

# Protocol 3000

Kramer devices can be operated using Kramer Protocol 3000 commands sent via serial or Ethernet ports.

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## Understanding Protocol 3000

Protocol 3000 commands are a sequence of ASCII letters, structured according to the following.

- **Command format:**

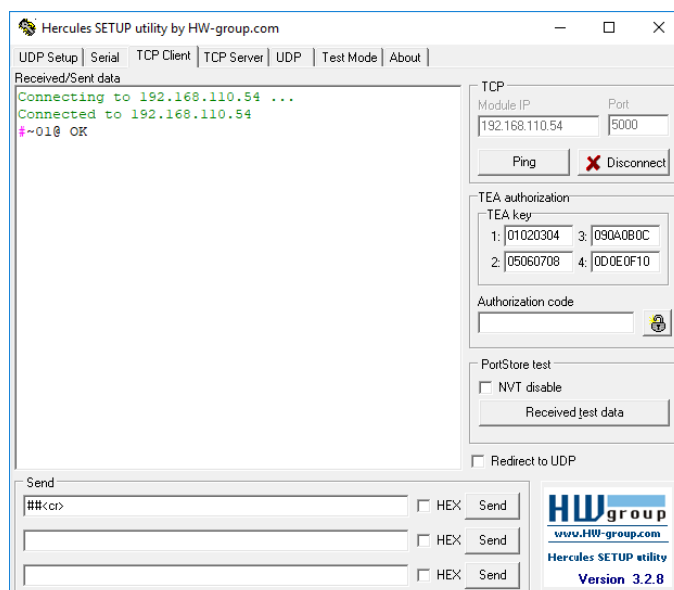
Prefix	Command Name	Constant (Space)	Parameter(s)	Suffix
#	Command	_	Parameter	<CR>

- **Feedback format:**

Prefix	Device ID	Constant	Command Name	Parameter(s)	Suffix
~	nn	@	Command	Parameter	<CR><LF>

- **Command parameters** – Multiple parameters must be separated by a comma (,). In addition, multiple parameters can be grouped as a single parameter using brackets ([ and ]).
- **Command chain separator character** – Multiple commands can be chained in the same string. Each command is delimited by a pipe character (|).
- **Parameters attributes** – Parameters may contain multiple attributes. Attributes are indicated with pointy brackets (<...>) and must be separated by a period (.).

The command framing varies according to how you interface with **VS-44H2**. The following figure displays how the # command is framed using terminal communication software (such as Hercules):



