

Wired LAN Terminal functionalities

Remote control and monitoring of a projector from a PC (or Laptop) via wired LAN is also possible. Compatibility with Crestron / AMX (Device Discovery) / Extron control boxes enables not only collective projector management on a network but also management from a control panel on a PC (or Laptop) browser screen.

- Crestron is a registered trademark of Crestron Electronics, Inc. of the United States.
- Extron is a registered trademark of Extron Electronics, Inc. of the United States.
- AMX is a registered trademark of AMX LLC of the United States.
- PJLink applied for trademark and logo registration in Japan, the United States of America, and other countries by JBMIA.

Supported External Devices

This projector is supported by the specified commands of the Crestron Electronics controller and related software (ex, RoomView ®).

<http://www.crestron.com/>

This projector is supported by AMX (Device Discovery).

<http://www.amx.com/>

This projector is compliant to support Extron device(s) for reference.

<http://www.extron.com/>

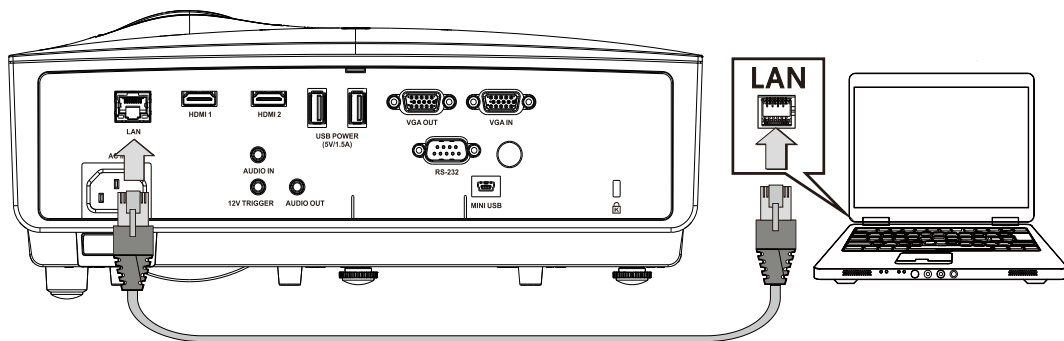
This projector supports all commands of PJLink Class1 (Version 1.00).

<http://pjlink.jbmia.or.jp/english/>

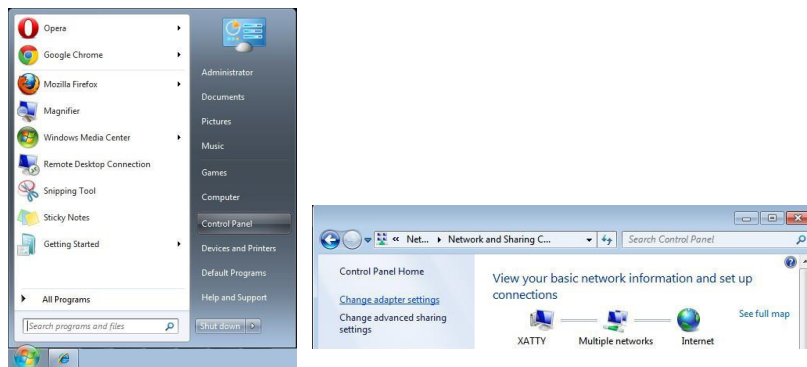
For more detail of information about the diverse types of external devices which can be connected to the LAN/RJ45 port and remote/control the projector, as well as the related control commands supporting for each external device, kindly please get contact with the Support-Service team directly.

