

projectiondesign as  
**pw392**  
Communication Protocol



## Table of Contents

Setting up LAN communication .....	4
Connecting to the projector.....	4
Setting up RS232 communication .....	5
Connect to the projector .....	5
RS232 Communication parameters .....	5
Communication Protocol.....	6
Timing .....	6
Overview.....	6
Message body .....	6
Mnemonic.....	6
Modifiers .....	6
Acknowledge/Response .....	7
Examples.....	7
ASCII protocol .....	9
Value tables.....	17

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## Setting up LAN communication

The projector is shipped with a set of default settings, these 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
Username	admin
Password	admin

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

IP settings can be changed from menu system or from the projector webpage. It can be set automatically by using DHCP (Dynamic Host Configuration Protocol) or manually by disabling DHCP and set IP address, Subnet mask and Gateway.

Use of DHCP requires a DHCP server in the network.

When enabling DHCP please allow 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 menu system.

## Connecting to the projector

You have two options regarding how to make the physical connection to the projector. You can either use a crossover twisted pair (TP) cable directly from the computer to the projector, or two straight-through TP cables with a HUB or a switch between them.

When the projector is set up with proper IP settings, you should be able to control it.

To verify the communication you can connect to the projector webpage. This is done by starting up an internet browser, like Internet Explorer, Opera, Firefox or similar. Then type the projectors IP address (found in the projector network menu) in the address bar.

You will then see a login screen, see Figure 1.



Figure 1 : Login

Type in the projectors default login name (admin) and password (admin), both are case sensitive. If both are correct, you will see a configuration website, see Figure 2.

Network Manager

control | system info | configuration

IP address:

192.168.9.153

Subnet mask:

255.255.224.0

Default GW:

192.168.1.100

☐ Use DHCP

Projector Port:

1025

New password:

Confirm password:

Change

LAN firmware version: 003-0006-02.03

Figure 2 : Web page

On this page you can setup the projectors IP address, subnet mask, default gateway, projector port (TCP/UDP) and password. This page also displays the current version of network firmware the projector is running.

Setting up RS232 communication

Connect to the projector

Connect the projector and host using a standard serial cable with 9-pin female to the host, and 9-pin male to the projector. Pin 2 connects to pin 2, pin 3 connects to pin 3 and pin 5 connects to pin 5.

RS232 Communication parameters

Table 1 shows supported rs232 settings:

Parameter	Data
Baud rate	4800, 9600, 19200
Parity	N
Databits	8
Stopbits	1
Flowcontrol	None

Table 1: RS232 parameters

Baud rate is configurable from the projector’s menu system. Default baud rate is 19200.

## Communication Protocol

This section describes how to use the communication protocol to control projectors remotely.

When the projects are connected to either RS232 or LAN you can control the projectors through this ASCII based protocol.

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

## Timing

General timing constraints:

- Wait 30 seconds after power on before sending next command.
- Wait for response before sending next command.
- Minimum 2 seconds delay before resending if no response received.
- Minimum 500ms delay between commands.
- Minimum 5 seconds delay after sending 20 commands

## Overview

The protocol has the following definition:

HEADER	SEPARATOR	ADDRESS	SEPARATOR	MESSAGE BODY	TERMINATOR
1 byte	1 byte	1 -3 bytes	1 byte	N bytes	1 byte

Field	Description	Comment
Header	ASCII character ':'	Required
Separator	ASCII character 'space'	Optional
Address	1 – 3 bytes address	Optional
Terminator	CR carriage return (0x0D)	Required

## Message body

The message body structure is as follows:

MNEMONIC	SEPARATOR]	MODIFIER	SEPARATOR	VALUES
1 byte	1 byte	1 -3 bytes	1 byte	N bytes

Field	Description	Comment
Mnemonic	4 bytes key identifier, not case sensitive	Required
Modifer	Single char symbol	Optional
Values	N bytes value (max 6 bytes)	Optional
Target	N bytes value (max 4 bytes)	Optional
Separator	ASCII character 'space'	Optional

## Mnemonic

The Mnemonic is 4 bytes key identifier, know as the ASCII command.

Example: POWR, SABS, IVGA

## Modifiers

R	Relative change. Value given will be relative to the existing value. Example: :BRIG R10 will increase brightness with 10 steps
A	Request acknowledges. This modifier is only used to read back the result of the command. Default all commands send acknowledges so this will not be necessary.
	Default all commands send acknowledges so this will not be necessary.
?	Get current value
?M	Get maximum value
?N	Get minimum value
?D	Get default value
?S	Get default step value

## Acknowledge/Response

Acknowledge is optional and ON by default. Auto acknowledge can be turned on and off with ECHO command. It can also be activated on a per command basis using modifier A.

