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Remote Communicaton Manual

DU980oZ

DLP®
TEXAS INSTRUMENTS

Table of Contents

The Serial Interface RS-232 Command

This projector supports to control by RS-232 command, there exist two types of RS-232 serial commands:

- Operation command: Available menu options are INPUT, PICTURE, ALIGNMENT, CONTROL and SERVICE.
- Simulated IR remote controller commands: Controls projector via RS-232 command, the commands simulate IR remote controller and its control keys.

Communication parameter

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	9600 bps
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

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	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 projection lens 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

INPUT

OSD Function	Operation command	Settings/Return Values		Note
Input Select	input.sel	? =	0 = HDMI 1 1 = HDMI 2 2 = VGA 3 = Component / BNC 4 = DVI 5 = DisplayPort 6 = 3G-SDI 7 = HDBaseT	• Not applicable when the project is at standby mode
PIP/PIP Option	pip.mode	? =	0 = Off 1 = On	• Not applicable when the project is at standby mode and 3D mode
PIP/PIP Input	pip.sel	? =	0 = HDMI 1 1 = HDMI 2 2 = VGA 3 = Component / BNC 4 = DVI 5.= DisplayPort 6 = 3G-SDI 7 = HDBaseT	• Not applicable when the project is at standby mode or PIP option is set to Off.
PIP/ Position	pip.pos	? =	0 = Top Left 1 = Top Right 2 = Bottom Left 3 = Bottom Right 4 = PBP	• Not applicable when the project is at standby mode or PIP is set to Off.
Auto Source	auto.src	? =	0 = Off 1 = On	• Not applicable when the projector is at standby mode.
Auto Sync	Auto.mg		(execute)	• Available when source is locked.
Color Space	color.space	? =	0 = Auto 1 = YPbPr (Rec. 709) 2 = YcbCr (Rec. 601) 3 = RGB-PC (0-255) 4 = RGB-Video (16-235)	• Available when source is locked.
Aspect Ratio	aspect	? =	0 = 5:4 1 = 4:3 2 = 16:10 3 = 16:9 4 = 1.88 5 = 2.35 6 = LetterBox 7 = Source 8 = Native	• Available when the source is locked.
VGA Setup/H Total	h.total	? = + -	0-200	• Available when the source is locked Or Input source is VGA or Component(RGBHV)
VGA Setup/H Start	h.pos	? = + -	0-200	• Available when the source is locked Or Input source is VGA or Component(RGBHV)

OSD Function	Operation command	Settings/Return Values		Note
VGA Setup/H Phase	h.phase	? = + -	0-200	• Available when the source is locked. • Input source is VGA or Component(RGBHV)
VGA Setup/V Start	v.pos	? = + -	0-200	• Available when the source is locked. • Input source is VGA or Component(RGBHV)
Test Pattern	pattern	? =	0 = Off 1 = CrossHatch 2 = Color Bar 3 = Checkboard 4 = H Burst 5 = V Burst 6 = White 7 = Red 8 = Green 9 = Blue 10 = Black	• Not applicable when the project is at standby mode.
3D/3D Format	3d.format	= ?	0 = Off 1 = Auto 2 = Side-By-Side (Half) 3 = Top-And-Bottom 4 = Frame Sequential	• Not applicable when the project is at standby model.
3D/Eye Swap	3d.swap	= ?	0 = Normal 1 = Reverse	• Applicable when the projector is at 3D mode.
3D/DLP Link	3d.dlplink	= ?	0 = Off 1 = On	• Applicable when 3D.Darktime is set to 2 (1.95ms)
3D/Dark Time	3d.darktime	= ?	0 = 0.65 ms 1 = 1.3 ms 2 = 1.95 ms	• Applicable when the projector is at 3D mode.
3D/sync delay	3d.syncdelay	= ?	1 – 60	• Applicable when the projector is at 3D mode.
3D/Sync Reference	3d.syncref	= ?	0 = External 1 = Internal 2 = Auto	• Not applicable when the project is at standby mode.

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 at standby mode.
Brightness	bright	? = + -	0-200	• Not applicable when the project is at standby mode or the input signal is not locked yet.
Contrast	contrast	? = + -	0-200	• Not applicable when the project is at standby mode or the input signal is not locked yet.
Saturation	saturat	? = + --	0-200	• Apply for YUV signal input • Not applicable if the input signal is not locked yet.

OSD Function	Operation command	Settings/Return Values		Note
Hue	tint	? = + -	0-200	• Apply for YUV signal input • Not applicable if the input signal is not locked yet.
Sharpness	sharp	? = + -	0-15	• Not applicable when the project is in standby mode or the input signal is not locked yet.
Color Temperature	color.temp	? =	0 = 5400K 1 = 6500K 2 = 7500K 3 = 9300K 4 = Native	• Not applicable at 3D mode
Gamma	gamma	? =	0 = 1.0 1 = 1.8 2 = 2.0 3 = 2.2 4 = 2.35 5 = 2.5 6 = S-Curve 7 = DICOM	• Not applicable when the project is at standby mode or the input signal is not locked yet.
Color Gamma	Color.gamut	? =	0 = REC709 1 = EBU 2 =SMPTE 3 = Native	• Not applicable when the project is at standby mode or the input signal is not locked yet.
Input Balance /Red Offset	red.offset	? = + -	0-200	• Available when the input source is locked.
Input Balance /Green Offset	green.offset	? = + -	0-200	• Available when the input source is locked.
Input Balance /Blue Offset	blue.gain	? = + -	0-200	• Available when the input source is locked.
Input Balance /Red Gain	red.gain	? = + -	0-200	• Available when the input source is locked.
Input Balance /Green Gain	green.gain	? = + -	0-200	• Available when the input source is locked.
Input Balance /Blue Gain	blue.gain	? = + -	0-200	• Available when the input source is locked.
HSG/Red Gain	hsg.r.gain	? = + -	0-200	• Available when the input source is locked.
HSG/Green Gain	hsg.g.gain	? = + -	0-200	• Available when the input source is locked.