# Protocol 3000 Commands

Function	Description	Syntax	Parameters/Attributes	Example
#	<p>Protocol handshaking.</p> <p>① Validates the Protocol 3000 connection and gets the machine number.</p> <p>Step-in master products use this command to identify the availability of a device.</p>	<p><b>COMMAND</b></p> <pre>#&lt;CR&gt;</pre> <p><b>FEEDBACK</b></p> <pre>~nn@_ok&lt;CR&gt;&lt;LF&gt;</pre>		#<CR>
AV-SW-TIMEOUT	Set auto switching timeout.	<p><b>COMMAND</b></p> <pre>#AV-SW-TIMEOUT,_switching_mode,time_out&lt;CR&gt;</pre> <p><b>FEEDBACK</b></p> <pre>~nn@AV-SW-TIMEOUT,_switching_mode,time_out&lt;CR&gt;&lt;LF&gt;</pre>	<p><b>switching_mode</b> – Switching mode</p> <ul style="list-style-type: none"> <li>0 – Video signal lost</li> <li>1 – New video signal detected</li> <li>2 – Audio signal lost</li> <li>4 – Disable 5V on video output if no input signal detected</li> <li>5 – Video cable unplugged</li> <li>6 – Audio cable unplugged</li> <li>7 – Video signal lost for signal routed as a result of a manual override action</li> </ul> <p><b>time_out</b> – Timeout in seconds</p> <p>0 - 60000</p>	Set the auto switching timeout to 5 seconds in the event of 5V disable when no input signal is detected: #AV-SW-TIMEOUT_4,5<CR>
AV-SW-TIMEOUT?	Get auto switching timeout.	<p><b>COMMAND</b></p> <pre>#AV-SW-TIMEOUT?_switching_mode&lt;CR&gt;</pre> <p><b>FEEDBACK</b></p> <pre>~nn@AV-SW-TIMEOUT,_switching_mode,time_out&lt;CR&gt;&lt;LF&gt;</pre>	<p><b>switching_mode</b> – Switching mode</p> <ul style="list-style-type: none"> <li>0 – Video signal lost</li> <li>1 – New video signal detected</li> <li>2 – Audio signal lost</li> <li>4 – Disable 5V on video output if no input signal detected</li> <li>5 – Video cable unplugged</li> <li>6 – Audio cable unplugged</li> <li>7 – Video signal lost for signal routed as a result of a manual override action</li> </ul> <p><b>time_out</b> – Timeout in seconds</p> <p>0 - 60000</p>	Get the Disable 5V on video output if no input signal detected timeout: #AV-SW-TIMEOUT?_4<CR>