ACK	ADDRESS	SEP	COMMAND	SEP	VALUE	TERM
1 byte	3 bytes	1 byte	4 bytes	1 byte	6 bytes	1 byte

Field	Description	Comment
ACK	ASCII character '%'	Always
SEP	ASCII space	Always
VALUE	6 bytes return value	Always
TERM	Termination char 0x0D (CR)	Always

Most commands value returns the actual value of the requested command. If the requested command is not valid the response may include an error message.

Code	Error message	Description
!00001	Access denied	Current access level is too low
!00002	Not available	Command currently not available.
		Ex. contrast is not available when the projector is searching
!00003	Not implemented	Command to implemented
!00004	Value out of range	Value out of range

Some commands could return a value that is more than 6 characters, for instance strings.

Code	Extended info	Description
e00001	Extended info, string	A description string follows

Example:

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

## Examples

The protocol accepts one single SPACE between fields, or no SPACE between fields.  
'CR' ASCII value carriage return, hex value 0x0D.

SET-commands

SET POWER ON															
:		P		O		W		R		1					'CR'

:POWR1'CR'

ACKNOWLEDGE POWER ON																
%	0	0	1		P	O	W	R		0	0	0	0	0	1	'CR'

%001 POWR 000001'CR'

SET BRIGHTNESS TO 60															
:		B		R		I		G		6		0			'CR'

:BRIG 60'CR'

ACKNOWLEDGE BRIGHTNESS																
%	0	0	1		B	R	I	G		0	0	0	0	6	0	'CR'

%001 BRIG 000060'CR'

INCREMENT CONTRAST								
:	C	N	T	R		R	1	'CR'

:CNTR R1'CR'

ACKNOWLEDGE INCREMENT CONTRAST																
%	0	0	1		C	N	T	R		0	0	0	0	6	1	'CR'

%001 CNTR 000061'CR'

DECREMENT CONTRAST with 2 steps									
:	C	N	T	R		R	-	2	'CR'

:CNTR R-2'CR'

ACKNOWLEDGE INCREMENT CONTRAST																
%	0	0	1		C	N	T	R		0	0	0	0	5	9	'CR'

%001 CNTR 000059'CR'

### SET-commands with target

ENABLE CUSTOM PROFILE number 2									
	P	C	E	N		1		2	'CR'

:PCEN 1 2'CR'

ACKNOWLEDGE ENABLE CUSTOM PROFILE																
%	0	0	1		P	C	E	N		0	0	0	0	0	1	'CR'

%001 PCEN 000001'CR'

### GET-commands

GET current value CONTRAST								
:	C	N	T	R		?		'CR'

:CNTR?'CR'

ACKNOWLEDGE CONTRAST GET																
%	0	0	1		C	N	T	R		0	0	0	0	5	9	'CR'

%001 CNTR 000059'CR'

GET minimum value BRIGHTNESS								
:	B	R	I	G		?	N	'CR'

:BRIG ?N'CR'

ACKNOWLEDGE BRIGHTNESS GET MIN																
%	0	0	1		B	R	I	G		0	0	0	0	0	0	'CR'

%001 CNTR 000000'CR'

### GET-commands with target

GET PROFILE CUSTOM CONNECTOR number 2									
%	P	C	C	O		?		2	'CR'

:PCCO ? 2

ACKNOWLEDGE GET PROFILE CUSTOM CONNECTOR																
%	0	0	1		P	C	C	O		0	0	0	0	0	3	'CR'

%001 PCCO 000003 'CR'



## ASCII protocol

Showing all properties for available commands.

Command	Description	Platforms*	Operations supported	Comments
POWR	Power	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	0 - power off, 1 - power on
POST	Power state	GP1, GP2, GP3, GP4, GP1_AS3D	Get	See value table POST

Soure selection				
IABS	Set source abs values	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	See value table IABS
IVGA	Select VGA	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
ISVI	Select S-video	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
IDVI	Select DVI	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
ICVI	Select Composite video	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
IYPP	Select Component YPbPr	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
IRGS	Select RGB video	GP1, GP2, GP3, GP4	Get, Set	
IHDM	Select HDMI	GP1, GP2, GP3, GP4	Get, Set	
IBNC	Select BNC	GP3, GP4	Get, Set	
XP2	Select source XP2	GP3, GP4	Get	
ISTS	Signal Status	GP1, GP2, GP3, GP4, GP1_AS3D	Get	0 - searching 1 - locked to source

