

# Ethernet Protocol of VZ-9, VZ-9plus, VZ-27plus, VZ-27plus<sup>2</sup>, VZ-57plus, VZ-C11, VZ-C12, VZ-C12<sup>2</sup>, VZ-30 and VZ-C32

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## Introduction

The VZ-9, VZ-9plus, VZ-27plus, VZ-27plus<sup>2</sup>, VZ-57plus, VZ-C11, VZ-C12, VZ-C12<sup>2</sup>, VZ-C30 and VZ-C32 can be controlled via the LAN/Ethernet-port by a computer or a control-system trough port 80.

The Visualizer can be controlled via an Internet browser like Internet Explorer from Microsoft or similar (see [www.wolfvision.com/wolf/view.shtml](http://www.wolfvision.com/wolf/view.shtml) Description of built-in webserver for more information about supported Browsers).

## Connection

The LAN/Ethernet-port of the Visualizer is a standard RJ45 connector and supports 10BASE-T/100BASE-TX.

IP-address, Subnet mask and Gateway can set via DHCP or manually in the Visualizer's on-screen menu.

VZ-9 with serial number lower than 095501 do not support DHCP, IP-address, Subnet mask and Gateway have to set manually in the on-screen menu.

## Control-Commands

The controlling of the Visualizer is done by sending codes to the Visualizer, these codes perform the desired action.

The format will vary depending on different hardware.

### Old Format

VZ-9, VZ-9plus (serial number lower than 1008068), VZ-27plus, VZ-27plus<sup>2</sup>, VZ-57plus, VZ-C11, VZ-C12, VZ-C12<sup>2</sup> (serial number lower than 1009412), VZ-C30 and VZ-C32 (serial number lower than 1011797)

The codes have to send in the following format: **IP-address**/goto.html?par=**command**.

e.g.: **192.168.0.1**/goto.html?par=**200** -> this command switches on the Visualizer with the IP-address 192.168.0.1 (for more clarity, in this example the variable values are written bold-italic).

### New Format

VZ-9plus (serial number 1008068 and higher), VZ-C12<sup>2</sup> (serial number 1009412 and higher) and VZ-C32 (serial number 1011797 and higher)

The codes have to send in the following format: **IP-address**/cgi-bin/goto/goto.cgi?par=**command**.

e.g.: **192.168.0.1**/cgi-bin/goto/goto.cgi?par=**200** -> this command switches on the Visualizer with the IP-address 192.168.0.1 (for more clarity, in this example the variable values are written bold-italic).

Commands higher than 1000 (Dec.-Code) are not supported.

Alternative the new WolfVision Command list can be used. The new command list offers much more possibilities like replies etc.:

[www.wolfvision.com/wolf/protocol\\_command\\_wolfvision/protocol\\_command.htm](http://www.wolfvision.com/wolf/protocol_command_wolfvision/protocol_command.htm)

## Hint

Some commands are supported on specified Visualizer types only, e.g. "140 Arm down" is supported on professional Visualizers (like VZ-27plus<sup>2</sup> and VZ-57plus) only.  
Check "note" column in the following tables.

Set the Browser to update cookies each time the site will be visited.

If a Visualizer is behind a firewall and should be controlled over the network, the ports 80, 50913, 50914 and 50915 should be opened for UDP/TCP traffic.

## Zoom Control

Dec.-Code	Command	Description	Notes
195	Zoom wide	By sending this command the Visualizer zooms towards wide-position. For continuous zooming send this code repetitively (min. 10Hz) as long as you want to zoom.	1
199	Zoom tele	By sending this command the Visualizer zooms towards tele-position. For continuous zooming send this code repetitively (min. 10Hz) as long as you want to zoom.	1
129	Start Zoom wide	This command starts to zoom towards the wide-position. The Visualizer zooms until the „Stop Zoom/Focus/Iris“-command or a different Start-Command is received (or the mechanical end-position is reached).	1
130	Start Zoom tele	This command starts to zoom towards the tele-position. The Visualizer zooms until the „Stop Zoom/Focus/Iris“-command or a different Start-Command is received (or the mechanical end-position is reached).	1
128	Stop Zoom/Focus/Iris	This command stops zooming, focusing and iris (if activated with the respective „Start xxx“-command before).	
142	Macro Off	Switches the Macro Off.	1
143	Macro 11	Switches the Macro 11x On.	1
144	Macro 12	Switches the Macro 12x On.	1
189	Macro, toggle switch	Switches the Macro On/Off (in the on-screen menu selected Macro position)	1