OSD Function	Operation command	Settings/Return Values		Note
HSG/Blue Gain	hsg.b.gain	? = + -	0-200	• Available when the input source is locked.
HSG/Cyan Gain	hsg.c.gain	? = + -	0-200	• Available when the input source is locked.
HSG/Magenta Gain	hsg.m.gain	? = + -	0-200	• Available when the input source is locked.
HSG/Yellow Gain	hsg.y.gain	? = + -	0-200	• Available when the input source is locked.
HSG/Red/Saturation	hsg.r.sat	? = + -	0-200	• Available when the input source is locked.
HSG/Green/Saturation	hsg.g.sat	? = + -	0-200	• Available when the input source is locked.
HSG/Blue/Saturation	hsg.b.sat	? = + -	0-200	• Available when the input source is locked.
HSG/Cyan/Saturation	hsg.c.sat	? = + -	0-200	• Available when the input source is locked.
HSG/Magenta/ Saturation	hsg.m.sat	? = + -	0-200	• Available when the input source is locked.
HSG/Yellow/Saturation	Hsg.y.sat	? = + -	0-200	• Available when the input source is locked.
HSG/Red/Hue	hsg.r.hue	? = + -	0-200	• Available when the input source is locked.
HSG/Green/Hue	hsg.g.hue	? = + -	0-200	• Available when the input source is locked.
HSG/Blue/Hue	Hsg.b. hue	? = + -	0-200	• Available when the input source is locked.
HSG/Cyan/Hue	hsg.c. hue	? = + -	0-200	• Available when the input source is locked.

OSD Function	Operation command	Settings/Return Values		Note
HSG/Magenta/Hue	hsg.m. hue	? = + -	0-200	• Available when the input source is locked.
HSG/Yellow/Hue	Hsg.y. hue	? = + -	0-200	• Available when the input source is locked.
HSG/White/Red Gain	hsg.wr.gain	? = + -	0-200	• Available when the input source is locked.
HSG/White/Green Gain	hsg.wg.gain	? = + -	0-200	• Available when the input source is locked.
HSG/White/Blue Gain	Hsg.wb.gain	? = + -	0-200	• Available when the input source is locked.
HSG Reset	hsg.reset		(execute)	• Available when the input source is locked.
Noise Reduction	nr	? = + -	0-3 (Noise Reduction)	• Available when the input source is locked.
Dynamic Black	dblack	? =	0 = Off 1 = On	• Not applicable when the projector is at below condition: - Standby mode. - Edge Blend is On - 3D mode - Dynamic Black is off
Light Off Timer	Light.off.timer	? =	0 = Disable 1 = 0.5 Seconds 2 = 1.0. Seconds 3 = 1.5 Seconds 4 = 2.0. Seconds 5 = 3.0. Seconds 6 = 4.0. Seconds	• Not applicable when the projector is at below condition: - Standby mode. - Edge Blend is On - 3D mode - Dynamic Black is off
Freeze	freeze	? =	0 = Off 1 = On	• Not applicable when the projector is at standby mode

Alignment

OSD Function	Operation command	Settings/Return Value		Note
Lens control Zoom	zoom.in		(execute)	• Not applicable when the projector is at standby mode
Lens control Zoom	zoom.in.2		(execute)	• Not applicable when the projector is at standby mode.
Lens control Zoom In	zoom.in.3		(execute)	• Not applicable when the projector is at standby mode.
Lens control Zoom Out	zoom.out		(execute)	• Not applicable when the projector is at standby mode.
Lens control Zoom Out	zoom.out.2		(execute)	• Not applicable when the projector is at standby mode.
Lens control Zoom Out	zoom.out.3		(execute)	• Not applicable when the projector is at standby mode.
Lens control Focus near	focus.near		(execute)	• Not applicable when the projector is at standby mode
Lens control Focus near	focus.near.2		(execute)	• Not applicable when the projector is at standby mode.
Lens control Focus near	focus.near.3		(execute)	• Not applicable when the projector is at standby mode.
Lens control Focus far	focus.far		(execute)	• Not applicable when the projector is at standby mode.
Lens control Focus far	focus.far.2		(execute)	• Not applicable when the projector is at standby mode.
Lens control Focus far	focus.far.3		(execute)	• Not applicable when the projector is at standby mode
Lens control Lens up	lens.up		(execute)	• Not applicable when the projector is at standby mode.
Lens control Lens up	lens.up.2		(execute)	• Not applicable when the projector is at standby mode.
Lens control Lens up	lens.up.3		(execute)	• Not applicable when the projector is at standby mode.
Lens control Lens down	lens.down		(execute)	• Not applicable when the projector is at standby mode.
Lens control Lens down	lens.down.2		(execute)	• Not applicable when the projector is at standby mode.
Lens control Lens down	lens.down.3		(execute)	• Not applicable when the projector is in standby mode.
Lens control Len left	lens.left		(execute)	• Not applicable when the projector is at standby mode
Lens control Len left	lens.left.2		(execute)	• Not applicable when the projector is at standby mode.
Lens control Len left	lens.left.3		(execute)	• Not applicable when the projector is at standby mode.
Lens control Lens right	lens.right		(execute)	• Not applicable when the projector is at standby mode.
Lens control Lens right	lens.right.2		(execute)	• Not applicable when the projector is at standby mode.

