Remote Communicaton Manual

DU6675
DW6655
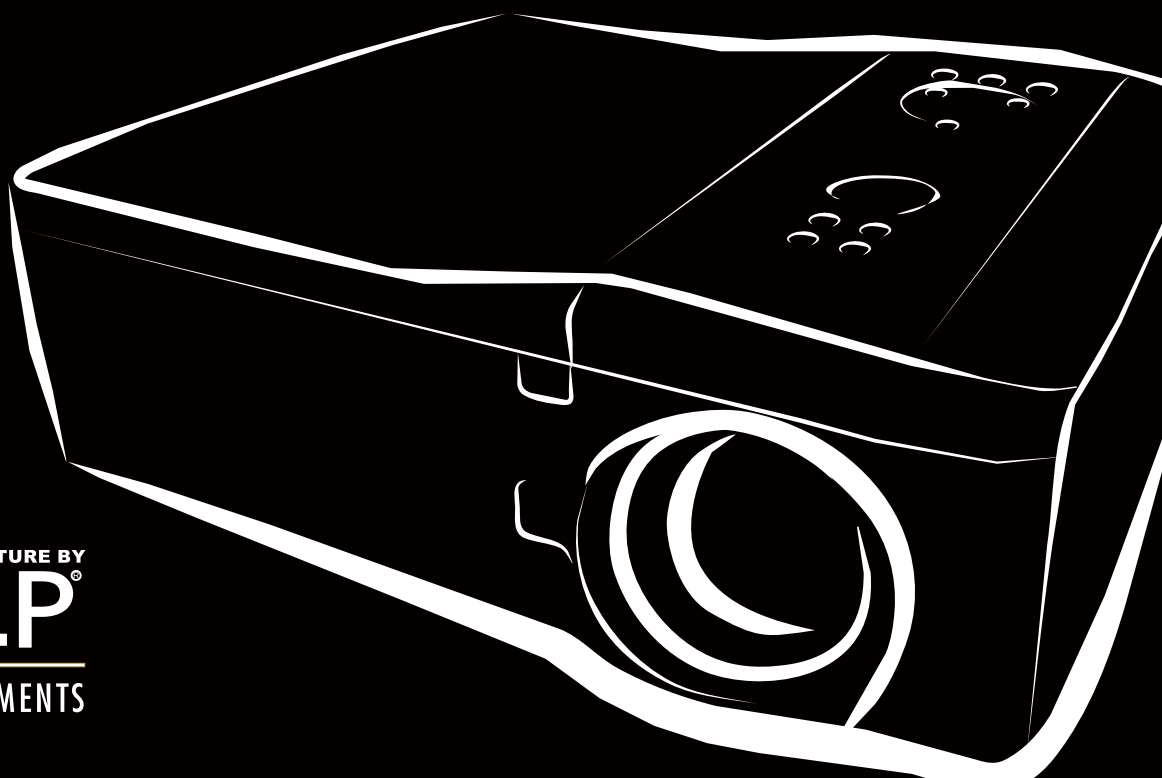# DX6635

Table of Contents

The Serial Interface RS-232 Command

This controller supports projectors with a RS-232 serial terminal, there exist two types of serial commands:
- Operation command: Available menu options are PICTURE, SIGNAL, SETUP, INSTALLATION, SERVICE, and OTHERS.
- Simulated IR remote controller commands: Controls projector via RS-232 command, the commands simulate IR remote controller and its control keys.

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, e.g. Hyper Terminal, with ASCII characters.You need to set up the following communication parameters in advance:

Item	Parameter:
Bit per Second	38400 (default), 19200, 9600bps
Data Bit	8-bit
Parity	None
Stop Bit	1
Flow Control	None
Port	7000

Note:
- The terminal software does not return every command input character
- The transmission performance varies with the length of RS-232 cable and transmission speed. Please select proper baud rate from the OSD menu.

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 = 101
Set up brightness	op bright = 127 [CR]	OP BRIGHT = 127
Set up input signal source to HDMI	op input.sel = 0 [CR]	OP INPUT.SEL = 0
Reset camera to center position	lens.center	

Note:

When sending the multiple commands, make sure the return message of the last command is received before sending out the next one.