## Focus Control

Dec.-Code	Command	Description	Notes
194	Focus far	By sending this command the Visualizer focuses towards far. For continuous changing the focus, send this code repetitively (min. 10Hz) as long as you want to change the focus.	
198	Focus near	By sending this command the Visualizer focuses towards near. For continuous changing the focus, send this code repetitively (min. 10Hz) as long as you want to change the focus.	
131	Start Focus far	This command starts to focus towards far. The Visualizer changes the focus until the „Stop Zoom/Focus/Iris“-command or a different Start-Command is received (or the mechanical end-position is reached).	
132	Start Focus near	This command starts to focus towards near. The Visualizer changes the focus until the „Stop Zoom/Focus/Iris“-command or a different Start-Command is received (or the mechanical end-position is reached).	
128	Stop Zoom/Focus/Iris	This command stops zooming, focusing, iris and mirror-movement (if activated with the respective „Start xxx“-command before).	
249	One-Push Auto Focus	By sending this command the Visualizer performs a one-push auto focus.	1, 3
239	Autofocus-ON	Switches the Auto Focus on.	5
240	Autofocus-OFF	Switches the Auto Focus off.	5
31	Autofocus ON/OFF	Switches the Auto Focus on/off	6

## Iris Control

Dec.-Code	Command	Description	Notes
193	Iris open / Brightness up	By sending this command the Visualizer opens the iris. For continuous opening the iris, send this code repetitively (min. 10Hz) as long as you want to open iris.	7, 8
197	Iris close / Brightness down	By sending this command the Visualizer closes the iris. For continuous closing the iris, send this code repetitively (min. 10Hz) as long as you want to close iris.	7, 8
133	Start Iris open	This command starts to open the iris. The Visualizer opens the iris until the „Stop Zoom/Focus/Iris“-command or a different Start-Command is received (or the mechanical end-position is reached).	7, 8
134	Start Iris close	This command starts to close the iris. The Visualizer closes the iris until the „Stop Zoom/Focus/Iris“-command or a different Start-Command is received (or the mechanical end-position is reached).	7, 8
128	Stop Zoom/Focus/Iris	This command stops zooming, focusing, iris and mirror-movement (if activated with the respective „Start xxx“-command before).	
167	Auto Iris on	Switches the Auto Iris on.	
168	Auto Iris off	Switches the Auto Iris off.	4

## Telescope Arm Control

Dec.-Code	Command	Description	Notes
140	Arm Down	By sending this command the telescope arm moves down. If the unit is switched on before, then it switches into the standby-mode and the telescope arm moves down.	1
141	Arm Up	By sending this command the telescope arm moves up.	1
187	Arm	By sending this command the telescope arm moves up if the arm is down, or moves down if the arm is up (If the unit is switched on before, then it switches into the standby-mode and the telescope arm moves down.).	1

## Mirror Control

Dec.-Code	Command	Description	Notes
190	Mirror Down	By sending this command the mirror moves down.	1
191	Mirror Up	By sending this command the mirror moves up.	1
135	Start Mirror Up	This command starts the mirror movement upward. The mirror moves until the „Stop all start/stop- command“- or a different Start-Command is received (or mechanical end-position is reached).	1
136	Start Mirror Down	This command starts the mirror movement downward. The mirror moves until the „Stop all start/stop- command“- or a different Start-Command is received (or mechanical end-position is reached).	1
128	Stop Zoom/Focus/Iris	This command stops zooming, focusing, iris and mirror-movement (if activated with the respective „Start xxx“-command before).	