OSD Function	Operation command	Settings/Return Value		Note
Lens control Lens right	lens.right.3		(execute)	• Not applicable when the projector is at standby mode.
Lens Memory / Load Memory	lens.load	? =	1-10 set of lens memory (Load)	• Not applicable when the projector is at standby mode
Lens Memory / Save Memory	lens.save	? =	1-10 set of lens memory (Save)	• Not applicable when the projector is at standby mode.
Lens Memory / Clear Memory	lens.clear	? =	1-10 set of lens memory (Save)	• Not applicable when the projector is at standby mode.
Lens Memory / Lens Memory	Lens.mem.1		(execute)	• Not applicable when the projector is at standby mode.
Lens Memory / Lens Memory	Lens.mem.2		(execute)	• Not applicable when the projector is at standby mode.
Lens Memory / Lens Memory	Lens.mem.3		(execute)	• Not applicable when the projector is at standby mode.
Lens Memory / Lens Memory	Lens.mem.4		(execute)	• Not applicable when the projector is at standby mode
Lens Memory / Lens Memory	Lens.mem.5		(execute)	• Not applicable when the projector is at standby mode.
Lens Memory / Lens Memory	Lens.mem.6		(execute)	• Not applicable when the projector is at standby mode.
Lens Memory / Lens Memory	Lens.mem.7		(execute)	• Not applicable when the projector is at standby mode.
Lens Memory / Lens Memory	Lens.mem.8		(execute)	• Not applicable when the projector is at standby mode.
Lens Memory / Lens Memory	Lens.mem.9		(execute)	• Not applicable when the projector is at standby mode.
Lens Memory / Lens Memory	Lens.mem.10		(execute)	• Not applicable when the projector is at standby mode.
Center Lens	lens.center		(execute)	• Not applicable when the projector is at standby mode or Lens Lock is
Lens Lock	Lens.lock	? =	0 = Off 1 = On	• Not applicable when the projector is at standby mode.
Digital Zoom / Digital Zoom	digi.zoom	= ?	0 - 100	• Not applicable when the projector is at standby mode.
Digital Zoom / Digital Pan	digi.pan	= ?	-320 - 320 (depend on input timing; use "op digi.pan ?" to query current setting)	• Not applicable when the projector is at standby mode.
Digital Zoom / Digital Scan	digi.scan	= ?	-200 - 200 (depend on input timing; use "op digi.scan.?" to query current setting	• Not applicable when the projector is at standby mode.
Digital Zoom / Reset	digi.zoom.rst		(execute)	• Not applicable when the projector is at standby mode.
Active Warp (Not on OSD)	active.warp	= ?	1 = Keystone 2 = Four Conner 3 = Rotation 4 = Pin/Barrel 5 = Arc	• Not available when projector is at standby mode.
Reset Warp setting (Not on OSD)	Warp.reset		(execute)	• Not available when projector is at standby mode.

OSD Function	Operation command	Settings/Return Value		Note
Warp / Keystone H	h.keystone	= ?	Horizontal -600 ~ + 600	• Available when active.warp is set to 1 (keystone) or 4 (Pincushion)
Warp / Keystone V	v.keystone	= ?	Vertical -400 ~ + 400	• Available when active.warp is set to 1 (keystone) or 4 (Pincushion)
Warp / Rotation	rotation	= ?	-100 ~ +100	• Available when active.warp is set to 1 (keystone), 3 (Rotation) or 4 (Pincushion).
Warp / H Pin/Barrel	h.pin.barrel	= ?	-150 ~ + 300	• Available when active.warp is set to (Pincushion).
Warp/ V Pin/Barrel	v.pin.barrel	= ?	-150 ~ + 300	• Available when active.warp is set to 4 (Pincushion).
Warp/ Top Left Corner/Horizontal	4corner.ulx	= ?	-192 ~+192	• Available when active.warp is set to 2 (Four Corner).
Warp/ Top Left Corner/Vertical	4corner.uly	= ?	-120 ~+120	• Available when active.warp is set to 2 (Four Corner).
Warp/ Top Right Corner/ Horizontal	4corner.urx	= ?	-192 ~+192	• Available when active.warp is set to 2 (Four Corner).
Warp/ Top Right Corner/ Vertical	4corner.ury	= ?	-120 ~+120	• Available when active.warp is set to 2 (Four Corner).
Warp/Bottom left Corner/ Horizontal	4corner.llx	= ?	-192 ~+192	• Available when active.warp is set to 2 (Four Corner).
Warp/Bottom left Corner/ Vertical	4corner.lly	= ?	-120 ~+120	• Available when active.warp is set to 2 (Four Corner).
Warp/Bottom Right Corner/ Horizontal	4corner.lrx	= ?	-192 ~+192	• Available when active.warp is set to 2 (Four Corner).
Warp/Bottom Right Corner/ Vertical	4corner.lry	= ?	-120 ~+120	• Available when active.warp is set to 2 (Four Corner).
Warp / Arc / Top	Arc.top	= ?	-150 ~+150	• Available when active.warp is set to 5 (Arc).
Warp / Arc / Bottom	Arc.bottom	= ?	-150 ~+150	• Available when active.warp is set to 5 (Arc)
Warp / Arc / Left	Arc.left	= ?	-150 ~+150	• Available when active.warp is set to 5 (Arc)
Warp / Arc / Right	Arc.right	= ?	-150 ~+150	• Available when active.warp is set to 5 (Arc)
Blanking / Top	blanking.top	= ?	0 ~ 360	• Not available when projector is at standby mode.
Blanking / Bottom	blanking.bottom	= ?	0 ~ 360	• Not available when projector is at standby mode.
Blanking / left	blanking.left	= ?	0 ~ 534	• Not available when projector is at standby mode.
Blanking / Right	blanking.right	= ?	0 ~ 534	• Not available when projector is at standby mode.
Blanking / Reset	blanking.reset		(execute)	• Not available when projector is at standby mode.
Edge Blend	eb.stat	= ?	0 = Off 1 = On	• Not available when projector is at standby mode.
Edge Blend / Align Pattern	eb.adl	= ?	0 = Off 1 = On	• Available when Edge Blend is set to On (eb.stat =1).