Picture				
BRIG	Brightness	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
CNTR	Contrast	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
CSAT	Color	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
VHUE	Hue Video	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
SHRP	Sharpness	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
PRST	Picture Reset	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
AUTO	Auto	GP1, GP2, GP3, GP4, GP1_AS3D	Set	
PMUT	Picture Mute	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	0 - disable, 1 - enable
FRZE	Freeze Image	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	0 - disable, 1 - enable
SABS	Set Scaling abs value	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	See value table SABS
S1T1	Select Scaling 1:1	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
S169	Select Scaling 16:9	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
SS43	Select Scaling 4:3	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
SFLA	Select Scaling FillAll	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
SFAR	Select Scaling FillAspectRatio	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
SLET	Select Scaling Letterbox to 16:9	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
SLST	Select Scaling Letterbox St to 16:9	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
SANL	Scale Anamorphic	GP1 1080, GP2 1080, GP3 1080, GP4 1080	Get, Set	1-film 1, 2-film 2
SABS	Select Gamma Film	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	1 - Film 1, 2 - Film 2
S1T1	Select Gamma Video	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	1 - Video 1, 2 - Video2
S169	Select Gamma Computer	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	1 - Computer 1, 2 - Computer 2
SS43	Set Gamma abs value	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	See value table GABS
SFLA	Select Scaling FillAll	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	See value table BCCR
SFAR	Select Scaling FillAspectRatio	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	See value table BCCR
SLET	BrilliantColor Control	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	See value table BCCR
SLST	BrilliantColor Mode	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	See value table BCMO
SANL	BrilliantColor Look	GP1 1080, GP2 1080, GP3 1080, GP4 1080	Get, Set	See value table BCPR
GAFI	Select Gamma Film	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	1 - Film 1, 2 - Film 2
GAVI	Select Gamma Video	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	1 - Video 1, 2 - Video2

\*Supported commands for the various product platforms are marked GP1, GP2, and GP3. Typical Products are GP1 F10 sx+, F10 1080, F10 wuxga. GP2: F20 720, F20 sx+, F20 medical, evo 20 sx+ cineo 20. GP3: F30 sx+, F30 1080, F30 wuxga, cineo 30.

Command	Description	Platforms*	Operations supported	Comments
GACO	Select Gamma Computer	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	1 - Computer 1, 2 - Computer 2
GABS	Set Gamma abs value	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	See value table GABS
BCCR	BrilliantColor Control	GP1, GP2, GP3	Get, Set	See value table BCCR
BCMO	BrilliantColor Mode	GP1, GP2, GP3	Get, Set	See value table BCMO
BCPR	BrilliantColor Look	GP1, GP2, GP3	Get, Set	See value table BCPR
PRES	BrilliantColor Preset Settings	GP1	Get, Set	See value table PRES
WPEK	BrilliantColor Boost	GP1, GP2, GP3	Get, Set	
CMXV	Color Management X-Coordinate	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
CMYV	Color Management Y-Coordinate	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
CMTV	Color Management Temperature	GP1, GP2, GP3, GP4	Get, Set	3200 - 9300
CMNA	Color Management Mode Not Corrected	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
CMTE	Color Management Mode Color Temperature	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
CCXY	Color Management Mode Custom Coordinates	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
CMHS	Color Management Mode HSG	GP1	Get, Set	
CMPR	Color Management Mode presets	GP1		
RD65	Reset to D65	GP1, GP2, GP3, GP4, GP1_AS3D	Set	
DSCR	Desired Coords Mode	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	See value table DSCR
BAGA	Balance Gains Enable	GP1, GP2, GP3	Get, Set	0 - disable, 1 - enable
DSRX	Desired Red X	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
DSRY	Desired Red Y	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
DSRG	Desired Red Gain	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
DSGX	Desired Green X	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
DSGY	Desired Green Y	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
DSGG	Desired Green Gain	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
DSBX	Desired Blue X	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
DSBY	Desired Blue Y	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
DSBG	Desired Blue Gain	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
DSCX	Desired Cyan X	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
DSCY	Desired Cyan Y	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
DSCG	Desired Cyan Gain	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
DSMX	Desired Magenta X	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
DSMY	Desired Magenta Y	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
DSMG	Desired Magenta Gain	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
DSYX	Desired Yellow X	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
DSYY	Desired Yellow Y	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
DSYG	Desired Yellow Gain	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
DSWG	Desired White Gain	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
MSRX	Measured Red X	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
MSRY	Measured Red Y	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
MSRL	Measured Red Luminance	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
MSGX	Measured Green X	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
MSGY	Measured Green Y	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
MSGL	Measured Green Luminance	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
MSBX	Measured Blue X	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
MSBY	Measured Blue Y	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
MSBL	Measured Blue Luminance	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
MSWX	Measure White X	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
MSWY	Measure White Y	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
MSWL	Measure White Luminance	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
CMHR	ColorMangement Hue Red	GP1	Get, Set	
CMHG	ColorMangement Hue Green	GP1	Get, Set	
CMHB	ColorMangement Hue Blue	GP1	Get, Set	