List of operation commands

PICTURE

OSD Function	Operation command	Settings/Return Values		Note
Picture Mode	pic.mode	? =	0 = High Bright 1 = Presentation 2 = Video	Not applicable when the project is in standby mode.
Brightness	bright	? = + -	0-200	Not applicable when the project is in standby mode or the input signal is not locked yet.
Contrast	contrast	? = + -	0-200	Not applicable when the project is in standby mode or the input signal is not locked yet.
Saturation	saturat	? = + --	0-200	a. Apply for YUV signal input b. Not applicable when the project is in standby mode or the input signal is not locked yet.
Hue	tint	? = + -	0-200	a. Apply for YUV signal input b. Not applicable when the project is in standby mode or the input signal is not locked yet.
Sharpness	sharp	? = + -	0-31	Not applicable when the project is in standby mode or the input signal is not locked yet.
Color Temperature	color.temp	? =	0 = Native 1 = 6500K 2 = 7800K 3 = 9300K	Not applicable when the project is in standby mode or the input signal is not locked yet.
Gamma	gamma	? =	0 = 2.2 1 = Film 2 = Graphics 3 = Video 4 = PC 5 = S Curve	Not applicable when the project is in standby mode or the input signal is not locked yet.
Auto Sync	auto.img		(execute)	Not applicable when the project is in standby mode or the input signal is not locked yet.
Input Balance /Red Offset	red.offset	? = + -	0-200	Not applicable when the project is in standby mode or the input signal is not locked yet.
Input Balance /Green Offset	green.offset	? = + -	0-200	Not applicable when the project is in standby mode or the input signal is not locked yet.
Input Balance /Blue Offset	blue.gain	? = + -	0-200	Not applicable when the project is in standby mode or the input signal is not locked yet.

OSD Function	Operation command	Settings/Return Values		Note
Input Balance /Red Gain	red.gain	? = + -	0-200	Not applicable when the project is in standby mode or the input signal is not locked yet.
Input Balance /Green Gain	green.gain	? = + -	0-200	Not applicable when the project is in standby mode or the input signal is not locked yet.
Input Balance /Blue Gain	blue.gain	? = + -	0-200	Not applicable when the project is in standby mode or the input signal is not locked yet.
HSG/Red Gain	hsg.r.gain	? = + -	0-200	Not applicable when the project is in standby mode or the input signal is not locked yet.
HSG/Green Gain	hsg.g.gain	? = + -	0-200	Not applicable when the project is in standby mode or the input signal is not locked yet.
HSG/Blue Gain	Hsg.b.gain	? = + -	0-200	Not applicable when the project is in standby mode or the input signal is not locked yet.
HSG/Cyan Gain	hsg.c.gain	? = + -	0-200	Not applicable when the project is in standby mode or the input signal is not locked yet.
HSG/Magenta Gain	hsg.m.gain	? = + -	0-200	Not applicable when the project is in standby mode or the input signal is not locked yet.
HSG/Yellow Gain	Hsg.y.gain	? = + -	0-200	Not applicable when the project is in standby mode or the input signal is not locked yet.
HSG/Red/Saturation	hsg.r.sat	? = + -	0-200	Not applicable when the project is in standby mode or the input signal is not locked yet.
HSG/Green/Saturation	hsg.g.sat	? = + -	0-200	Not applicable when the project is in standby mode or the input signal is not locked yet.
HSG/Blue/Saturation	Hsg.b.sat	? = + -	0-200	Not applicable when the project is in standby mode or the input signal is not locked yet.
HSG/Cyan/Saturation	hsg.c.sat	? = + -	0-200	Not applicable when the project is in standby mode or the input signal is not locked yet.
HSG/Magenta/Saturation	hsg.m.sat	? = + -	0-200	Not applicable when the project is in standby mode or the input signal is not locked yet.