OSD Function	Operation command	Settings/Return Value		Note
Edge Blend / White Level	eb.top	= ?	0 100~500	• Available when Edge Blend is set to On (eb.stat =1).
Edge Blend / White Level	eb.bottom	= ?	0 100~500	• Available when Edge Blend is set to On (eb.stat =1).
Edge Blend / White Level	eb.left	= ?	0 100~500	• Available when Edge Blend is set to On (eb.stat =1).
Edge Blend / White Level	eb.right	= ?	0 100~500	• Available when Edge Blend is set to On (eb.stat =1).
Edge Blend / Black Level	eb.blu.top	= ?	0 ~ 32	• Available when Edge Blend is set to On (eb.stat =1).
Edge Blend / Black Level	eb.blu.bottom	= ?	0 ~ 32	• Available when Edge Blend is set to On (eb.stat =1).
Edge Blend / Black Level	eb.blu.left	= ?	0 ~ 32	• Available when Edge Blend is set to On (eb.stat =1).
Edge Blend / Black Level	eb.blu.right	= ?	0 ~ 32	• Available when Edge Blend is set to On (eb.stat =1).
Edge Blend / Black Level	eb.all	= ?	0 ~ 32	• Available when Edge Blend is set to On (eb.stat =1).
Edge Blend / Black Level	eb.red	= ?	0 ~ 32	• Available when Edge Blend is set to On (eb.stat =1).
Edge Blend / Black Level	eb.green	= ?	0 ~ 32	• Available when Edge Blend is set to On (eb.stat =1).
Edge Blend / Black Level	eb.blue	= ?	0 ~ 32	• Available when Edge Blend is set to On (eb.stat =1).
Edge Blend / Reset	eb.reset		(execute)	• Available when Edge Blend is set to On (eb.stat =1).
Screen Format	screen.format	= ?	0 = 16:10 1 = 16:9 2 = 4:3	• Not available when the projector is at standby mode.

CONTROL

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	• Not available when the projector is at standby mode.
Projection mode	orientation	= ?	0 = Front Desktop 1 = Front Ceiling 2 = Rear Desktop 3 = Rear Ceiling 4 = Auto	• Not available when the projector is at standby mode.
Altitude	altitude	? =	1 = On 2 = Auto	• Not available when the Network Standby is set to ECO(lan.power=0)
Auto Power Off	auto.powoff	? =	0 = Off 1 = On	• Not available when the projector is at standby mode.

OSD Function	Operation command	Settings/Return Values		Note
Auto Power On	auto.powon	? =	0 = Off 1 = On	• Not available when the projector is at standby mode.
Network/ Standby Power	lan.power	= ?	0 = Off 1 = On	• Not applicable when the project is at standby mode.
Network/DHCP	net.dhcp	? =	0 = Off 1 = On	• Not applicable when the project is at standby mode.
Network/IP Adress	net.ipaddr	? =	<string>	• Not applicable when the project is at standby mode.
Network/Subnet Mask	net.subnet	? =	<string>	• Not applicable when the project is at standby mode.
Network/Gateway	net.gateway	? =	<string>	• Not applicable when the project is at standby mode.
Network/DNS	net.dns	= ?	<string>	• Not applicable when the project is at standby mode.
Light Power	laser.mode	? =	0 = Eco Mode 1 = Normal Mode 2 =custom Power Mode	• Not applicable when the project is in standby mode •
Customer Power Level	laser.power	? =	20-100 Adjust range: 20%-100%	• Not applicable when the project is in standby mode and Light Power is not set to Custom Power Level (laser.mode=2).
Constant Brightness Enable / Disable	Laser.cbc.enable	? =	0 = Off 1 = On	• Not applicable when the project is in standby mode
Constant Brightness Check the status of the function.	laser.cbc.state	? =	0 = Normal 1 = Laser power is driven to the limit, Constant Brightness can't work.	•
Background	no.signal	? =	0 = Logo 1 = Black 2 = Blue	• Not applicable when the project is in standby mode
Startup Logo	startup.logo	? =	0 = Off 1 = On	• Not applicable when the project is at standby mode
Remote Sensor	ir.enable	= ?	0 = Off (Disable) 1 = On (Enable)	• Not applicable when the project is in standby mode
Trigger	trig.1	? =	0 = Off 1 = Screen 2 = 5:4 3 = 4:3 4 = 16:10 5 = 16:9 6 = 1.88 7 = 2.35 8 = LetterBox 9 = Source 10 = Native	• Not applicable when the projector is at standby mode.

OSD Function	Operation command	Settings/Return Values		Note
Trigger	trig.1	? =	0 = Off 1 = Screen 2 = 5:4 3 = 4:3 4 = 16:10 5 = 16:9 6 = 1.88 7 = 2.35 8 = LetterBox 9 = Source 10 = Native	• Not applicable when the projector is at standby mode.
Infrared Remote/ Remote Sensor	Ir.enable	= ?	0 = Off (Disable) 1 = On (Enable)	• Not applicable when the project is at standby mode
Infrared Remote/ ID Control Enable	Id.control.enable	= ?	0 = Off (Disable) 1 = On (Enable)	• Not applicable when the project is at standby mode
Infrared Remote/ Control ID Number	Control.id	= ?	1-99	• Not applicable when the project is at standby mode and ID Control is disabled(off)
OSD Settings/ Menu Position	osd.menupos	= ?	0 = Top Left 1 = Top Right 2 = Bottom Left 3 = Bottom Right 4 = Center	• Not applicable when the project is at standby mode
OSD Settings/ Menu Transparency	osd.trans	= ?	0 = 0% 1 = 25% 2 = 50% 3 = 75%	• Not applicable when the project is at standby mode
OSD Settings/ Time Out	osd.timer	= ?	0 = Always On 1 = 10 Seconds 2 = 30 Seconds 3 = 60 Seconds	• Not applicable when the project is at standby mode
OSD Settings/ Message Box	osd.msgbox	= ?	0 = Off 1 = On	• Not applicable when the project is at standby mode