## Light On/Off Control

Dec.-Code	Command	Description	Notes
204	Light on toggle switch	By sending this command the Visualizer switches the light on. If the light was already on, the light box is switched on and the light is switched off (light box function available with slide light field and directly connected lightbox only).	
205	Light off	By sending this command the Visualizer switches the light off.	
178	Light on, Light Box off	This command switches the light on and the light box off (slide light field and external light box, if available).	2, 5
177	Lampchange	This command changes the lamp and replies "Perform Lampchange... Changed to Lamp 1" (or lamp 2).	2, 3, 4
179	Slide light field on (or external Light Box), Light off	This command switches on the slide light field and switches off the top light. If a separate light box is connected, the external light box will be switched on. On VZ-27plus and VZ-57plus, the internal lightbox is switched on/off.	2, 5
188	Light toggle switch	By sending this command, the Visualizer toggles between top light, external light box, slide light field and no light. On VZ-27plus and VZ-57plus, it toggles between top light, internal lightbox and no light.	2, 5
1000	Switch on Slide light field	By sending this command, the Visualizer switches on the slide light field and switches off the top light (or external LB, if available).	5, 18
1001	Light ON/OFF toggle	By sending this command, the Visualizer switches the light on/off.	5, 18
1002	Slide ON/OFF toggle	By sending this command, the Visualizer switches on the slide light field on/off.	5, 18

## Power / Presets Control

Dec.-Code	Command	Description	Notes
200	Power on / Factory-Preset	If the Visualizer is in standby-mode, the unit is switched on. Then the factory-preset is recalled (even if the unit was already switched on). (approx. DIN A5, Light on)	10, 11, 12, 13
201	Power off	This command puts the unit in standby-mode (camera, light, etc. are switched off).	
186	Power toggle switch	By sending this command the Visualizer switches on if it is off, or switches off if the Visualizer is on. (The main switch must be on.)	
213	Preset 0 Factory-Preset	This command recalls the Factory-Preset. (approx. DIN A5, Light on)	10, 11, 12, 13
202	Preset 1	This command recalls Preset 1.	11
203	Preset 2	This command recalls Preset 2.	11
253	Preset 3	This command recalls Preset 3.	11
216	Save Preset 1	This command stores the current Visualizer-settings as Preset 1.	11
217	Save Preset 2	This command stores the current Visualizer-settings as Preset 2.	11
254	Save Preset 3	This command stores the current Visualizer-settings as Preset 3.	11
229	Preset Max. Wide	This command zooms to the maximum wide position, light is switched on.	9, 10, 11, 12
230	Preset DIN A4	This command zooms to approx. DIN A4-size, light is switched on.	9, 10, 11, 12, 13
231	Preset DIN A5	This command zooms to approx. DIN A5-size, light is switched on.	9, 10, 11, 12, 13
232	Preset DIN A6	This command zooms to approx. DIN A6-size, light is switched on.	9, 10, 11, 12, 13
233	Preset DIN A7	This command zooms to approx. DIN A7-size, light is switched on.	9, 10, 11, 12, 13
234	Preset DIN A8	This command zooms to approx. DIN A8-size, light is switched on.	9, 10, 11, 12, 13
235	Preset Max. Tele	This command zooms to the maximum tele position, light is switched on.	9, 10, 11, 12
236	Preset Slide	This command zooms to approx. slide-film size, light is switched off.	9, 10, 11, 12
237	Preset X-ray DINA4	This command zooms to approx. DIN A4-size	9, 10, 11, 12, 13
238	Preset X-ray DIN A5	This command zooms to approx. DIN A5-size.	9, 10, 11, 12, 13

## Visualizer Menu, Camera Control

Dec.-Code	Command	Description	Notes
206	Visualizer-Menu on/off	This command enters the Visualizer menu which is then displayed on the screen.	
139	Unlock Extra-Menu (Baud rate)	This command unlocks the Visualizer-extra-menu. After sending this command the extra menu can be entered by sending 206.	
208	Function Up	Moves the menu-cursor up (if the menu is activated).	
209	Function Down	Moves the menu-cursor down (if the menu is activated).	
210	Data Right / White Balance	Changes the data of the current menu-item if the menu is activated. If the menu is not activated, a white-balance is performed.	
151	White Balance	By sending this command the camera performs a white balance. (Also works, when the menu is on.)	
211	Data Left / Text Enhancer On/Off	Changes the data of the current menu-item if the menu is activated. If the menu is not activated, the Text Enhancer is toggled (switched on or off).	
150	Text Enhancer On/Off, toggle	By sending this command the Visualizer switches the Text Enhancement on. If the Text Enhancement is already on, it is switched off. (Also works, when the menu is on.)	
214	Help	This command gives a description off the settings in the Visualizer-menu.	
220	Data Left + Data Right	This command behaves like if you press Data Right and Left together, i.e. the menu-item is preset to the default value.	
246	Reset Menu	This command resets all Visualizer-settings except output-settings.	

