GP9	Set	0 - 1000 steps		
LSRH	Lens Shift Right	GP9	Set	0 - 1000 steps		
LSDI	Lens shift disable	GP9	Get, Set	0 - enable 1 - disable		
LSCA	Lens shift calibration	GP9	Set			
HOPO	Horizontal lens shift position	GP9	Get, Set	-1000 - 1000		
VEPO	Vertical lens shift position	GP9	Get, Set	-1000 - 1000		
Lamp status						
LHO1	Lamp Channel Total Time	GP9	Get			
LST1	Lamp Status	GP9	Get	See value table LST1		
LRM1	Lamp Estimated Remaining Lamp Time	GP9	Get			
LTR1	Lamp Runtime	GP9	Get			

Miscellaneous						
ECHO	Communication Response (on/off)	GP9	Set			
SINF	Show OSD Info	GP9	Set			
ACSS	Current Access Level	GP9	Get			
MACA	MAC address	GP9	Get			Extended Protocol
Menu navigate						
MENU	Menu Navigate Toggle OSD Menu	GP9	Set			
NVUP	Menu Navigate Up	GP9	Set			
NVDW	Menu Navigate Down	GP9	Set			
NVLF	Menu Navigate Left	GP9	Set			
NVRH	Menu Navigate Right	GP9	Set			
NVOK	Menu Navigate Ok	GP9	Set			

Value tables

POST	
Power state	
Value	**Description**
0	Deep sleep
1	Off
2	Powering up
3	On
4	Powering down
5	Critical powering down
6	Critical off

IABS	
Set source abs values	
Value	**Description**
0	VGA
2	DVI
8	HDMI
17	DisplayPort 1
18	DisplayPort 2
19	HDBaseT
20	SDI 1
21	SDI 2

TDSM	
3D mode	
Value	**Description**
0	Off
1	Frame sequential
2	Side by side
3	Dual head

PRES (2D modes)	
Set profile	
Value	**Description**
0	Standard
1	Presentation
2	Bright
3	Video
4	Cinema
5	DICOM
10	Custom
20	Advanced

PRES (3D modes)	
Set profile	
Value	**Description**
8	3D
11	Custom 3D
21	Advanced 3D

GABS	
Set Gamma abs value	
Value	**Description**
0	Film 2.2
1	Film 2.6
2	Video 1
3	Video 2
4	Film 2.4
5	Film 2.8
7	Computer 1
8	Computer 2
9	Linear
11	DICOM
12	DICOM 10 Lux
13	DICOM 60 Lux
14	DICOM 180 Lux
15	DICOM 250 Lux
16	DICOM 300 Lux
17	DICOM 400 Lux
19	Dynamic

SABS	
Set scaling abs values	
Value	**Description**
0	1:1
1	Fill All
2	Fill Aspect Ratio
3	Fill 16:9
4	Fill 4:3
5	Fill 2.35:1

BCCR	
BrilliantColor Control	
Value	**Description**
0	Off
1	Color
2	Bright
5	SRP (if available)
4	Color (RGB only)
5	Bright (RGB only)
6	SRP (RGB only) (if available)

BCCR (profile 3D advanced)	
BrilliantColor Control	
Value	**Description**
0	Off
7	Auto

DSCR	
Desired Coords Mode	
Value	**Description**
0	White
1	RGB
2	RGBCMY

CMTP	
Color calibration test image	
Value	**Description**
0	Off
1	Red uncorrected
2	Green uncorrected
3	Blue uncorrected
4	White uncorrected

CMPP	
Color processed test image	
Value	**Description**
0	Off
1	Red
2	Green
3	Blue
4	White
5	Black
6	Cyan
7	Magenta
8	Yellow

ORIE	
Select Orientation abs value	
Value	**Description**
0	Desktop front
1	Ceiling rear
2	Desktop rear
3	Ceiling front

OSDC	
OSD Enable	
Value	**Description**
0	OSD off
1	OSD show only warnings
2	OSD on

EDIR		
EDID resolution		
Target	**Value**	**Description**
0 - VGA	0	Auto
2 - DVI	1	Custom (not implemented)
3 - HDMI	2	VGA
25 - DisplayPort 1	3	SVGA
26 - DisplayPort 2	4	XGA
27 - HDBaseT	5	720 50Hz
	6	720 60Hz
	7	WXGA 1366
	8	SXGA
	9	SX+
	12	1080 60Hz
	13	1080 120Hz
	14	WUXGA
	15	WUXGA 60Hz
	16	WUXGA 120Hz
	17	WQXGA 60Hz
	18	WQXGA 120Hz
	19	2560x1080 60Hz
	20	2560x1080 120Hz

EDIT		
EDID type		
Target	**Value**	**Description**
3 - HDMI	1	DVI
27 - HDBaseT	2	HDMI

MNUT	
Menu timeout	
Value	**Description**
0	5 seconds
1	10 seconds
2	15 seconds
3	30 seconds
4	60 seconds
5	never

BAUD	
Baudrate	
Value	**Description**
4800	4800
9600	9600
19200	19200
38400	38400
57600	57600
115200	115200

LANG	
Language	
Value	**Description**
0	English
1	French
2	Germen
3	Spanish
4	Norwegian
5	Swedish
6	Russian
7	Korean
8	Japanese
9	Chinese Simplified
10	Chinese Traditionale
11	Portuguese
12	Italian

FLSS	
Framelock signal status	
Value	**Description**
0	free running
3	locked

TSLS and TDLS	
3D source and display sync status	
Value	**Description**
0	free running
1	drifting, free running
2	drifting, locked
3	locked

LST1	
Lamp status	
Value	**Description**
0	Defect
1	Warming up
2	Lamp is on
3	Lamp is off
4	Lamp is cooling down
5	Lamp is not present

TBOS	
3D BNC sync-out signal	
Value	**Description**
0	Off
1	3D glass sync
2	3D display sync
3	Passthrough