SERVICE

OSD Function	Operation command	Settings/Return Values		Note
Model	model	?	<String>	
Serial Number	ser.no	?	<String>	
Software Version	sw.ver	?	<String>	
Active Source	act.source	?		• Applicable when the input source is locked.
Signal format	signal	?	<string>	• Applicable when the input source is locked.
H Refresh Rate	h.refresh	?	<number>	• Applicable when the input source is locked.
V Refresh Rate	v.refresh	?	<number>	• Applicable when the input source is locked.
Pixel Clock	pixel.clock	?	<number>	• Applicable when the input source is locked.
Light Time	laser.hours	?	<number>	
Factory Reset	fact.reset		(execute)	

Others

Function	Operation command	Settings/Return Values		Note
Power On	power.on		(execute)	
Power Off	power.off		(execute)	
Projector Status	status	?	0 = Standby 1 = Warm Up 2 = Imaging 3 = Cooling 4 = Error	
Blank	blank	= ?	0= Disable 1= Enable	• Not applicable when the project is at standby mode
Error Detection	errcode	?	<string>	•
System Temperature - Ti	ti	?	<number>	• Not applicable when the project is in standby mode
System Temperature - Ti2	ti2	?	<number>	• Not applicable when the project is in standby mode
System Temperature - Tc	tc	?	<number>	• Not applicable when the project is in standby mode
System Temperature - Tb1	tb1	?	<number>	• Not applicable when the project is in standby mode
System Temperature - Tb2	tb2	?	<number>	• Not applicable when the project is in standby mode

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 remotely controlling the projector through a network:

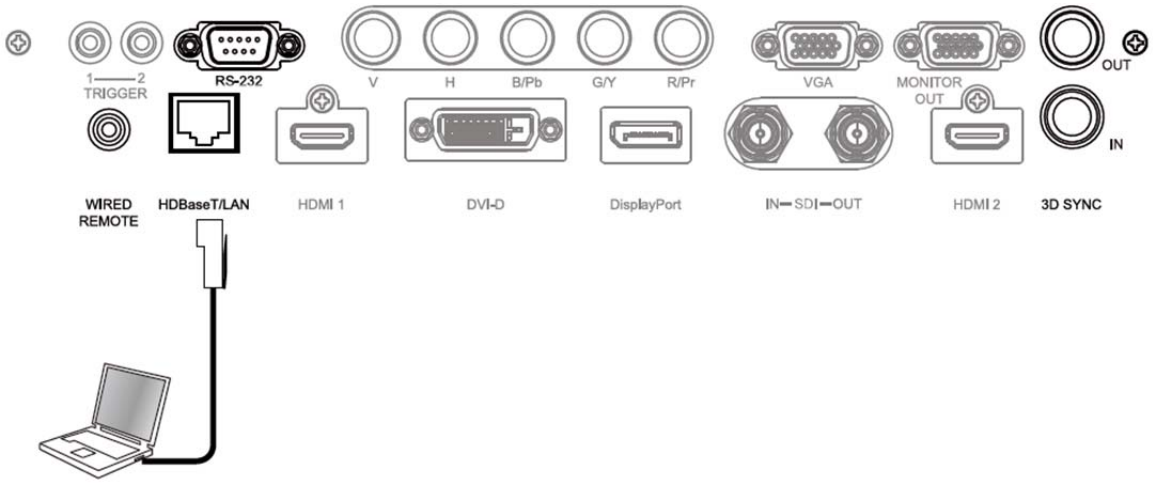
- Control projector through web browser.
- Control projector with RS-232 control or simulated IR commands via TCP/IP communication protocol.

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.

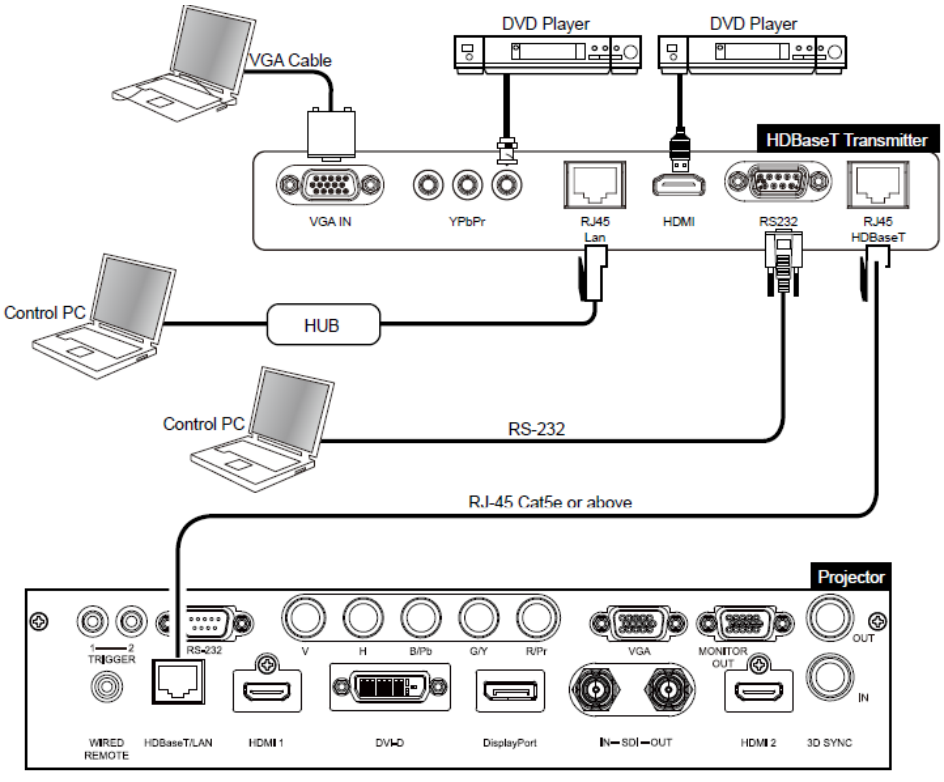
Connect the projector to a PC

See figure below for connecting the projector to a PC in RJ-45 cable for control. For connection through LAN, connect the hub through to the projector's HDBaseT/LAN port.



