

Serial Protocol of VZ-27plus, VZ-27plus² and VZ-57plus

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Introduction

The VZ-27plus, VZ-27plus² and VZ-57plus can be controlled via the RS-232-port by a computer or a control-system. It is possible to perform all functions of the IR-remote-control and the key-panel on the unit such as Zoom, Focus, Presets, etc. as well as a lot of other functions like reading and setting zoom-position, etc.

The protocol is upward compatible to the one of the VZ-17/27/37/47/57.

Connection

The serial-port of the Visualizers is a standard 9-pin-Sub-D-connector, which can be found on most computers too. Only pin 2 (RxD), 3 (TxD) and 5 (GND) must be connected. The baud rate is (by default) 19200. There is no parity, 8 data-bits and 1 stop-bit.

Changing the Baud rate

It is possible to change the baud rate from 19200 to 9600, 38400 or 115200. To change the baud rate, switch the unit on and press MENU-key for four seconds, until the Extra-Menu appears. Then enter the Serial Port-sub-menu. There you can change the baud rate.

Control-Commands

The controlling of the Visualizer is done by sending codes (each code is 1 byte) to the Visualizer: these codes perform the desired action. There is no need for Carriage Return, Linefeed or similar. By default the Visualizer doesn't respond to the commands on the serial-port (except commands which return status-information like zoom-position or Get Light on/off, etc.). With special commands this behavior can be changed so that the Visualizer sends a reply after each command (for details see "Reply Mode Control"). Some commands have a quiet long execution time therefore you shouldn't send different codes immediately one after another. If you want to check if the Visualizer is ready to receive new commands, you can send code 32 (' ') until the unit answers with 32 (' ') (Blank Echo). While the unit is not ready, there is no answer.

If you want to test the commands with a terminal-program, you may prefer to enter the commands as ASCII-text. To do so, press underscore ('_ '), the Visualizer will respond with a question mark. Then enter the 3 digit decimal number within three seconds. The command will then be performed (e.g. type ' _ ' '2' '0' '0' for Power On or ' _ ' '0' '4' '9' to select command page 1).

In the following tables you will find the decimal and the hexadecimal codes. The dollar-sign ('\$ ') in front of the numbers indicates that the respective number is a hexadecimal number. The dollar-sign must not be sent.

Page-Commands

The commands are split into two pages (because for one command-page there are too many commands exist). Basically each command is a two Byte command, page-command + control-command.

If the command-reply mode is switched on, then the Visualizer sends a reply for each Byte, a reply for the control-command and also for the page-command (for details see "Reply Mode Control").

The standard command page is "0", that means, if you want to execute a command from the page "0" (standard page), then it's not necessary to select the page "0" before. If you want to execute a command from the page "1" then you must select the page "1" and input now your command.

If the page "1" command is executed, then the Visualizer switches automatically back to the page "0".

Check "Page" column for command page in the following tables.

Select Page Control

| Page | Dec. Code | Hex. Code | Command | Description | see Notes |
|------|-----------|-----------|-----------|---|-----------|
| 0 | 048 | \$30 | SER_Page0 | By sending this command the Visualizer switches to the page "0" and waits for the control command. Page "0" is the standard page and it is not necessary to select it | |
| 0 | 049 | \$31 | SER_Page1 | By sending this command the Visualizer switches to the page "1" and waits for the control command. After the control command is executed (i.e. 136 for Show All) the Visualizer changes back to the standard page (page 0) | |

Zoom Control

| Page | Dec. Code | Hex. Code | Command | Description | see Notes |
|------|-----------|-----------|----------------------|---|-----------|
| 0 | 195 | \$C3 | 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 |
| 0 | 199 | \$C7 | 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 |
| 0 | 129 | \$81 | 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 mechanical end-position is reached). | 1 |
| 0 | 130 | \$82 | 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 mechanical end-position is reached). | 1 |
| 0 | 128 | \$80 | Stop Zoom/Focus/Iris | This command stops zooming, focusing, iris and mirror-movement (if activated with the respective „Start xxx“-command before). | |
| 0 | 161 | \$A1 | Get Zoom-Position | After sending this command the Visualizer sends back the current zoom-position as a 3-digit hexadecimal number in the range from '000' (wide) to 'FFF' (tele) as an ASCII-string followed by LF + CR. | 2, 3 |
| 0 | 162 | \$A2 | Set Zoom-Position | After this command the Visualizer echoes a question-mark ('?') with no LF + CR. After this question mark the controller should send the desired zoom-position as 3-digit hexadecimal number in the range from '000' (wide) to 'FFF' (tele) within max. 3 seconds. No CR or LF is needed. After receiving the 3rd digit the Visualizer zooms to this position. | 2, 3 |
| 1 | 163 | \$A3 | Set Digital Zoom | After this command the Visualizer echoes a question-mark ('?') with no LF + CR. After this question mark the controller should send the desired digital zoom-position as 3-digit hexadecimal number in the range from '000' (wide) to 'FFF' (tele) within max. 3 seconds. No CR or LF is needed. After receiving the 3rd digit the Visualizer zooms to this position. | 3 |
| 1 | 164 | \$A4 | Get Digital Zoom | After sending this command the Visualizer sends back the current digital zoom-position as a 3-digit hexadecimal number in the range from '000' (wide) to 'FFF' (tele) as an ASCII-string followed by LF + CR. | 3 |
| 0 | 142 | \$8E | Macro Off | Switches the Macro Off. | 24 |
| 0 | 143 | \$8F | Macro 11 | Switches the Macro 11x On. | 24 |