CPEDID	<p>Copy EDID data from the output to the input EEPROM.</p> <p>① Destination bitmap size depends on device properties (for 64 inputs it is a 64-bit word).</p> <p>Example: bitmap 0x0013 means inputs 1,2 and 5 are loaded with the new EDID.</p> <p>In certain products Safe_mode is an optional parameter. See the HELP command for its availability.</p>	<p><b>COMMAND</b></p> <pre>#CPEDID_edid_io,src_id,edid_io,dest_bitmap&lt;CR&gt;</pre> <p>or</p> <pre>#CPEDID_edid_io,src_id,edid_io,dest_bitmap,safe_mode&lt;CR&gt;</pre> <p><b>FEEDBACK</b></p> <pre>~nn@CPEDID_edid_io,src_id,edid_io,dest_bitmap&lt;CR&gt;&lt;LF&gt;</pre> <pre>~nn@CPEDID_edid_io,src_id,edid_io,dest_bitmap,safe_mode&lt;CR&gt;&lt;LF&gt;</pre>	<p><b>edid_io</b> – EDID source type (usually output)</p> <ul style="list-style-type: none"> <li>0 – Input</li> <li>1 – Output</li> <li>2 – Default EDID</li> <li>3 – Custom EDID</li> </ul> <p><b>src_id</b> – Number of chosen source stage</p> <ul style="list-style-type: none"> <li>0 – Default EDID source</li> <li>1 – Output 1</li> <li>2 – Output 2</li> <li>3 – Output 3</li> <li>4 – Output 4</li> </ul> <p><b>edid_io</b> – EDID destination type (usually input)</p> <ul style="list-style-type: none"> <li>0 – Input</li> </ul> <p><b>dest_bitmap</b> – Bitmap representing destination IDs. Format: XXXX...X, where X is hex digit. The binary form of every hex digit represents corresponding destinations.</p> <ul style="list-style-type: none"> <li>0 – indicates that EDID data is not copied to this destination.</li> <li>1 – indicates that EDID data is copied to this destination.</li> </ul> <p><b>safe_mode</b> – Safe mode</p> <ul style="list-style-type: none"> <li>0 – device accepts the EDID as is without trying to adjust</li> <li>1 – device tries to adjust the EDID (default value if no parameter is sent)</li> </ul>	Copy the EDID data from the Output 1 (EDID source) to the Input: #CPEDID_1,1,0,0x1<CR>  Copy the EDID data from the default EDID source to the Input: #CPEDID_2,0,0,0x1<CR>
DISPLAY?	Get output HPD status.	<p><b>COMMAND</b></p> <pre>#DISPLAY?_out_index&lt;CR&gt;</pre> <p><b>FEEDBACK</b></p> <pre>~nn@DISPLAY_out_index,status&lt;CR&gt;&lt;LF&gt;</pre>	<p><b>out_index</b> – Number that indicates the specific output:</p> <ul style="list-style-type: none"> <li>1 – Output 1</li> <li>2 – Output 2</li> <li>3 – Output 3</li> <li>4 – Output 4</li> </ul> <p><b>status</b> – HPD status according to signal validation</p> <ul style="list-style-type: none"> <li>0 – Signal or sink is not valid</li> <li>1 – Signal or sink is valid</li> <li>2 – Sink and EDID is valid</li> </ul>	Get the output HPD status of Output 1: #DISPLAY?_1<CR>