Command	Description	Platforms*	Operations supported	Comments
CMHC	ColorMangement Hue Cyan	GP1	Get, Set	
CMHM	ColorMangement Hue Magenta	GP1	Get, Set	
CMHY	ColorMangement Hue Yellow	GP1	Get, Set	
CMSR	ColorMangement Saturation Red	GP1	Get, Set	
CMSG	ColorMangement Saturation Green	GP1	Get, Set	
CMSB	ColorMangement Saturation Blue	GP1	Get, Set	
CMSC	ColorMangement Saturation Cyan	GP1	Get, Set	
CMSM	ColorMangement Saturation Magenta	GP1	Get, Set	
CMSY	ColorMangement Saturation Yellow	GP1	Get, Set	
CMGR	ColorMangement Gain Red	GP1	Get, Set	
CMGG	ColorMangement Gain Green	GP1	Get, Set	
CMGB	ColorMangement Gain Blue	GP1	Get, Set	
CMGC	ColorMangement Gain Cyan	GP1	Get, Set	
CMGM	ColorMangement Gain Magenta	GP1	Get, Set	
CMGY	ColorMangement Gain Yellow	GP1	Get, Set	
CMWR	ColorMangement White Balance Red	GP1	Get, Set	
CMWG	ColorMangement White Balance Green	GP1	Get, Set	
CMWB	ColorMangement White Balance Blue	GP1	Get, Set	
CMTTP	Color Management Test Patterns	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
CMTG	PW test patterns	GP1, GP2, GP3, GP4	Get, Set	See value table CMTG

Picture->RealColor->Display Customization				
BRED	Red Offset	GP1, GP2, GP3, GP1_AS3D	Get, Set	
BGRE	Green Offset	GP1, GP2, GP3, GP1_AS3D	Get, Set	
BBLU	Blue Offset	GP1, GP2, GP3, GP1_AS3D	Get, Set	
CRED	Red Gain	GP1, GP2, GP3, GP1_AS3D	Get, Set	
CGRE	Green Gain	GP1, GP2, GP3, GP1_AS3D	Get, Set	
CBLU	Blue Gain	GP1, GP2, GP3, GP1_AS3D	Get, Set	

Picture->Advanced				
VPOS	Vertical Position	GP1, GP2, GP3, GP1_AS3D	Get, Set	
HPOS	Horizontal Position	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
PHSE	Phase	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
FREQ	Frequency	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
NIRE	IRE Setup	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
DLSP	Digital Level and Colorspace	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	0 - manual, 1 - auto
DVST	Digital Level	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	0 - computer, 1 - video
DCSP	Digital Color Space	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	See value tab DCPS

Picture->Advanced ->Source Correction				
AORD	AD Red Offset	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
AOGR	AD Green Offset	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
AOBL	AD Blue Offset	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
AGRD	AD Red Gain	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
AGGR	AD Green Gain	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
AGBL	AD Blue Gain	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
ACAL	AD calibration	GP1, GP2, GP3, GP4, GP1_AS3D	Set	

Picture->Enhancements				
DLTI	DLTI Level	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
DCTI	DCTI Level	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
CB3D	3D Comb Filter	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
PK2D	2D Peaking	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
ANOI	Adaptive Noise Reduction	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
CEHR	CEH Red	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
CEHB	CEH Blue	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
CEHG	CEH Green	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
CEHY	CEH Yellow	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
CEHF	CEH Fleshtone	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
DYNC	Dynamic Contrast Enable	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
DYNL	Dynamic Contrast Level	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
HDBL	Horizontal Deblocking	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	

Picture->Dynamic Black				
DBEN	Dynamic Black	GP4, GP3 LED	Get, Set	0 - disable, 1 - enable

Installation				
DESK	Select Orientation Desktop Front	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
CEIL	Select Orientation Ceiling Front	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
RDES	Select Orientation Desktop Rear	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
RCEI	Select Orientation Ceiling Rear	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
ORIE	Select Orientation abs value	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	See value table ORIE
SCAN	Source Scan	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	0 - disable, 1 - enable
VRGB	RGB video	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	0 - disable, 1 - enable
BNCR	BNC colorspace RGB	GP3, GP4	Get, Set	
BNCC	BNC colorspace YPbPr	GP3, GP4	Get, Set	
IR01	IR Enable 1	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	0 - disable, 1 - enable
IR02	IR Enable 2	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	0 - disable, 1 - enable
IR03	IR Enable 3	GP3	Get, Set	0 - disable, 1 - enable
WIDE	Wide Setup	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	0 - disable, 1 - enable
SVGA	Sync Termination VGA	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	0 - disable, 1 - enable
SVG2	Sync Termination VGA 2	GP1	Get, Set	0 - disable, 1 - enable
SDVI	Sync Termination DVI-A	GP2	Get, Set	0 - disable, 1 - enable
SBNC	Sync Termination BNC	GP3, GP4	Get, Set	0 - disable, 1 - enable
OSDC	OSD Enable	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	See value table OSDC
TEST	Test Image	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	0 - 7 different test patterns
VKEY	Vertical Keystone	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
SNCL	Sync Level	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	Infitec only
SNCS	Sync Level RGB video	GP1, GP2, GP3, GP4	Get, Set	Infitec only
CSFI	Enable Color Space Convert	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	Infitec only
OPFI	Enable Optical Filter	GP3, GP4	Get, Set	Infitec only
VFVE	Video filter VGA enable	GP3, GP4	Get, Set	0 - disable, 1 - enable
VFBE	Video filter BNC enable	GP3, GP4	Get, Set	0 - disable, 1 - enable
OPFA	Optical filter all	GP4	Get, Set	0 - disable, 1 - enable