Connecting with LAN

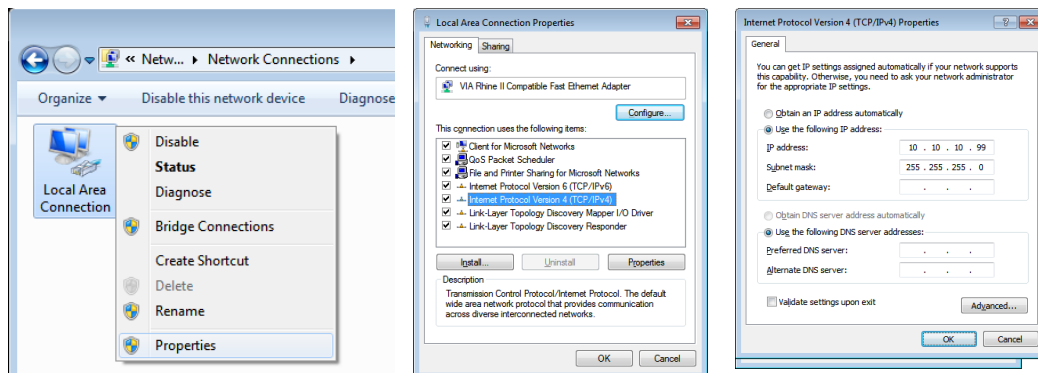
1. Connect an RJ45 cable to RJ45 ports on the projector and the PC (Laptop).



2. On the PC (Laptop), select Start → Control Panel → Network and Internet.



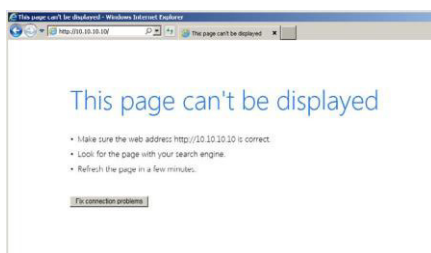
3. Right-click on Local Area Connection, and select Properties.
4. In the Properties window, select the Networking tab, and select Internet Protocol (TCP/IP).
5. Click Properties.
6. Click Use the following IP address and fill in the IP address and Subnet mask, then click OK.



7. Press the Menu button on the projector.
8. Select CONTROL→Network
9. After getting into Network, input the following:
 - DHCP: Off
 - IP Address: 10.10.10.10
 - Subnet Mask: 255.255.255.0
 - Gateway: 0.0.0.0
 - DNS Server: 0.0.0.0
10. Press (Enter) / ► to confirm settings.

Open a web browser

(for example, Microsoft Internet Explorer with Adobe Flash Player 9.0 or higher).



11. In the Address bar, input the IP address: 10.10.10.10.

12. Press (Enter) / ►.

The projector is setup for remote management. The LAN/RJ45 function displays as follows.

Projector Info	
Model Name	System
System Status	Power On
Display Source	Composite Video
Lamp Hours	27
Display Mode	Movie
Error Status	No Error
LAN Status	
IP address	10.10.10.10
Subnet mask	255.255.255.0
Default gateway	172.16.7.254
DNS Server	172.16.0.1
MAC address	00:18:23:2C:C3:41
Version	
LAN Version	MHD01_UL
F/W Version	E02

Power Vol- Mute Vol+

Source List

HDMI1
HDMI2 / MHL
DVI
VGA1
BNC

Menu ▲ Auto
◀ Enter ▶
AV Mute ▼ Source

Freeze Contrast Brightness Sharpness

CRESTRON connected Expansion Options

Crestron Control

IP Address
IP ID
Control Port

Send

Projector

Projector Name 20C341
Location
Assigned To

Send

DHCP ☐ DHCP Enabled

IP Address 10.10.10.10
Subnet Mask 255.255.255.0
Default Gateway 172.16.7.254
DNS Server 172.16.0.1

Send

User Password

☐ Enabled
New Password
Confirm

Send

Admin Password

☐ Enabled
New Password
Confirm

Send

Exit

CATEGORY	ITEM	INPUT-LENGTH
Crestron Control	IP Address	15
	IP ID	3
	Port	5
Projector	Projector Name	10
	Location	10
	Assigned To	10
Network Configuration	DHCP (Enabled)	(N/A)
	IP Address	15
	Subnet Mask	15
	Default Gateway	15
	DNS Server	15
User Password	Enabled	(N/A)
	New Password	10
	Confirm	10
Admin Password	Enabled	(N/A)
	New Password	10
	Confirm	10

For more information, please visit <http://www.crestron.com>.

Preparing Email Alerts

1. Make sure that user can access the homepage of LAN RJ45 function by web browser (for example, Microsoft Internet Explorer v6.01/v8.0).
2. From the Homepage of LAN/RJ45, click Alert Mail Settings.
3. By default, these input boxes in Alert Mail Settings are blank.