| Page | Dec. Code | Hex. Code | Command | Description | see Notes |
|-------------|------------------|------------------|--------------------|--|------------------|
| 0 | 144 | \$90 | Macro 12 | Switches the Macro 12x On. | 24 |
| 0 | 189 | \$BD | Macro | Switches the Macro On/Off (in the on-screen menu selected Macro position) | 24 |
| 0 | 183 | \$B7 | Get Macro-Position | This function returns '0'+LF+CR if Macro is off, '1'+LF+CR if Macro is on 11x, '2'+LF+CR if Macro is on 12x. | 24 |

Focus Control

| Page | Dec. Code | Hex. Code | Command | Description | see Notes |
|------|-----------|-----------|----------------------|---|-----------|
| 0 | 194 | \$C2 | 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. | |
| 0 | 198 | \$C6 | 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. | |
| 0 | 131 | \$83 | 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 mechanical end-position is reached). | |
| 0 | 132 | \$84 | 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 mechanical end-position is reached). | |
| 0 | 128 | \$80 | Stop Zoom/Focus/Iris | This command stops zooming, focusing, iris and mirror-movement (if activated with the respective „Start xxx“-command before). | |
| 0 | 163 | \$A3 | Get Focus-Position | After sending this command the Visualizer sends back the current focus-position as a 3-digit hexadecimal number in the range from '000' (near) to 'FFF' (far) as an ASCII-string followed by LF + CR. | 2, 3 |
| 0 | 164 | \$A4 | Set Focus-Position | After this command the Visualizer echoes a question-mark ('?') with no LF + CR. After this question mark the controller should send the desired focus-position as 3-digit hexadecimal number in the range from '000' (near) to 'FFF' (far) within max. 3 seconds. No CR or LF is needed. After receiving the 3rd digit the Visualizer moves to this position. | 2, 3 |
| 0 | 249 | \$F9 | One-Push Auto Focus | By sending this command the Visualizer performs a one-push auto focus. | 4 |

Iris Control

| Page | Dec. Code | Hex. Code | Command | Description | see Notes |
|------|-----------|-----------|---------------------------------|--|------------|
| 0 | 193 | \$C1 | 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. | 5, 6 |
| 0 | 197 | \$C5 | 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. | 5, 6 |
| 0 | 133 | \$85 | 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 mechanical end-position is reached). | 5, 6 |
| 0 | 134 | \$86 | 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 mechanical end-position is reached). | 5, 6 |
| 0 | 128 | \$80 | Stop Zoom/Focus/Iris | This command stops zooming, focusing, iris and mirror-movement (if activated with the respective „Start xxx“-command before). | |
| 0 | 167 | \$A7 | Auto Iris on | Switches the Auto Iris on. | |
| 0 | 168 | \$A8 | Auto Iris off | Switches the Auto Iris off. | |
| 0 | 166 | \$A6 | Get Auto Iris | This function returns '1'+LF+CR if the Auto Iris is switched on and '0'+LF+CR if the Auto Iris is switched off. | 3 |
| 0 | 165 | \$A5 | Get Iris-Position | After sending this command the Visualizer sends back the current iris-position as a 3-digit hexadecimal number in the range from '000' (close) to 'FFF' (open) as an ASCII-string followed by LF + CR. | 2, 3, 5 |
| 0 | 169 | \$A9 | Set Iris-Position | After this command the Visualizer echoes a question-mark ('?') with no LF + CR. After this question mark the controller should send the desired iris-position as 3-digit hexadecimal number in the range from '000' (close) to 'FFF' (open) within max. 3 seconds. No CR or LF is needed. After receiving the 3rd digit the Visualizer moves to this position. | 2, 3, 5, 6 |