Command	Description	Platforms*	Operations supported	Comments
<b>Installation-&gt;lamp/LED</b>				
ECOM	Eco Mode	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	0 - disable, 1 - enable
LPW1	Lamp1 Power/LED Power	GP1, GP2, GP3, GP4, GP1_AS3D, GP3 LED	Get, Set	
LPW2	Lamp2 Power	GP3, GP4	Get, Set	
DBDI	LED Power	GP3 LED	Get, Set	See value table LMOD
LMOD	Lamp Mode	GP3, GP4	Get, Set	
LDLY	Lamp Auto Switch Delay	GP3, GP4	Get, Set	
DUAL	Lamp Mode Dual	GP3, GP4	Get, Set	Use LMOD, this is for legacy support
SNGL	Lamp Mode Single	GP3, GP4	Get, Set	Use LMOD, this is for legacy support
LAUT	Lamp Mode Auto	GP3, GP4	Get, Set	Use LMOD, this is for legacy support
LACT	Select Lamp In Single Mode	GP3, GP4	Get, Set	Use LMOD, this is for legacy support
LDMM	LED Dim Mode	GP3 LED	Get, Set	0 - standard, 1 - custom
LDCR	Custom LED Dim Red	GP3 LED	Get, Set	0-20
LDCG	Custom LED Dim Green	GP3 LED	Get, Set	0-20
LDCB	Custom LED Dim Blue	GP3 LED	Get, Set	0-20

<b>Installation-&gt;trigger</b>				
SMOD	Screen Trigger Mode	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	See value table SMOD
AMOD	Aspect Trigger Mode	GP1, GP3, GP4, GP1_AS3D	Get, Set	See value table AMOD

<b>Installation-&gt;EDID</b>				
EDIR	EDID resolution	GP1, GP2, GP3, GP4	Get, Set	See value table EDIR
EDIT	EDID type	GP1, GP2, GP3, GP4	Get, Set	See value table EDIT
EDMD	EDID Mailbox Data, auto increment	GP1, GP2, GP3, GP4	Get, Set	
EDMR	EDID Mailbox Counter reset	GP1, GP2, GP3, GP4	Get, Set	

<b>Settings</b>				
FCRE	Factory Reset	GP1, GP2, GP3, GP4, GP1_AS3D	Set	
FCRL	Factory reset level	GP1, GP2, GP3, GP4	Get, Set	
PINC	PIN Code	GP1, GP2, GP3, GP4, GP1_AS3D	Set	Must be run in standby
CODE	Service Code	GP1, GP2, GP3, GP4, GP1_AS3D	Set	
RCID	RCID Internal	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
DPMS	DPMS	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	0 - disable, 1 - enable
DPMT	DPMS Timeout	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
KEYB	Backlight Timeout	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
MNUT	Menu Timeout	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
BACK	Background color	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
SPLH	Splash	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
LMUT	LED indicators mute	GP1, GP2, GP3, GP4	Get, Set	
BAUD	Baudrate	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	See value table BAUD
ADRM	RS232 address mode	GP1, GP2, GP3, GP4	Get, Set	
ADRF	RS232 fixed address	GP1, GP2, GP3, GP4	Get, Set	

<b>Settings-&gt;Set date and time</b>				
RTCH	Real Time Clock Hour	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
RTCM	Real Time Clock Minute	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
RTCS	Real Time Clock Second	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
RTCD	Real Time Clock Day	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
RTCN	Real Time Clock Month	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
RTCY	Real Time Clock Year	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
RTCW	Real Time Clock Day of Week	GP1, GP2, GP3, GP4	Get, Set	