The left screenshot shows the 'Projector Info' sidebar with 'Alert Mail Settings' highlighted. The main content area displays system information:

System	
System Status	Power On
Display Source	Composite Video
Lamp Hours	27
Display Mode	Movie
Error Status	No Error

LAN Status	
IP address	10.10.10.10
Subnet mask	255.255.255.0
Default gateway	172.16.7.254
DNS Server	172.16.0.1
MAC address	00:18:23:C3:41

Version	
LAN Version	MHD01_UL
F/W Version	E02

The right screenshot shows the 'Send E-Mail' configuration page. It includes fields for SMTP Server, User Name, Password, Port, From, To, and CC. There are also checkboxes for 'E-mail Alert Options' (Fan lock, Case Open, Lamp Hours Over, Over_Heat, Lamp Fail, Filter Hours Over) and a 'Weekly Report' checkbox. Buttons for 'Mail Server Apply', 'Mail Address Apply', 'Alert Option Apply', and 'Send Test Mail' are present.

4. For Sending alert mail, input the following:

- The SMTP field is the mail server for sending out email (SMTP protocol). This is a required field.
- The To field is the recipient's email address (for example, the projector administrator). This is a required field.
- The Cc field sends a carbon copy of the alert to the specified email address. This is an optional field (for example, the projector administrator's assistant).
- The From field is the sender's email address (for example, the projector administrator). This is a required field.
- Select the alert conditions by checking the desired boxes.

The 'Send E-Mail' configuration page is shown with the following sample data:

SMTP Server: mail.comp.com Port: 25
User Name: Sender
Password: *****

From: send@mail.comp.com
To: recv1@mail.comp.com
CC: recv2@mail.comp.com

E-mail Alert Options:
Fan lock : ☒ Over_Heat: ☒
Case Open: ☒ Lamp Fail: ☒
Lamp Hours Over: ☒ Filter Hours Over: ☒
Weekly Report: ☐

Buttons: Mail Server Apply, Mail Address Apply, Alert Option Apply, Alert Upon Apply, Send Test Mail

Note: Fill in all fields as specified. User can click Send Test Mail to test what setting is correct. For successful sending an e-mail alert, you must select alert conditions and enter a correct e-mail address.

RS232 by Telnet Function

Besides projector connected to RS232 interface with “Hyper-Terminal” communication by dedicated RS232 command control, there is alternative RS232 command control way, so called “RS232 by TELNET” for LAN/RJ45 interface.

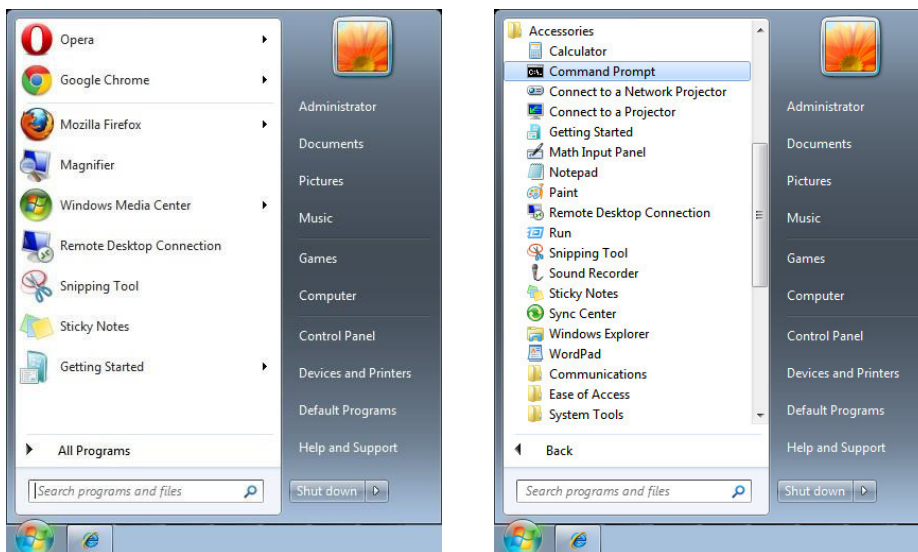
Quick Start-Guide for “RS232 by TELNET”

Check and get the IP-Address on OSD of the projector.

Make sure that laptop/PC can access the web-page of the projector.