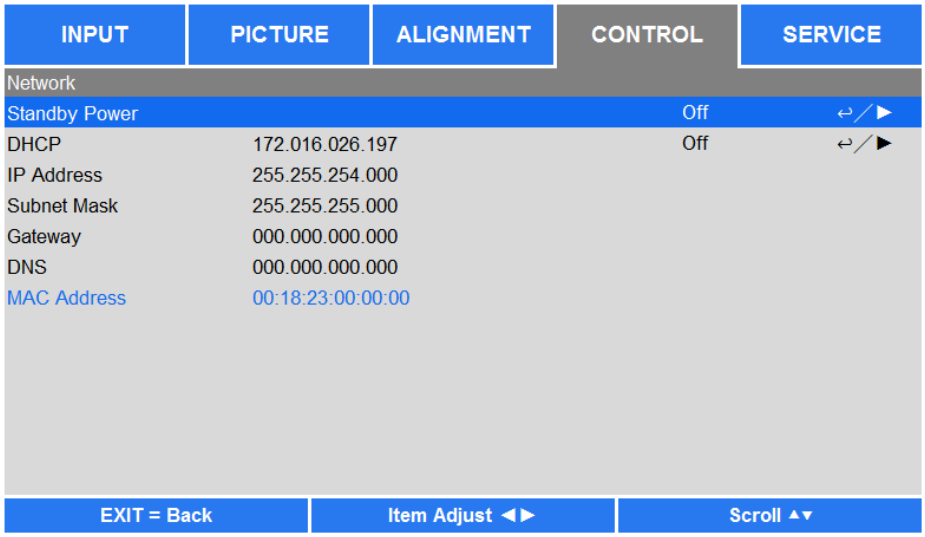
Connect with an external integrated video and control signal transmission box

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 transmission box with one RJ-45 cable or RS-232 cable, then connect the transmission box to the HDBaseT/LAN terminal of the projector by one RJ-45 cable, please refer to below illustration.



Set up the projector for networking

Before performing projector control by network, please configurate the network setting and make sure Standby Power is set to On.



Network Mode: Switch network mode for projector control or service, the default setting is Projector Control.

Projector Control: Switch Network Mode for projector control.

Service: Switch Network Mode for service, the network configuration is changed to default setting for service. Note this option is for firmware update in service only.

Standby Power: Select the standby power consumption option

On: This is highest standby power consumption option for enabling projector control via RS-232 and LAN. Please select this option if you would like to control the projector via Ethernet.

Off: the standby power consumption is kept under 0.5W, RS-232 and network control are turned off

Caution:
Network and RS-232 control are disabled if Standby Power is set to off for reducing the standby power consumption (less 0.5W). Please make sure Standby Power is set to On before controlling the projector via RS-232 or LAN.

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 set the IP address. Otherwise, the domain does not or cannot assign any IP address, and 0. 0. 0. 0 is shown on the IP address window.

IP Address: Set DHCP “OFF” and specify an IP address manually. Use the ◄► button to select the number in the address to change. Use the ▲▼ button to increase or decrease the number in the IP address.

Subnet Mask: Set the sub mask. The input method is the same as the setting for IP address.

Gateway: Set the gateway. The input method is the same as the setting for IP address.

DNS: Set the DNS. The input method is the same as the setting for IP address.

MAC Address: Show projector’s MAC Address.

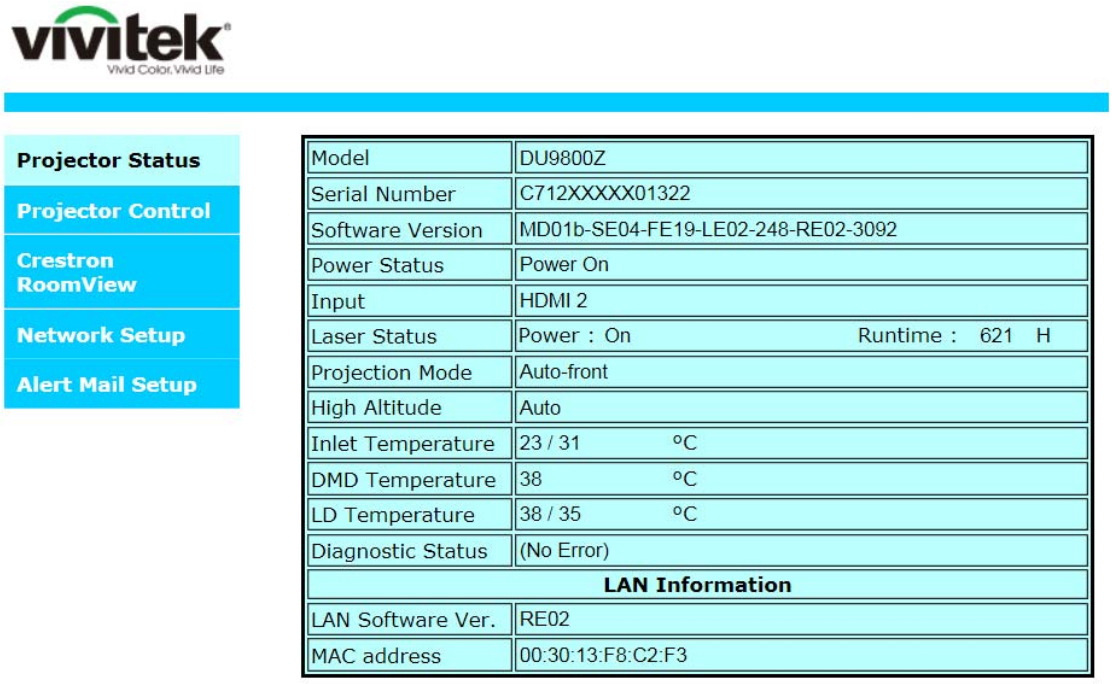
Caution:
Search DHCP or IP address, it will take the projector several seconds to apply network configuration.