Command	Description	Platforms*	Operations supported	Comments
<b>Profiles</b>				
UMST	Store User Settings	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
UMRC	Recall User Settings	GP1, GP2, GP3, GP4, GP1_AS3D	Get, Set	
STMO	Store motor position	GP4	Set	
RCMO	Recall motor position	GP4	Set	
PRMO	Profile Mode	GP1, GP2, GP3, GP4	Get, Set	0 - Auto, 1 - Custom, 2 - ISF
PIMO	Profile ISF Mode	GP1, GP2, GP3, GP4	Get, Set	0 - ISF Day, 1 - ISF Night
PCEN	Profile Custom Enable	GP1, GP2, GP3, GP4	Get, Set	Value: 0 - disable, 1 - enable Target: Custom profile number (0 - 9)
PCNA	Profile Custom Name	GP1, GP2, GP3, GP4	Get, Set	Value: Profile name as string Target: Custom profile number (0 - 9)
PCCO	Profile Custom Connector	GP1, GP2, GP3, GP4	Get	Value: Connector (see Profile Con List ) Target: Custom profile number (0 - 9)
PRCC	Profile Custom Current Profile	GP1, GP2, GP3, GP4	Get	
PSTO	Profile Custom Store	GP1, GP2, GP3, GP4	Set	See value table PSTO
PCRC	Profile Custom Recall	GP1, GP2, GP3, GP4	Set	
PRRC	Profile Custom Recall Current	GP1, GP2, GP3, GP4	Set	
PRER	Profile Custom Erase	GP1, GP2, GP3, GP4	Set	See value table PRER
PRCH	Current Profile changed?	GP1, GP2, GP3, GP4	Get	Returns string * (asterisk) if changed

\* User Settings is replaced by Profile in some software versions

<b>Lens control</b>				
FOIN	Focus In	GP3, GP4	Set	1 - Slow, 2 - Medium, 3 - Fast
FOUT	Focus Out	GP3, GP4	Set	1 - Slow, 2 - Medium, 3 - Fast
ZOIN	Zoom In	GP3, GP4	Set	1 - Slow, 2 - Medium, 3 - Fast
ZOUT	Zoom Out	GP3, GP4	Set	1 - Slow, 2 - Medium, 3 - Fast
IROP	Iris Open	GP3, GP4	Set	1 - Slow, 2 - Medium, 3 - Fast
IRCL	Iris Close	GP3, GP4	Set	1 - Slow, 2 - Medium, 3 - Fast
LSDW	Lens Shift Down	GP3, GP4	Set	1 - Slow, 2 - Medium, 3 - Fast
LSUP	Lens Shift Up	GP3, GP4	Set	1 - Slow, 2 - Medium, 3 - Fast
LSLF	Lens Shift Left	GP3, GP4	Set	1 - Slow, 2 - Medium, 3 - Fast
LSRH	Lens Shift Right	GP3, GP4	Set	1 - Slow, 2 - Medium, 3 - Fast
SHUT	Shutter	GP3, GP4	Set	0 - disable, 1 - enable
ZOPO	Zoom Position	GP4	Get, Set	
FOPO	Focus Position	GP4	Get, Set	
HOPO	Horizontal Lensshift Position	GP4	Get, Set	
VEPO	Vertical Lensshift Position	GP4	Get, Set	
IRPO	Iris Position	GP4	Get, Set	
LENS	Lens ID	GP3, GP4	Get	
LMON	Lens Monitoring	GP3, GP4	Get, Set	

\* User Settings is replaced by Profile in some software versions

<b>Lamp status</b>				
LRM1	Lamp1 Estimated Remaining Lamp Time	GP1, GP2, GP3, GP4, GP1_AS3D	Get	
LTR1	Lamp1 Runtime	GP1, GP2, GP3, GP4, GP1_AS3D	Get	
LHO1	Lamp Channel 1 Total Time	GP3, GP4	Get	
LST1	Lamp1 Status	GP1, GP2, GP3, GP4, GP1_AS3D	Get	See value table LST1 and LST2
LRM2	Lamp2 Estimated Remaining Lamp Time	GP3, GP4	Get	
LTR2	Lamp2 Runtime	GP3, GP4	Get	
LHO2	Lamp Channel 2 Total Time	GP3, GP4	Get	
LST2	Lamp2 Status	GP3, GP4	Get	See value table LST1 and LST2
UTOT	Unit Time Total	GP1, GP2, GP3, GP4, GP1_AS3D	Get	

Command	Description	Platforms*	Operations supported	Comments
<b>Menu navigate</b>				
MENU	Menu Navigate Toggle OSD Menu	GP1, GP2, GP3, GP4, GP1_AS3D	Set	
NVUP	Menu Navigate Up	GP1, GP2, GP3, GP4, GP1_AS3D	Set	
NVDW	Menu Navigate Down	GP1, GP2, GP3, GP4, GP1_AS3D	Set	
NVLF	Menu Navigate Left	GP1, GP2, GP3, GP4, GP1_AS3D	Set	
NVRH	Menu Navigate Right	GP1, GP2, GP3, GP4, GP1_AS3D	Set	
NVOK	Menu Navigate Ok	GP1, GP2, GP3, GP4, GP1_AS3D	Set	