OSD Function	Operation command	Settings/Return Values		Note
HSG/Yellow/Saturation	Hsg.y.sat	? = + -	0-200	Not applicable when the project is in standby mode or the input signal is not locked yet.
HSG/Red/Hue	hsg.r.hue	? = + -	0-200	Not applicable when the project is in standby mode or the input signal is not locked yet.
HSG/Green/Hue	hsg.g.hue	? = + -	0-200	Not applicable when the project is in standby mode or the input signal is not locked yet.
HSG/Blue/Hue	Hsg.b. hue	? = + -	0-200	Not applicable when the project is in standby mode or the input signal is not locked yet.
HSG/Cyan/Hue	hsg.c. hue	? = + -	0-200	Not applicable when the project is in standby mode or the input signal is not locked yet.
HSG/Magenta/Hue	hsg.m. hue	? = + -	0-200	Not applicable when the project is in standby mode or the input signal is not locked yet.
HSG/Yellow/Hue	Hsg.y. hue	? = + -	0-200	Not applicable when the project is in standby mode or the input signal is not locked yet.
HSG/White/Red Gain	hsg.wr.gain	? = + -	0-200	Not applicable when the project is in standby mode or the input signal is not locked yet.
HSG/White/Green Gain	hsg.wg.gain	? = + -	0-200	Not applicable when the project is in standby mode or the input signal is not locked yet.
HSG/White/Blue Gain	Hsg.wb.gain	? = + -	0-200	Not applicable when the project is in standby mode or the input signal is not locked yet.
Noise Reduction	nr	? = + -	0-15 (Noise Reduction)	Not applicable when the project is in standby mode or the input signal is not locked yet.
Dynamic Black	dblack	? =	0 = Off 1 = On	Not applicable when the projector is in standby mode.

SIGNAL

OSD Function	Operation command	Settings/Return Values		Note
Input Select	input.sel	? =	0 = HDMI 1 = DVI 2 = VGA 3 = 5BNC 4 = Component 5 = S-Video 6 = Video 7 = HDBaseT	Not applicable when the project is at below status. ◆ Standby mode ◆ When the blank function is activated
Auto Search	auto.src	? =	0 = Off 1 = On	Not applicable when the projector is in standby mode.
Color Space	color.space	? =	0 = Auto 1 = YPbPr (Rec. 709) 2 = YcbCr (Rec. 601) 3 = RGB-PC (0-255) 4 = RGB-Video (16-235)	Not applicable when the project is in standby mode or the input signal is not yet locked.
VGA Setup/H Total	h.total	? = + -	0-200	◆ Not applicable when the project is in standby mode or the input signal is not locked yet. ◆ Apply for VGA and Component signal input.
VGA Setup/H Start	h.pos	? = + -	0-200	◆ Not applicable when the project is in standby mode or the input signal is not locked yet. ◆ Apply for VGA and Component signal input.
VGA Setup/H Phase	h.phase	? = + -	0-200	◆ Not applicable when the project is in standby mode or the input signal is not locked yet. ◆ Apply for VGA and Component signal input.
VGA Setup/V Start	v.pos	? = + -	0-200	◆ Not applicable when the project is in standby mode or the input signal is not locked yet. ◆ Apply for VGA and Component signal input.
Aspect Ratio	aspect	? =	0 = 5:4 1 = 4:3 2 = 16:10 3 = 16:9 4 = 1.88 5 = 2.35 6 = Auto 7 = Native	◆ Not applicable when the project is in standby mode or the input signal is not locked yet. ◆ When the Zoom function is set to Zoom in, the Unscaled function is disabled.
Overscan	zoom	? =	0 = Off 1 = On	◆ Not applicable when the project is in standby mode or the input signal is not locked yet. ◆ When the Zoom function is set to Zoom in, the Unscaled function is disabled.