Function	Description	Syntax	Parameters/Attributes	Example
EDID-AUDIO	Set audio capabilities for EDID.	<b>COMMAND</b> #EDID-AUDIO_ <u>input_id</u> ,audio_format<CR> <b>FEEDBACK</b> ~nn@EDID-AUDIO_ <u>in_index</u> ,audio_format<CR><LF>	<u>input_id</u> – Number that indicates the specific input: 1 – Input 1 2 – Input 2 3 – Input 3 4 – Input 4 <u>audio_format</u> – Audio block added to EDID: 0 – Auto 1 – LPCM 2CH 2 – LPCM 6CH 3 – LPCM 8CH 4 – Bitstream 5 – HD	Set Input 1 audio capabilities for EDID to LPCM 6CH: #EDID-AUDIO_ <u>1</u> ,2<CR>
EDID-AUDIO?	Get audio capabilities for EDID.	<b>COMMAND</b> #EDID-AUDIO?_ <u>input_id</u> <CR> <b>FEEDBACK</b> ~nn@EDID-AUDIO_ <u>input_id</u> ,audio_format<CR><LF>	<u>input_id</u> – Number that indicates the specific input: 1 – Input 1 2 – Input 2 3 – Input 3 4 – Input 4 <u>audio_format</u> – Audio block added to EDID: 0 – Auto 1 – LPCM 2CH 2 – LPCM 6CH 3 – LPCM 8CH 4 – Bitstream 5 – HD	Get Input 1 audio capabilities for EDID: #EDID-AUDIO?_ <u>1</u> <CR>
EDID-CS	Set EDID color space. <i>!</i> Set command might change the current EDID.	<b>COMMAND</b> #EDID-CS_ <u>input_id</u> ,cs_mode<CR> <b>FEEDBACK</b> ~nn@EDID-CS_ <u>input_id</u> ,cs_mode<CR><LF>	The following attributes comprise the ID: <u>input_id</u> – Output number 1 – Input 1 2 – Input 2 3 – Input 3 4 – Input 4 <u>cs_mode</u> – Color space 0 – RGB 4 – Auto	Set Input 3 EDID color space to RGB: #EDID-CS_ <u>3</u> ,1<CR>
EDID-CS?	Get EDID color space. <i>!</i> Get command might change the current EDID.	<b>COMMAND</b> #EDID-CS?_ <u>input_id</u> <CR> <b>FEEDBACK</b> ~nn@EDID-CS_ <u>input_id</u> ,cs_mode<CR><LF>	The following attributes comprise the ID: <u>input_id</u> – Output number 1 – Input 1 2 – Input 2 3 – Input 3 4 – Input 4 <u>cs_mode</u> – Color space 0 – RGB 4 – Auto	Get Input 2 EDID color space: #EDID-CS?_ <u>3</u> <CR>
EDID-DC	Force removal of deep color on EDID or leaving it as in the original EDID.	<b>COMMAND</b> #EDID-DC_ <u>in_index</u> ,deep_color_state<CR> <b>FEEDBACK</b> Get: ~nn@EDID-DC_ <u>in_index</u> ,deep_color_state<CR><LF>	<u>in_index</u> – Number that indicates the specific input: 1 – Input 1 2 – Input 2 3 – Input 3 4 – Input 4 <u>deep_color_state</u> – 0 – Don't change 1 – Remove deep color	Remove deep color on input 2: #EDID-DC_ <u>2</u> ,1<CR>
EDID-DC?	Get the input's deep color removal status.	<b>COMMAND</b> #EDID-DC?_ <u>in_index</u> <CR> <b>FEEDBACK</b> Get: ~nn@EDID-DC_ <u>in_index</u> ,deep_color_state<CR><LF>	<u>in_index</u> – Number that indicates the specific input: 1 – Input 1 2 – Input 2 3 – Input 3 4 – Input 4 <u>deep_color_state</u> – 0 – Don't change 1 – Remove deep color	Get Input 3 deep color removal status: #EDID-DC_ <u>3</u> ,1<CR>
ETH-PORT	Set Ethernet port protocol. <i>!</i> If the port number you enter is already in use, an error is returned. The port number must be within the following range: 0-(2*16-1).	<b>COMMAND</b> #ETH-PORT_ <u>port_type</u> ,port_id<CR> <b>FEEDBACK</b> ~nn@ETH-PORT_ <u>port_type</u> ,port_id<CR><LF>	<u>port_type</u> – TCP/UDP TCP UDP <u>port_id</u> – TCP/UDP port number (0 – 65535)	Set the Ethernet port protocol for TCP to port 12457: #ETH-PORT_ <u>0</u> ,12457<CR>
ETH-PORT?	Get Ethernet port protocol.	<b>COMMAND</b> #ETH-PORT?_ <u>port_type</u> <CR> <b>FEEDBACK</b> ~nn@ETH-PORT_ <u>port_type</u> ,port_id<CR><LF>	<u>port_type</u> – TCP/UDP TCP UDP <u>port_id</u> – TCP / UDP port number (0 – 65535)	Get the Ethernet port protocol for UDP: #ETH-PORT?_ <u>1</u> <CR>
FACTORY	Reset device to factory default configuration. <i>!</i> This command deletes all user data from the device. The deletion can take some time. Your device may require powering off and powering on for the changes to take effect.	<b>COMMAND</b> #FACTORY<CR> <b>FEEDBACK</b> ~nn@FACTORY_ <u>ok</u> <CR><LF>		Reset the device to factory default configuration: #FACTORY<CR>