<b>Miscellaneous</b>				
ECHO	Communication Response (on/off)	GP1, GP2, GP3, GP4, GP1_AS3D	Set	
LANG	Language	GP1, GP2, GP3, GP4	Get, Set	
OSDP	OSD Menu Position	GP1 Avielo, GP2 Avielo, GP3 Avielo, GP4 Avielo	Get, Set	0 - standard, 1 - anamorph
SNAM	Show OSD Projector ID	GP1, GP2, GP3, GP4	Set	Extended Protocol
SINF	Show OSD Info	GP1, GP2, GP3, GP4	Set	Extended Protocol
MESS	Show OSD Message	GP1, GP2, GP3, GP4	Get, Set	Extended Protocol
NAME	Projector ID	GP1, GP2, GP3, GP4	Get, Set	Extended Protocol

<b>Medical</b>				
MDOF	Medical Off	GP2	Get, Set	medical only
MDCL	Medical Clearbase	GP2	Get, Set	medical only
MDBL	Medical Bluebase	GP2	Get, Set	medical only
MDFW	Medical Full White	GP2	Get, Set	medical only
MDCX	DICOM Clearbase x	GP2	Get, Set	medical only
MDCY	DICOM Clearbase y	GP2	Get, Set	medical only
MDBX	DICOM Bluebase x	GP2	Get, Set	medical only
MDBY	DICOM Bluebase y	GP2	Get, Set	medical only

<b>Thermal</b>				
THRM	Thermal Status	GP1, GP2, GP3, GP4, GP1_AS3D	Get	
FAN1	Fan Speed 1	GP1, GP2, GP3, GP4, GP1_AS3D	Get	
FAN2	Fan Speed 2	GP1, GP2, GP3, GP4, GP1_AS3D	Get	
FAN3	Fan Speed 3	GP1, GP2, GP3, GP4, GP1_AS3D	Get	
FAN4	Fan Speed 4	GP1, GP2, GP3, GP4, GP1_AS3D	Get	
FAN5	Fan Speed 5	GP1, GP2, GP3, GP4, GP1_AS3D	Get	
FAN6	Fan Speed 6	GP1, GP2, GP3, GP4, GP1_AS3D	Get	
FAN7	Fan Speed 7	GP1, GP2, GP3, GP4, GP1_AS3D	Get	
FAN8	Fan Speed 8	GP1, GP2, GP3, GP4, GP1_AS3D	Get	
SNS1	Sensor Value 1	GP1, GP2, GP3, GP4, GP1_AS3D	Get	
SNS2	Sensor Value 2	GP1, GP2, GP3, GP4, GP1_AS3D	Get	
SNS3	Sensor Value 3	GP1, GP2, GP3, GP4, GP1_AS3D	Get	
SNS4	Sensor Value 4	GP1, GP2, GP3, GP4, GP1_AS3D	Get	
SNS5	Sensor Value 5	GP1, GP2, GP3, GP4, GP1_AS3D	Get	
SNS6	Sensor Value 6	GP1, GP2, GP3, GP4, GP1_AS3D	Get	
SNS7	Sensor Value 7	GP1, GP2, GP3, GP4, GP1_AS3D	Get	
SNS8	Sensor Value 8	GP1, GP2, GP3, GP4, GP1_AS3D	Get	

Command	Description	Platforms*	Operations supported	Comments
<b>Status</b>				
PLAT	Platform Name String	GP1, GP2, GP3, GP4, GP1_AS3D	Get	Extended Protocol
SERI	Serial Number String	GP1, GP2, GP3, GP4, GP1_AS3D	Get	Extended Protocol
MODL	Model Name String	GP1, GP2, GP3, GP4, GP1_AS3D	Get	Extended Protocol
PART	Part Number String	GP1, GP2, GP3, GP4, GP1_AS3D	Get	Extended Protocol
SVER	Software Version	GP1, GP2, GP3, GP4, GP1_AS3D	Get	Extended Protocol
SWVR	Software Version	GP1, GP2, GP3, GP4, GP1_AS3D	Get	
ACSS	Current Access Level	GP1, GP2, GP3, GP4, GP1_AS3D	Get	
LEST	Status LED state	GP1, GP2, GP3, GP4, GP1_AS3D	Get	See value table LEST
SWSN	SVN SW Revision	GP1, GP2, GP3, GP4	Get	Extended Protocol

<b>ZoneCorrection</b>				
ZCEN	ZoneCorrection Enable	GP4	Get, Set	0 - disable, 1 - enable

<b>3D stereo</b>				
TDFS	3D Flash slave	GP1_AS3D	Set	
TDGT	Glass type	GP1_AS3D	Get, Set	
TDGD	Genlock phase delay	GP1_AS3D	Get, Set	
TDSM	Stereo mode	GP1_AS3D	Get, Set	
TDSC	Connector select slave	GP1_AS3D	Get, Set	