Make sure that “Windows Firewall” setting to be disabled in case of “TELNET” function filtering out by laptop/PC.

Start => All Programs => Accessories => Command Prompt



Input the command format like the below:

telnet ttt.xxx.yyy.zzz 23 (“Enter” key pressed) (ttt.xxx.yyy.zzz: IP-Address of the projector)

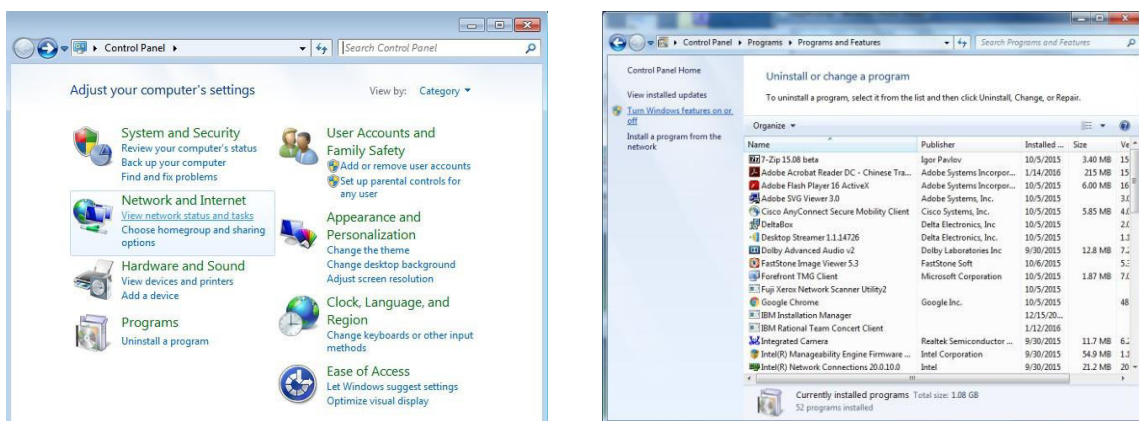
If Telnet-Connection ready, and user can have RS232 command input, then “Enter” key pressed, the RS232 command will be workable.

How to have TELNET enabled in Windows 7 / 8 / 10

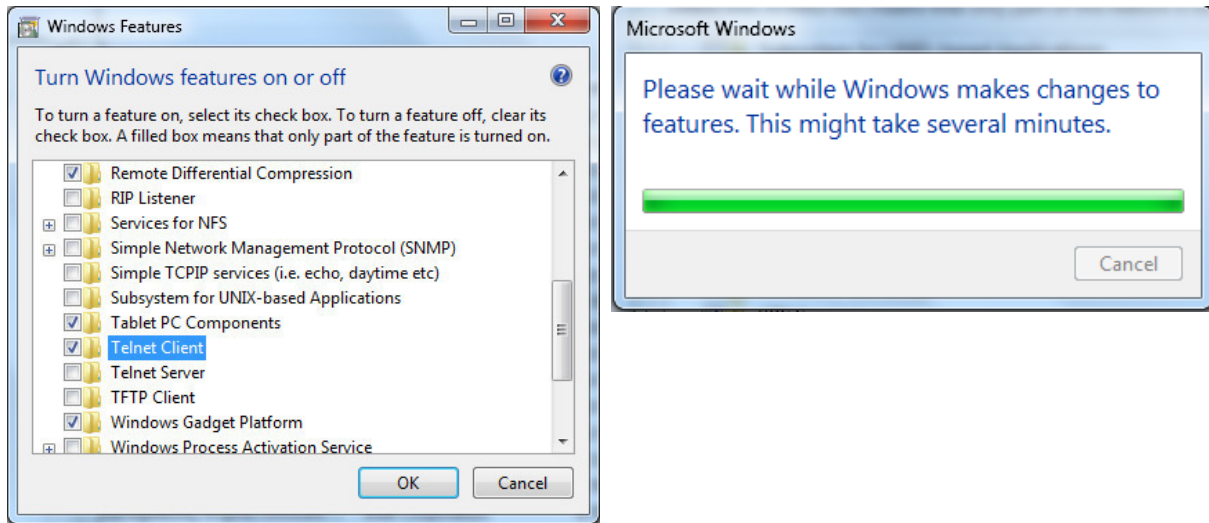
By default installation for Windows, “TELNET” function is not included. But end-user can have it by way of “Turn Windows features On or Off” to be enabled.