Background	no.signal	? =	0 = Blue 1 = Black 2 = Logo	Not applicable when the project is in standby mode

SETUP

OSD Function	Operation command	Settings/Return Values		Note
Language	lang	? =	0 = English 1 = French 2 = Spanish 3 = German 4 = Portuguese 5 = Chinese Simplified 6 = Chinese Traditional 7 = Japanese 8 = Korean	
Lamp Mode	lamps	? =	0 = Dual 1 = Lamp1 2 = Lamp2 3 = Single	• Not applicable when the project is in standby mode • Not applicable when the project is in cooling or lighting up status. Please send control command after the said commands are completed.
Lamp Power	lamp.mode	? =	0 = Standard 1 = Economy 2 = Custom Power Level	Not applicable when the project is in standby mode
Custom Lamp Power	lamp.pwr	? =	0-31 (75 % ~ 100.0 %)	Not applicable when the project is in standby mode
Keystone	v.keystone	? = + -	-80 ~ 80	Not applicable when the projector is in standby mode.
Keystone	h.keystone	? = + -	-80 ~ 80	Not applicable when the projector is in standby mode.
Startup Logo	startup.logo	? =	0 = Off 1 = On	
Trigger	trig.1	? =	0 =Off 1 = On	Not applicable when the projector is in standby mode.
Remote sensor	remote.sensor	? =	0 = Front / Back 1 = Front 2 = Back 3 = HDBaseT	Not applicable when the projector is in standby mode.

INSTALLATION

OSD Function	Operation command		Settings/Return Values	Note
Projection Mode	proj.mode	? =	0 = Desktop Front 1 = Desktop Rear 2 = Ceiling Front 3 = Ceiling Rear	Not applicable when the project is in standby mode
Standby Mode	eco.net.pow	? =	0 = Network Standby 1 = Normal (< 0.5W ECO Mode)	Not applicable when the project is in standby mode
High Altitude	altitude	? =	0 = Off 1 = On	Not applicable when the project is in standby mode
Auto Power Off	auto.powoff	? =	0 = Off 1 = On	Not applicable when the project is in standby mode
Auto Power On	auto.powon	? =	0 = Off 1 = On	Not applicable when the project is in standby mode
Network/IP Adress	net.ipaddr	? =	<string>	Not applicable when the project is in standby mode
Network/Subnet	net.subnet	? =	<string>	Not applicable when the project is in standby mode
Network/Gateway	net.gateway	? =	<string>	Not applicable when the project is in standby mode
Network/DHCP	net.dhcp	? =	0 = Off 1 = On	Not applicable when the project is in standby mode
Zoom	zoomio	+ -	"+" = Zoom out "-" = Zoom in	The Lens control command does not apply when the projector is in standby mode.
Focus	focus	+ -	"+" = Focus Near "-" = Focus Far	The Lens control command does not apply when the projector is in standby mode.
Shift V	vert.offset	+ -	"+" = Shift up "-" = Shift dwon	The Lens control command does not apply when the projector is in standby mode.
Shift H	horiz.offset	+ -	"+" = Shift right "-" = Shift left	The Lens control command does not apply when the projector is in standby mode.
Test Pattern	pattern	? =	0 = Color Bar 1 = Cross Hatch 2 = Burst 3 = HRamp 4 = Red (uncorrected) 5 = Green (uncorrected) 6 = Blue (uncorrected) 7 = White (uncorrected) 8 = Black (uncorrected) 9 = Off	Not applicable when the project is in standby mode.

SERVICE

OSD Function	Operation command	Settings/Return Values		Note
Model	model	?	<String>	
Serial Number	ser.no	?	<String>	
Software Version	sw.ver	?	<String>	
Pixel Clock	pixel.clock	?	<String>	• In unit of MHz • Not applicable when the project is in standby mode or the input signal is not locked yet.
H Refresh Rate	h.refresh	?	<String>	Not applicable when the project is in standby mode or the input signal is not locked yet.
V Refresh Rate	v.refresh	?	<String>	Not applicable when the project is in standby mode or the input signal is not locked yet.
Lamp1.Time	lamp1.hours	?	<String>	
Lamp2.Time	lamp2.hours	?	<String>	
Power On Time	proj.runtime	?	<String>	
Lamp 1 Status	lamp1.stat	?	0 = Off 1 = On	Not applicable in standby mode
Lamp 2 Status	lamp2.stat	?	0 = Off 1 = On	Not applicable in standby mode
Factory Reset	fact.reset		(execute)	

Others

OSD Function	Operation command	Settings/Return Values		Note
Power On	power.on	(execute)		Not applicable in standby mode
Power Off	power.off	(execute)		Not applicable in standby mode
Projector Status	status	?	0 = standby 1 = warm up 2 = imaging 3 = cooling 4 = reset	

Note: The projector returns string "NA" when the input command does not apply to current projector status or setup.