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 left of the web page shows below four options:

Projector Status: Display current projector settings.
Projector Control: This page provides power buttons, input options and Lens control button for the control.
Crestron RoomView: Display Crestron web control page.
Network Setup: Setting for projector link.
Alert Mail Setup: Settings for projector abnormality email reminders. In case of any abnormality the project sends emails to preset users.

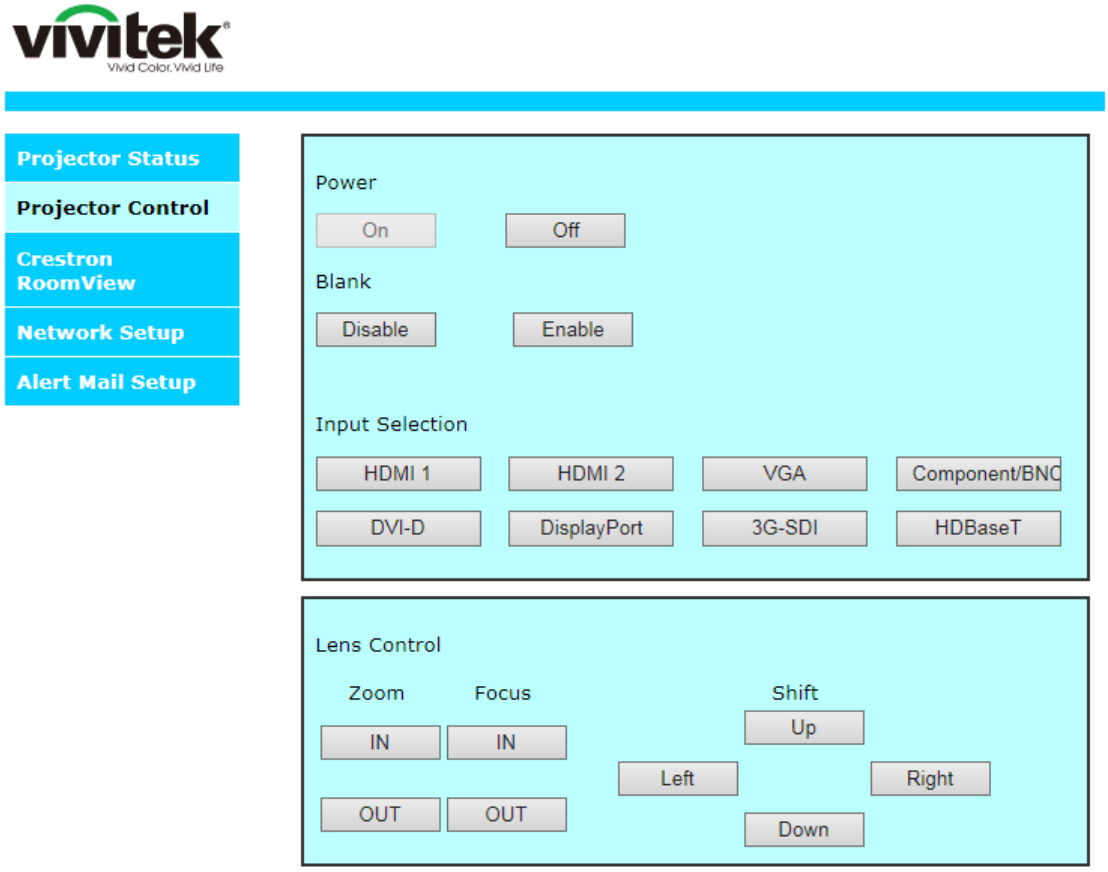


Projector Status
This page shows the current status of the projector.

Model	: Projector model name
Software Version	: The version of the software installed in the projector
Power Status	: Current projector startup status
Input	: Display the current input source.
Laser status	: Display current light source status and the usage.
Projection Mode	: Display current projection mode
High Altitude	: Display current High Altitude setting.
Intake Temperature	: Display detected temperature of intake air.
DMD Temperature	: Display detected temperature by the sensor near DMD chip.
Laser Temperature	: Display detected temperature by the sensor on laser module.
Diagnostic Status	: Indicate self-diagnosis message by the projector.
LAN Information	
LAN Software Version	: Network control software version number
MAC address	: Projector MAC address setup

Projector Control

This page provides the control buttons for power, blank, Input Selection and Lens control.



Power : Projector power on/off control.
Blank : Interrupt the projection temporarily or start the projection again.
Input Selection : Select the input source by pressing the buttons.
Lens Control : Select the button to adjust Zoom, Focus or Lens position.

Crestron RoomView

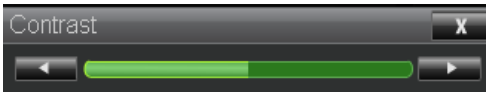
This page shows Crestron control page for projector control, the available options are as below options.

Power: Press this button to turn power on or off.

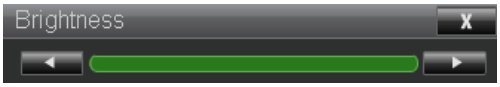
Source List: Switch projector input sources. Press the ▲ or ▼ arrow key to scroll through the dropdown list of available input sources

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.

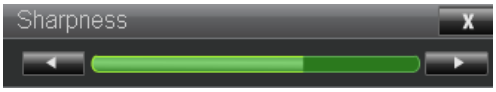
Contrast: Click this button and the adjustment window displays. Click the ◄► arrow keys to adjust contrast.



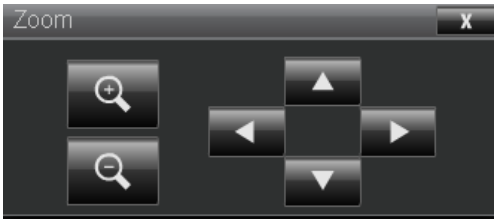
Brightness: Click this button and the adjustment window displays. Click the ◄► arrow keys to adjust brightness.



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.