Open “Control Panel” in Windows

Open “Programs”



Select “Turn Windows features on or off” to open
Have “Telnet Client” option checked, then press “OK” button.



Specsheet for “RS232 by TELNET” :

1. Telnet: TCP
 2. Telnet port: 23
(for more detail, kindly please get contact with the service agent or team)
 3. Telnet utility: Windows “TELNET.exe” (console mode)
 4. Disconnection for RS232-by-Telnet control normally: Close Windows Telnet utility directly after TELNET connection ready
 5. Limitation 1 for Telnet-Control: there is less than 50 bytes for successive network payload for Telnet-Control application.
Limitation 2 for Telnet-Control: there is less than 26 bytes for one complete RS232 command for Telnet-Control.
Limitation 3 for Telnet-Control: Minimum delay for next RS232 command must be more than 200 (ms).
- (*, In Windows built-in “TELNET.exe” utility, “Enter” key pressed will have “Carriage-Return” and “New-Line” code.)

RS-232 Communication

Communication parameter setup

You can use the serial control command to input commands for projector control or retrieve its operational data through Windows client terminal software

Item	Parameter:
Bit per Second	9600 bps
Data Bit	8-bit
Parity	None
Stop Bit	1
Flow Control	None

Minimum delay for next command: **1ms**

Operation commands

Operation command syntax

An operation command is prefixed by character "op", followed by control commands and settings separated by space blank [SP], and ended by carriage return pair "CR" and "ASCII hex 0D". Syntax of serial control commands:

op[SP]<operation command>[SP]<Setting Value>[CR]

op A constant indicating this is an operation command.

[SP] Indicate one blank space.

[CR] Indicate the command ending carriage return pair "CR" and "ASCII hex 0D".

Setting value Settings of operation command

Types of setup strings	Characters of settings	Description
Query current setup	?	Question mark "?" indicates querying current setup
Setup	= <settings>	Syntax: Symbol "=" suffixed with setup values
Increase setup order of adjustment items	+	Some settings are changed in steps. Symbol "+" indicates changing one step up
Decrease setup order of adjustment items	-	Some settings are changed in steps. Symbol "-" indicates changing one step down
Execute operation command	None	Certain operation commands execute after input without further setting or regulators.

Examples:

Control items	Input command row	Projector return message
Query current brightness	op bright ?[CR]	OP BRIGHT = 50
Set up brightness	op bright = 100[CR]	OP BRIGHT = 100
Out of range or not support	op bright = 200[CR]	OP BRIGHT = NA
Illegal command	op abright = 100[CR]	*Illegal format#

Function	Operation	Set	Get	Inc	Dec	EXE	Values
Auto Source	auto.src	V	V				0 = Off 1 = On
HDMI Color Space	color.space	V	V				0 : Auto 1 : RGB 2 : YUV
HDMI Range	hdmi.range	V	V				0 : Auto 1 : Full 2 : Limited
Instant Motion	instant.motion	V	V				0 : Off 1 : On
H Position	h.pos	V	V	V	V		-5 ~ +5 -100 ~ +100(Auto Sync Off)
V Position	v.pos	V	V	V	V		-5 ~ +5 -100 ~ +100(Auto Sync Off)
Phase	phase	V	V	V	V		0 ~ 31
clock	clock	V	V	V	V		-5 ~ +5
Auto Sync	auto.sync	V	V				0 : Off 1 : On
3D	threed	V	V				0 : Off 1 : DLP-Link 2 : IR
3D Sync Invert	threed.syncinvert	V	V				0 = Off 1 = On
3D Format	threed.format	V	V				0 : Frame Sequential 1 : Top / Bottom 2 : Side by side 3 : Frame Packing
Signal Power On	signal.poweron	V	V				0 : Off 1 : On
Picture Mode	pic.mode	V	V				0:Presentation 1:Bright 2:Movie 3:Game 4:sRGB 5:DICOM 6:User
Brightness	bright	V	V	V	V		0 ~ 100
Contrast	contrast	V	V	V	V		0 ~ 100
HSG/Red Gain	hsg.r.gain	V	V	V	V		0 ~ 100
HSG/Green Gain	hsg.g.gain	V	V	V	V		0 ~ 100
HSG/Blue Gain	hsg.b.gain	V	V	V	V		0 ~ 100
HSG/Cyan Gain	hsg.c.gain	V	V	V	V		0 ~ 100
HSG/Magenta Gain	hsg.m.gain	V	V	V	V		0 ~ 100
HSG/Yellow Gain	hsg.y.gain	V	V	V	V		0 ~ 100
HSG/Red/Saturation	hsg.r.sat	V	V	V	V		0 ~ 100
HSG/Green/Saturation	hsg.g.sat	V	V	V	V		0 ~ 100
HSG/Blue/Saturation	hsg.b.sat	V	V	V	V		0 ~ 100
HSG/Cyan/Saturation	hsg.c.sat	V	V	V	V		0 ~ 100
HSG/Magenta/Saturation	hsg.m.sat	V	V	V	V		0 ~ 100
HSG/Yellow/Saturation	hsg.y.sat	V	V	V	V		0 ~ 100
HSG/Red/Hue	hsg.r.hue	V	V	V	V		0 ~ 100
HSG/Green/Hue	hsg.g.hue	V	V	V	V		0 ~ 100
HSG/Blue/Hue	hsg.b. hue	V	V	V	V		0 ~ 100