Simulated IR remote controller commands

This control command simulates the IR remote controller and its control keys. It shares the same syntax of operation command. It begins with characters "ky", followed by control commands and settings separated by space blank [SP], and ended by carriage return pair "CR" and "ASCII hex 0D".Control command syntax:

ky[SP]<operation command>[CR]

Examples:

Power On	ky power.on [CR]
Power Off	ky power.off [CR]

List of simulated IR remote controller commands

Item	Function	Operation command	Description
1	Power On	power.on	Power On
2	Power Off	power.off	Power Off
3	Menu	menu	Display OSD menu
4	Exit	exit	Exit
5	Enter	enter	ENTER key
6	Up	up	Move cursor upward or change upward
7	Down	down	Move cursor downward or change downward
8	Left	left	Move cursor to the left or change to the left
9	Right	right	Move cursor to the right or change to the right

Control the Projector through a Network

This machine supports the following methods in remote controlling the projector through a network:
- Control projector through web browser.
- Control projector with RS-232 control or simulated IR commands via TCP/IP communication protocol.
- Control projector with PJLink standard commands.

Cable connection

You may connect the projector to a PC or to an external integrated video and control signal transmission box through LAN for remote control.

Connect the projector to a PC

See figure below for connecting the projector to a PC in RJ-45 cable for control.For connection through LAN, connect the PC to a hub through to the projector's HDBaseT/Lan port.
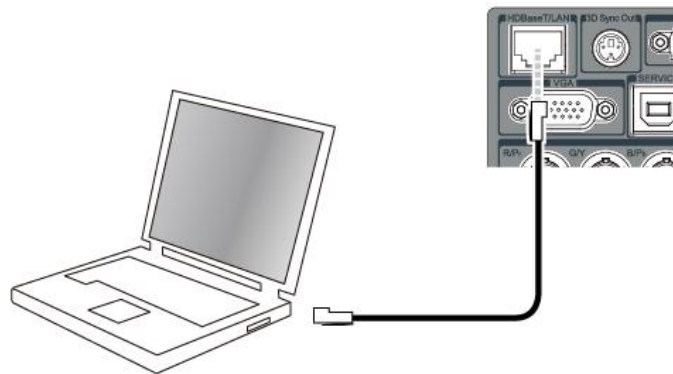
Connect with an external integrated video and control signal transmission box

You may connect the projector to an external integrated video and control signal transmission box with RJ-45 cable for concurrent video and networking control signal transmission.Please connect the PC to the input end of the transmission box with one RJ-45 cable and the output end of the transmission box to the HDBaseT/LAN input end of the projector with another RJ-45 cable.
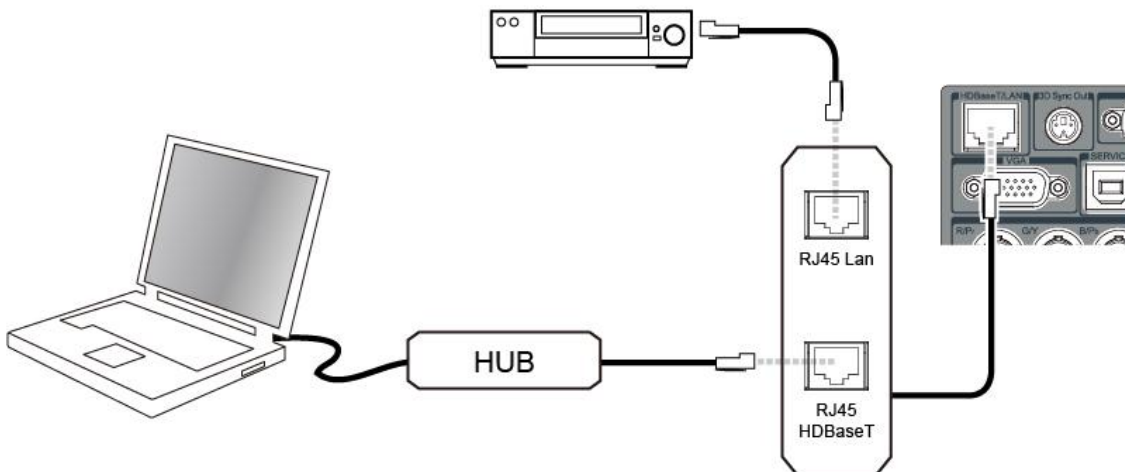
Set up the projector for networking