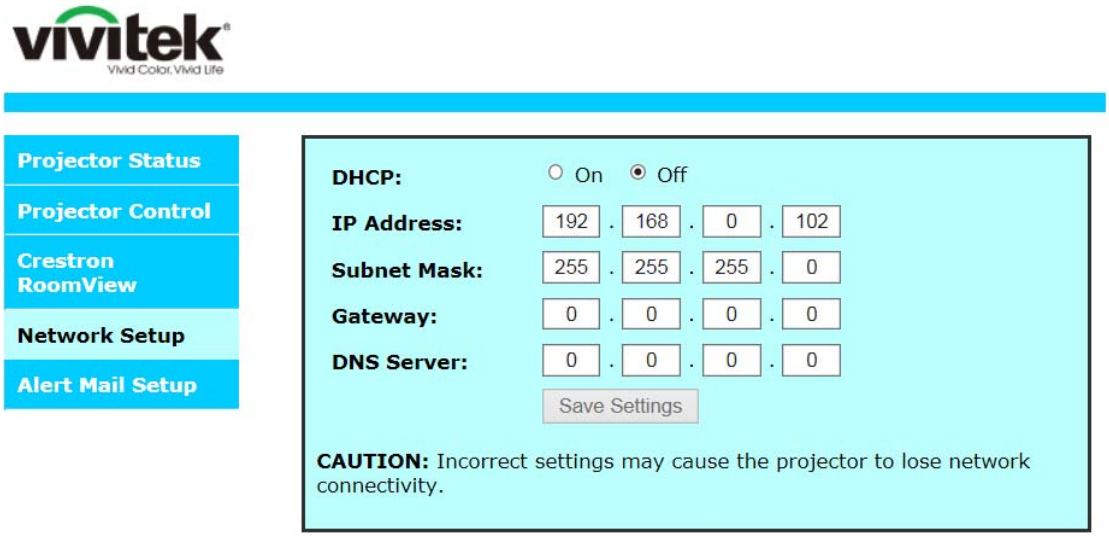
Control key window
This window simulates keys on the remote controller and control panel.

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.

Tools: Check Crestron equipment for its setup
Info: Display current projector status and Crestron setup.

Network Setup

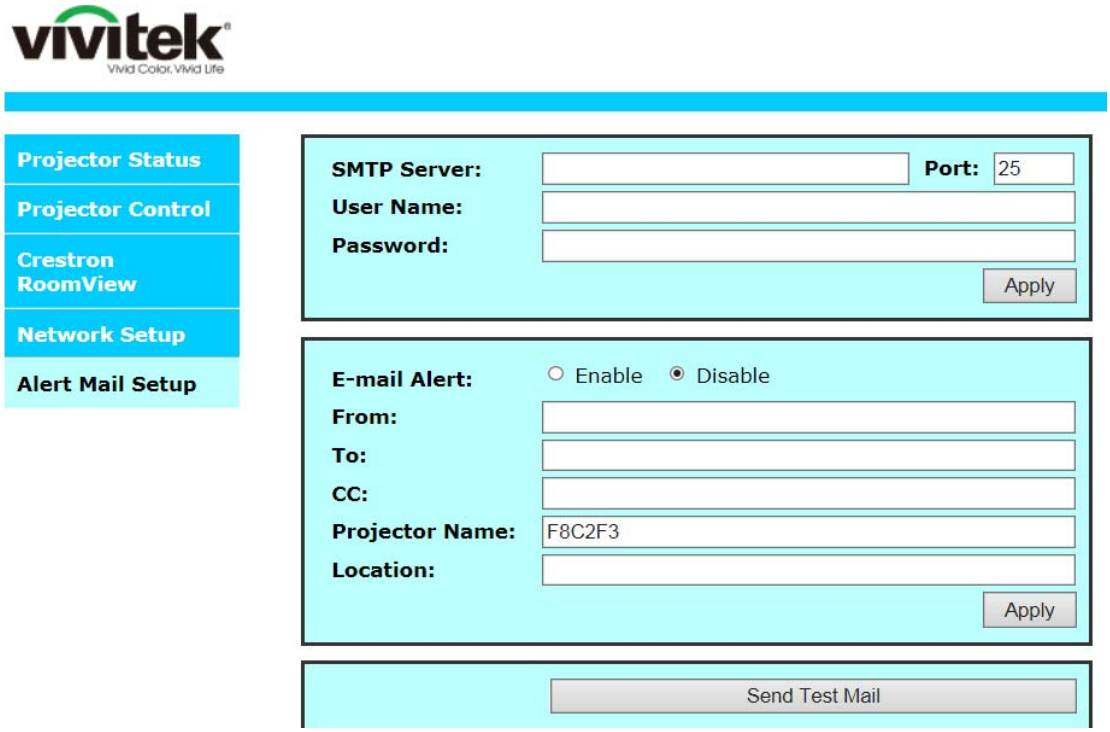
This page allows you to configure network setting of the projector.



DHCP	:	The DHCP server of the domain will assign an IP address to the projector automatically if DHCP is set to On, otherwise network configuration need to be set manually.
IP Address	:	Input the IP address of the projector.
Subnet Mask	:	Configure the subnet mask.
Gateway	:	Configure the gateway
DNS Server		Set the address of DNS server
Save Setting	:	Click the button to confirm the change if any change is made. Note that current connection is interrupted after change the network settings, please connect the projector again by new network setting.

Alert Mail Setup

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



SMTP Server	: Set up SMTP server name.
Port	: Set up port name.
User Name	: Input user name for the projector to send the reminding message through a SMTP server
Password	: Input password.
E-mail Alert	: Enable or Disable reminding message
From	: Set up sender's email address
To	: Set up receiver's email address
CC	: Set up email address of the email send a copy of a business letter or an e-mail to someone
Projector Name	: Set up projector name or ID.
Location	: Set up projector installation location.
Apply	: Press this button to confirm changes you have made.
Send Test Mail	: Send test email. Press this button to validate email settings after setup is completed.

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 Vivitek Support

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