Function	Operation	Set	Get	Inc	Dec	EXE	Values
HSG/Cyan/Hue	hsg.c. hue	V	V	V	V		0 ~ 100
HSG/Magenta/Hue	hsg.m. hue	V	V	V	V		0 ~ 100
HSG/Yellow/Hue	hsg.y. hue	V	V	V	V		0 ~ 100
HSG/White/Red Gain	hsg.wr.gain	V	V	V	V		0 ~ 100
HSG/White/Green Gain	hsg.wg.gain	V	V	V	V		0 ~ 100
HSG/White/Blue Gain	hsg.wb.gain	V	V	V	V		0 ~ 100
Brilliant Color	bri.color	V	V	V	V		0 ~ 10
Sharpness	sharp	V	V	V	V		0 ~ 31
Gamma	gamma	V	V				0 = 1.8 1 = 2.0 2 = 2.2 3 = 2.4 4 = B&W 5 = Linear
Color Temperature	color.temp	V	V				0 = Warm 1 = Normal 2 = Cold
White Balance /Red Offset	red.offset	V	V	V	V		-100 ~ +100
White Balance /Green Offset	green.offset	V	V	V	V		-100 ~ +100
White Balance /Blue Offset	blue.offset	V	V	V	V		-100 ~ +100
White Balance /Red Gain	red.gain	V	V	V	V		0 ~ 200
White Balance /Green Gain	green.gain	V	V	V	V		0 ~ 200
White Balance /Blue Gain	blue.gain	V	V	V	V		0 ~ 200
Picture Mode Reset	pic.mode.reset					V	
Aspect Ratio	aspect	V	V				0 = Fill 1 = 4:3 2 = 16:9(16:10) 3 = LetterBox 4 = 2.35:1
Digital Zoom	zoom	V	V	V	V		-10 ~ +10
V Keystone	v.keystone	V	V	V	V		HV : -30 ~ +30 V only: -40 ~ +40
H Keystone	h.keystone	V	V	V	V		-30 ~ +30
4 Corner Top Left X	4corner.tlx	V	V	V	V		0 ~ +60
4 Corner Top Left Y	4corner.tly	V	V	V	V		0 ~ +60
4 Corner Top Right X	4corner.trx	V	V	V	V		0 ~ +60
4 Corner Top Right Y	4corner.try	V	V	V	V		0 ~ +60
4 Corner Bottom Left X	4corner.blx	V	V	V	V		0 ~ +60
4 Corner Bottom Left Y	4corner.bly	V	V	V	V		0 ~ +60
4 Corner Bottom Right X	4corner.brx	V	V	V	V		0 ~ +60
4 Corner Bottom Right y	4corner.bry	V	V	V	V		0 ~ +60
H Image Shift	img.hshift	V	V	V	V		-50 ~ +50
V Image Shift	img.vshift	V	V	V	V		-50 ~ +50
Projection	projection	V	V				0 = Front 1 = Rear 2 = Front + Ceiling 3 = Rear + Ceiling
Test Pattern	test.pattern	V	V				0 = Off 1 = Grid
Direct Power On	direct.poweron	V	V				0 : Off 1 : On