In case the remote network control is not connected to LAN or DHCP or the LAN is not activated, connect as illustrated below:

PICTURE	SIGNAL	SETUP	INSTALLATION	SERVICE

Network

IP Address	192.168.0.100
Subnet Mask	255.255.255.0
Gateway	192.168.0.1
DNS	192.168.0.1
DHCP	Off
Apply	↵/▶
MAC Address	00:00:00:00:00:00

RETURN = Back | Item Adjust ◀▶ | Scroll ▲▼

Caution:
In case the remote network control is not connected to LAN or DHCP or the LAN is not activated, set DHCP option to Off and then select Apply.The DHCP service assigns IP address and settings to devices automatically and keeps IP Address, Subnet, and Gateway options away from editing. In case the DHCP service of the LAN is not activated, set up the network manually.

Use ▲▼ and the Enter button to select Network and network settings:
IP Address: To specify an IP address, press the Enter button to show the IP address input window. Use the ◀▶ button to select the number in the address to be changed. Use the ▲▼ button to increase or decrease the number in the IP address.

Network	
IP Address	172 . xxx . xxx . xxx

Subnet: Set the subnet. The input method is the same as the IP address.
Gateway: Set the gateway. The input method is the same as the IP address.
DHCP: Enable or disable the DHCP service.When DHCP is set to ON, the DHCP server of the domain will assign an IP address to the projector. The IP address will appear in the IP address window and you don't need to make any input.Otherwise, the domain does not or cannot assign any IP address, and 0. 0. 0. 0 is shown on the IP address window.
Apply: Select this button and press Enter. It takes the projector several seconds to execute the change of the network setting till the following message disappears.

Setting network configuration, please wait

Please contact your network administrator in case the network remains disconnected.

Control the projector through a network

Control the projector through a web browser

Open the web browser of your control PC, type the projector's IP address, the projector's web server homepage displays with the following four options:

Projector Status: Current projector settings.
Alert Mail Setup: Settings for projector abnormality email reminders.In case of any abnormality the project sends emails to preset users.
Crestron: Crestron compatible web browser control pages
PJLink: Set up password for PJLink connection in this page.

Projector Status

Illustration below goes with projector at IP address "192.168.0.100":

Projector Status	System	
Alert Mail Setup	Model Name	DU6675
Crestron	Software Version	MD04
PJLink	System Status	Power On
	Display Source	VGA
	Lamp 1 Hours	2
	Lamp 2 Hours	9
	Error Status	(No Error)
	RJ45 Version	
	LAN Version	RE04
	IP address	192.168.0.100
	Subnet mask	255.255.255.0
	Default gateway	0.0.0.0
	DNS Server	0.0.0.0
	MAC address	00:18:23:29:EF:D1

System
Model Name   :   Projector model name.
Software Version :   The version of the software installed in the projector
System Status   :   Current projector startup status
Display Source   :   Display the current source.
Lamp 1 Hours   :   Display the usage hours of Lamp 1
Lamp 2 Hours   :   Display the usage hours of Lamp 2
Error Status   :   Indicate projector diagnosis message

Network control setup message (RJ-45 Version)
LAN Version   :   Network control software version number
IP address   :   Projector IP address setup
Subnet mask   :   Projector subnet address setup
Default gateway :   Projector gateway setup
DNS server   :   Projector DNS server setup
MAC address   :   Projector MAC address setup