<b>IR control</b>				
AUXL	IR LED enable	GP3_LED_IR	Get, Set	
AUXD	IR LED dim	GP3_LED_IR	Get, Set	
DISL	turn off RGB LEDs	GP3_LED_IR	Get, Set	
LDMM	LED Dim Mode	GP3_LED	Get, Set	
LPW1	LED Power	GP3	Get, Set	
DBDI	LED Power	GP3 LED	Get, Set	
LDCR	LED Dim Custom Red	GP3 LED	Get, Set	
LDCG	LED Dim Custom Green	GP3 LED	Get, Set	
LDCB	LED Dim Custom Blue	GP3 LED	Get, Set	



## Value Tables

<b>IABS</b> Set source abs values	
Value	Description
0	VGA
0	VGA1
1	BNC
1	VGA2
2	DVI
4	S-Video
5	Composite Video
6	Component Video
7	RGBs Video
8	HDMI
9	XP2

<b>SABS</b> Set scaling abs values	
Value	Description
0	1:1
1	Fill All
2	Fill Aspect Ratio
3	Fill 16:9
4	Fill 4:3
9	Fill Letterbox to 16:9
10	Fill Letterbox st to 16:9
11	Anamorphic Lens

<b>LST1 and LST2</b> Lamp status	
Value	Description
0	Broken
1	Warming up
2	Lamp is on
3	Lamp is off
4	Lamp is cooling down
5	Lamp is not present

<b>GABS</b> Set Gamma abs value	
Value	Description
0	Film 1
1	Film 2
2	Video 1
3	Video 2
7	Computer 1
8	Computer 2

<b>DSCR</b>	
Desired Coords Mode	
Value	Description
0	Off
1	RGB
2	RGBCMY

<b>ORIE</b>	
Select Orientation abs value	
Value	Description
0	Desktop front
1	Ceiling rear
2	Desktop rear
3	Ceiling front

<b>OSDC</b>	
OSD Enable	
Value	Description
0	OSD off
1	OSD show only warnings
2	OSD on

<b>LMOD</b>	
Lamp Mode	
Value	Description
0	Single lamp 1
1	Single lamp 2
2	Dual lamps
3	Auto lamp switch

<b>BCCR</b>	
BrilliantColor Control	
Value	Description
0	Off
1	Computer balanced
2	Video balanced
3	Computer native
4	Video native

<b>BCPR</b>	
BrilliantColor Preset	
Value	Description
0	Off
1	On
1	Native
2	Balanced

<b>BCMO</b> BrilliantColor Mode	
Value	Description
0	Computer
1	Video

<b>PRES</b> BrilliantColor Preset Settings	
Value	Description
0	SMPTE HD
1	SMPTE C
2	EBU

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

<b>BAUD</b> Baud rate	
Value	Description
0	4800
1	9600
2	19200

<b>LEST</b> Status LED state	
Value	Description
0	Green/Blue On
1	Green/Blue Flash
2	Yellow On
3	Yellow Flash
4	Red On
5	Red Flash

<b>SMOD</b>	
Screen trigger	
Value	Description
0	Auto
1	On
2	Off

<b>AMOD</b>	
Aspect trigger	
Value	Description
0	Auto
1	On
2	Off

<b>EDIR</b>		
EDID resolution		
Value	Value	Description
	0	Auto
	1	WUXGA
	2	1080 standard
	3	1080 deep color
0 - HDMI	4	SX+
1 - DVI1	5	SXGA
2 - DVI2	6	WXGA 1366
3 - VGA1	7	720 60Hz
4 - VGA2	8	720 50Hz
	9	XGA
	10	SVGA
	11	VGA
	12	Custom

<b>EDIT</b>		
EDIT type		
Value	Value	Description
0 - HDMI		
1 - DVI1	0	VGA
2 - DVI2	1	DVI
3 - VGA1	2	HDMI
4 - VGA2		

<b>DCSP</b>	
Digital colorspace	
Value	Description
0	RGB
1	YPbPr 709
2	YpbPr 601

<b>ZCST</b> ZoneCorrection Adjustment Selection	
Value	Description
0	Iris Open, Black
1	Iris Closed, Black
2	Iris Open, White
3	Iris Closed, White

<b>PSTO</b> Profile Custom Store	
Target	Value
0 - Custom	Profile in collection (0-9)
1 - ISF day	Reserved, set to 0
2 - ISF night	Reserved, set to 0

<b>PRER</b> Profile Custom Erase	
Target	Value
0 - Custom	Profile in collection (0-9)
1 - ISF day	Profile in collection (connector *)
2 - ISF night	Profile in collection (connector *)

<b>Profile Connector List</b>	
Value	Description
0	VGA / VGA1
1	VGA2
2	BNC
3	DVI
4	HDMI
5	Composite
6	S-Video
7	Component
8	RGBs

<b>CMTG</b> PW test patterns	
Value	Description
0	Off
1	Red
2	Green
3	Blue
4	White
5	Cyan
6	Magenta
7	Yellow
8	Black

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