Function	Operation	Set	Get	Inc	Dec	EXE	Values
Light Mode	light.mode	V	V				0 : Normal (100%) 1 : ECO (80%) 2 : Dynamic ECO
Fan Speed	fanspeed	V	V				0 = Normal 1 = High
IR Control	ir.control	V	V				0 : Both IR On 1 : Front IR On 2 : Rear IR On
Remote ID	remote.id	V	V				0 : Default(ID0) 1 : ID1 2 : ID2 3 : ID3 4 : ID4 5 : ID5 6 : ID6 7 : ID7
NetWork Status	net.status		V				0 : Disconnect 1 : Connected
NetWork / DHCP	net.dhcp	V	V				0 = Off 1 = On
NetWork / IP Address	net.ipaddr	V	V				<string>
NetWork / Subnet	net.subnet	V	V				<string>
NetWork / Gateway	net.gateway	V	V				<string>
NetWork / DNS	net.dns	V	V				<string>
NetWork Apply	net.apply	V					0 : Cancel 1 : OK
Standby Power	standby.power	V	V				0 : Normal 1 : ECO (<0.5W) 2 : On By Lan (<2W)
No Signal Power Off	nosignal.poweroff	V	V				0 ~ 36
Sleep Timer	sleep.timer	V	V				0 ~ 120
Volume	volume	V	V	V	V		0 ~ 10
Blank Screen Color	blankscreen.color	V	V				0 = Black 1 = Red 2 = Green 3 = Blue 4 = White
Logo	logo	V	V				0 = Off 1 = On
Message	message	V	V				0 : Off 1 : On
MENU Position	menu.position	V	V				0 : Center 1 : Up 2 : Down 3 : Left 4 : Right
MENU Timer	menu.timer	V	V				0 : Off 1 : 20 2 : 40 3 : 60
MENU Translucent	menu.trans	V	V				0 : Off 1 : 50% 2 : 100%
Keypad Lock	keypad.lock	V	V				0 : Off 1 : On

Function	Operation	Set	Get	Inc	Dec	EXE	Values
Security Lock	security.lock	V	V				1 : Up 2 : Down 3 : Left 4 : Right
Security Unlock	security.unlock	V					1 : Up 2 : Down 3 : Left 4 : Right
Language	lang	V	V				0 = English 1 = French 2 = German 3 = Spanish 4 = Portugues 5 = Simplified Chinese 6 = Traditional Chinese 7 = Italian 8 = Norwegian 9 = Swedish 10 = Dutch 11 = Russian 12 = Polish 13 = Finnish 14 = Greek 15 = Korean 16 = Hungarian 17 = Czech 18 = Arabic 19 = Turkish 20 = Vietnamese 21 = Japanese 22 = Thai 23 = Farsi 24 = Hebrew 25 = Danish
Reset All	reset.all					V	
Source Info	source.info		V				<string>
Light Hours 1	light1.hours		V				<string>
Light Hours 1 Reset	light1.reset					V	
Remote Code	remote.code		V				<string>
Software Version	sw.ver		V				<string>
Serial Number	ser.no		V				<string>
Auto Image	auto.img					V	
Light 1 Status	light1.stat		V				0 = Off 1 = On
Model	model		V				<string>
Pixel Clock	pixel.clock		V				<string>
H Refresh Rate	h.refresh		V				<string>
V Refresh Rate	v.refresh		V				<string>
Blank	blank	V	V				0 = Off 1 = On

Function	Operation	Set	Get	Inc	Dec	EXE	Values
Power On	power.on					V	
Power Off	power.off					V	
Projector Status	status		V				0 : Reset 1 : Standby 2 : Active 3 : cooling 4: Warming 5: Power Up
Mute	mute	V	V				0 : Off 1 : On
Freeze	freeze	V	V				0 : Off 1 : On
Input Select	input.sel	V	V				1 :RGB 6: HDMI 1 9: HDMI 2 11: Multi Media(Novo)