Alert Mail Setup

This projector can send emails with projector abnormality messages to preset users. Set up the projector before enabling this function:

SMPT Server	:	Set up SMTP server name as the projector sends email via a SMTP server.
Port	:	Set up transmission port
User Name	:	Input target user name for the projector to send the reminder email to, through a SMTP server.
Password	:	Input user password.
E-mail Alert	:	Enable or Disable reminder email.
From	:	Set up email address of the email sender.
To	:	Set up email address of the email recipient.
CC	:	Set up email address of the email CC recipient.
Projector Name	:	Set up projector name or ID.
Location	:	Set up projector installation location.
Apply	:	Confirm your settings.Press this button to save changes you have made.
Send Test Mail	:	Send test email.The reminder email is sent only in the event of a projector error.Press this button to validate email settings after setup is completed.

Crestron control page

Click the Crestron option in your project's web server homepage, the Crestron control page displays in new tab.

Power: Press this button to power on or off the projector

Source List: Switch projector input signal sources. Press the ▲ or ▼ arrow key to scroll through the dropdown list of available signal sources

Image adjust options

Press the ◄ or ► arrow key to scroll through available adjustment options.

Freeze: Freeze current projection screen.The projection screen prompts the "Still open" message after the freeze function enabled.Press the Freeze button again to unfreeze the screen.
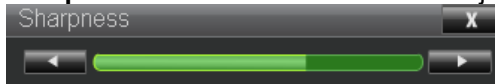
Contrast: Click this button and the adjustment window displays. Click the ◄► arrow keys to adjust contrast.

Brightness: Click this button and the adjustment window displays. Click the ◄► arrow keys to adjust brightness.
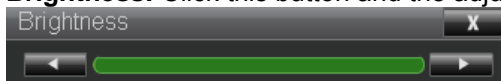
Sharpness: Click this button and the adjustment window displays. Click the ◄► arrow key to adjust sharpness.
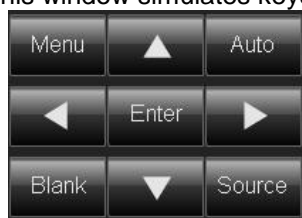

Zoom: Zoom the projection image.Click the "+" key to zoom in and "-" to zoom out.You may click the four arrow keys in the window to move the zoomed projection image.

Control key window
This window simulates keys on the remote controller and control panel.

Enter: Confirm and select function options
Menu: Press to display OSD menu. Press again to exit it.
Auto: Run the auto image adjustment function.
Blank: Pause the image projection, i.e. the projection image is masked.Press again to resume the projection.
Source: The signal source menu displays.Press to display signal source in the projection screen.

Tool: See user manual included with the products you want to use together with your Crestron equipment for its setup
Info: Display current projector status and Crestron setup.

Control projector with the PJLink protocol

PJLink is a standard designed by the Japan Business Machine and Information System Industries Association (JBMA) for controlling projectors with genuine commands.A PJLink standard compliant projector from any supplier can be controlled with these genuine commands.This product supports PJLink control commands. Please set up password for PJLink connection in this page.

| **PJLink Security** | : | Select On to enable PJLink password or Off to disable it. |
| **Password** | : | Set up password at length up to 32 characters. |

For details on PJLink standard commands and connection methods, please visit the PJLink official web site.

Control projector with TCP/IP communication protocol

This projector supports TCP/IP communication protocol which enables you to send RS-232 operation commands or simulated IR commands to control projectors connected with RJ45 cable via terminal connection application software, e.g. Tera Term.Please set up IP address and port number with the terminal connection application software before controlling your projector with TCP/IP communication protocol:

IP Address: IP address of projector
Port: Please set transmission port number to 7000

See the section on serial interface RS-232 control commands for details on RS-232 operation commands or simulated IR commands.

About the VIVITEK support

If you cannot find solutions from this user guideline, please contact us using the contact information below:

North America
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15700 Don Julian Road, Suite B
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