## Miscellaneous Commands

Dec.-Code	Command	Description	Notes
221	Switch IR-Mode	This command switches between IR-mode A, B, C and D (,A, B, ..). It's useful if you have up to four Visualizers close together with separate remote-controls.	
21	Toggle Switch Intern/Extern	This command switches between the Visualizer image and the image from e.g. computer that is connected to the "Extern" connector.	

## Image Turn Commands

Dec.-Code	Command	Description	Notes
30	Switch Portrait On/Off	This command toggles the Image turn mode (behaves same as the Image Turn key). (Portrait-/Landscape mode).	14

## Video Output Commands

Dec.-Code	Command	Description	Notes
25	Video PAL	This command switches the Video output format to PAL.	15
26	Video NTSC	This command switches the Video output format to NTSC.	15

## Output Resolution Commands

Dec.-Code	Command	Description	Notes
27	Resolution UP	This command switches the Output resolution on both outputs up).	16, 17
28	Resolution Down	This command switches the Output resolution on both outputs down.	16, 17
29	Resolution AUTO	This command switches the Output resolution on both outputs to AUTO-detect.	
1003	VGA Resolution UP	This command switches the Output resolution on VGA-output up.	16, 17, 18
1004	VGA Resolution DOWN	This command switches the Output resolution on VGA-output up.	16, 17, 18
1005	VGA Resolution AUTO	This command switches the Output resolution on VGA-output to Auto-detect.	16, 17, 18
1006	DVI Resolution UP	This command switches the Output resolution on DVI-output up.	16, 17, 18
1007	DVI Resolution DOWN	This command switches the Output resolution on DVI-output up.	16, 17, 18
1008	DVI Resolution AUTO	This command switches the Output resolution on DVI-output to Auto-detect.	18

## Output Signal Setting Commands

Dec.-Code	Command	Description	Notes
22	Switch Negative On/Off	This command switches to the positive/negative mode on/off.	
23	Switch Negative Blue On/Off	This command switches the negative blue mode on/off.	
24	Switch Black/White mode On/Off	This command switches the black/white mode on/off.	

## Image Storing Commands

Dec.-Code	Command	Description	Notes
10	Memory 1	This command recalls image memory 1	
11	Memory 2	This command recalls image memory 2.	
12	Memory 3	This command recalls image memory 3	
13	Memory 4	This command recalls image memory 4	
14	Memory 5	This command recalls image memory 5	
15	Memory 6	This command recalls image memory 6	
16	Memory 7	This command recalls image memory 7	
17	Memory 8	This command recalls image memory 8	
18	Memory 9	This command recalls image memory 9	
19	Show All On/Off	This command toggles the Show All mode. (If this function is activated, the Visualizer is showing all stored images on the screen at the same time).	
215	Freeze On/Off	This command toggles the Freeze-Mode	

## Image On/Off Control

Dec.-Code	Command	Description	Notes
185	Image toggle switch	By sending this command, the Visualizer toggles between image OFF and image ON.	
192	Image on	By sending this command the Visualizer switches the image on.	
196	Image off	By sending this command the Visualizer switches the image off.	

## Notes

1. Zooming switches on Auto-Iris. If the Iris-Priority is set to MANUAL in the on-screen menu, the Visualizer doesn't switch back to Auto Iris (when manual Iris was activated before)
2. Available on VZ-27plus, VZ-27plus<sup>2</sup> and VZ-57plus only.
3. Available on VZ-C11, VZ-C12, VZ-C12<sup>2</sup>, VZ-C30 and VZ-C32 only.
4. Availability depends on installed firmware version.
5. Available on VZ-9 and VZ-9plus only.
6. Performs an One Push Auto Focus on VZ-27plus, VZ-27<sup>2</sup>, VZ-57plus, VZ-C11, VZ-C12, VZ-C12<sup>2</sup>, VZ-C30 and VZ-C32 (like command 249).
7. The Auto Shutter, Auto Iris and dimming are not considered.
8. Changing the iris switches off the Auto Iris.
9. These presets are pre-defined and cannot be modified. Focus is set to the working-plate, Auto Iris and image are switched on, and Text Enhancer is off.
10. The exact size of the picture depends very much on the adjustments of the monitor / video-projector.
11. Following Visualizer-settings are stored/recalled: Zoom-Position, Focus-Position, Auto Iris on/off, Iris-Position (if AI off), Image on/off, Light on/off, Text Enhancer on/off.
12. On Ceiling Visualizers, the image size depends on the distance between working surface and bottom of the Ceiling Visualizer. The "DIN size" is right with a distance of approximate 1.5m. If the distance is shorter, then the Ceiling Visualizer picks up a smaller image. If the distance is longer, a bigger image will be picked up.
13. DIN A8 = 52mm x 74mm [≈2" x 2.9"], DIN A7 = 74mm x 105 [≈2,9" x 4.1"], DIN A6 = 105mm x 148mm [≈4.1" x 5.8"], DIN A5 = 148mm x 210mm [≈5.8" x 8.3"] and DIN A4 = 210 x 297mm [≈8.3" x 11.7"]
14. Image rotation depends on the settings in the on-screen menu (miscellaneous settings): +90°, 180°, -90° or cycle.
15. Video output is not available on VZ-27plus<sup>2</sup>, VZ-C12<sup>2</sup> and VZ-9plus.
16. Possible output resolution and frequency settings are:
 

VGA/60	(640 x 480 at 60Hz; 4:3) Required for HDTV
SVGA	(800 x 600 at 60Hz, 75 Hz, 85Hz; 4:3)
XGA	(1024 x 768 at 60Hz, 75 Hz, 85Hz; 4:3)
SXGA-	(1280 x 960 at 60Hz, 85Hz; 4:3)
SXGA	(1280 x 1024 at 60Hz, 75 Hz, 85Hz; 4:3) at 60Hz, 75Hz, 85Hz;
SXGA+	(1400 x 1050 at 60Hz, 75 Hz, 85Hz; 4:3) at 60Hz, 75Hz;
UXGA	(1600 x 1200 at 60Hz, 75 Hz, 85Hz; 4:3) at 60Hz
XGA 16:9	(1024 x 768, 60Hz; 16:9) Special 16:9 resolution for older plasma monitor
WXGA/60	(1366 x 768, 60Hz; 16:9) Resolution for Widescreen monitor
WSXGA/60	(1680 x 1050, 60Hz; 16:10) Resolution for Widescreen monitor
720p/50	(1280 x 720, 50Hz/50Hz; 16:9) HDTV resolution (progressive scan)
720p/60	(1280 x 720, 50Hz/60Hz; 16:9) HDTV resolution (progressive scan)
1080p/50	(1920 x 1080, 50Hz/50Hz; 16:9) HDTV resolution (progressive scan)
1080p/60	(1920 x 1080, 50Hz/60Hz; 16:9) HDTV resolution (progressive scan)
Auto	Auto Resolution, the Visualizer sets the optimal output mode for the connected device(s).
17. With firmware version v2.03a the SXGA+ resolution has changed from 1360x1024 pixels to 1400x1050 pixels for more display compatibility. Please update the firmware to the latest version: [www.wolfvision.com/wolf/fware.html](http://www.wolfvision.com/wolf/fware.html)
18. Not available on units with new hardware: VZ-9plus (serial number 1008068 and higher), VZ-C12<sup>2</sup> (serial number 1009412 and higher) and VZ-C32 (serial number 1011797 and higher).

## Commands of other Visualizers, Future

The Ethernet/Lan-protocol of all WolfVision Visualizers are almost the same. Only some commands more or less are supported on other Visualizer-types due to the different technologies.

(The VZ-9 has e.g. Auto Focus commands but no e.g. mirror-command.) In the future (at higher FIRMWARE-versions) further commands may be added which are not supported yet.