Function	Description	Syntax	Parameters/Attributes	Example
FEATURE-LIST?	Get feature state according to the feature ID.	<b>COMMAND</b> #FEATURE-LIST?_feature_id<CR> <b>FEEDBACK</b> ~nn@FEATURE-LIST?_feature_id,ir_state<CR><LF>	<b>feature_id</b> – Feature ID) 1 – Maestro 2 – Room controller 3 – Maestro panel <b>ir_state</b> – IR interface 0 – disable 1 – enable	Get the room controller feature state (for the room controller 1): #FEATURE-LIST?_1<CR>
HDCP-MOD	Set HDCP mode. <i>i</i> Set HDCP working mode on the device input. HDCP supported - HDCP_ON [default]. HDCP not supported - HDCP OFF. HDCP support changes following detected sink - MIRROR OUTPUT. When you define 3 as the mode, the HDCP status is defined according to the connected output in the following priority: OUT 1, OUT 2. If the connected display on OUT 2 supports HDCP, but OUT 1 does not, then HDCP is defined as not supported. If OUT 1 is not connected, then HDCP is defined by OUT 2.	<b>COMMAND</b> #HDCP-MOD_in_index,mode<CR> <b>FEEDBACK</b> ~nn@HDCP-MOD_in_index,mode<CR><LF>	<b>in_index</b> – Number that indicates the specific input: 1 – Input 1 2 – Input 2 3 – Input 3 4 – Input 4 <b>mode</b> – HDCP mode: 0 – HDCP Off 1 – HDCP On	Set the input HDCP-MODE of Input 1 to Off: #HDCP-MOD_1,0<CR>
HDCP-MOD?	Get HDCP mode. <i>i</i> Set HDCP working mode on the device input. HDCP supported - HDCP_ON [default]. HDCP not supported - HDCP OFF. HDCP support changes following detected sink - MIRROR OUTPUT.	<b>COMMAND</b> #HDCP-MOD?_in_index<CR> <b>FEEDBACK</b> ~nn@HDCP-MOD_in_index,mode<CR><LF>	<b>in_index</b> – Number that indicates the specific input: 1 – Input 1 2 – Input 2 3 – Input 3 4 – Input 4 <b>mode</b> – HDCP mode: 0 – HDCP Off 3 – HDCP defined according to the connected output	Get the input HDCP-MODE of Input 1: #HDCP-MOD?_1<CR>
HDCP-STAT?	Get HDCP signal status. <i>i</i> io_mode = 1 – get the HDCP signal status of the sink device connected to the specified output. io_mode = 0 – get the HDCP signal status of the source device connected to the specified input.	<b>COMMAND</b> #HDCP-STAT?_io_mode,in_index<CR> <b>FEEDBACK</b> ~nn@HDCP-STAT_io_mode,in_index,status<CR><LF>	<b>io_mode</b> – Input/Output 0 – Input 1 – Output <b>in_index</b> – Number that indicates the specific input: 1 – Input 1 2 – Input 2 3 – Input 3 4 – Input 4 <b>status</b> – Signal encryption status - valid values On/Off 0 – HDCP Off 1 – HDCP On	Get the output HDCP-STATUS of Input 1: #HDCP-STAT?_0,1<CR>
HELP	Get command list or help for specific command.	<b>COMMAND</b> #HELP<CR> #HELP_cmd_name<CR> <b>FEEDBACK</b> 1. Multi-line: ~nn@Device_cmd_name,_cmd_name...<CR><LF> To get help for command use: HELP (COMMAND_NAME)<CR><LF> ~nn@HELP_cmd_name:<CR><LF> description<CR><LF> USAGE:usage<CR><LF>	<b>cmd_name</b> – Name of a specific command	Get the command list: #HELP<CR> To get help for AV-SW-TIMEOUT: HELP_av-sw-timeout<CR>
LOCK-FP	Lock the front panel. <i>i</i> In NT-52N, this command includes the PortNumber (1-2) parameter.	<b>COMMAND</b> #LOCK-FP_lock/unlock<CR> <b>FEEDBACK</b> ~nn@LOCK-FP_lock/unlock<CR><LF>	<b>lock/unlock</b> – On/Off 0 – Off unlocks front panel buttons 1 – On locks front panel bu	Unlock front panel: #LOCK-FP_0<CR>
LOCK-FP?	Get the front panel lock state. <i>i</i> In NT-52N, this command includes the PortNumber (1-2) parameter.	<b>COMMAND</b> #LOCK-FP?_<CR> <b>FEEDBACK</b> ~nn@LOCK-FP_lock/unlock<CR><LF>	<b>lock/unlock</b> – On/Off 0 – Off unlocks front panel buttons 1 – On locks front panel buttons	Get the front panel lock state: #LOCK-FP?<CR>







Function	Description	Syntax	Parameters/Attributes	Example
LOGIN	<p>Set protocol permission.</p> <p><b>i</b> The permission system works only if security is enabled with the "SECUR" command.</p> <p>LOGIN allows the user to run commands with an End User or Administrator permission level. When the permission system is enabled, LOGIN enables running commands with the User or Administrator permission level. When set, login must be performed upon each connection.</p> <p>It is not mandatory to enable the permission system in order to use the device.</p> <p>In each device, some connections allow logging in to different levels. Some do not work with security at all.</p> <p>Connection may logout after timeout.</p>	<p><b>COMMAND</b></p> <pre>#LOGIN login_level,password&lt;CR&gt;</pre> <p><b>FEEDBACK</b></p> <pre>~nn@LOGIN login_level,password_ok&lt;CR&gt;&lt;LF&gt;</pre> <p>or</p> <pre>~nn@LOGIN_err_004&lt;CR&gt;&lt;LF&gt;</pre> <p>(if bad password entered)</p>	<p><b>login_level</b> – Level of permissions required (User or Admin)</p> <p><b>password</b> – Predefined password (by PASS command). Default password is an empty string</p>	<p>Set the protocol permission level to Admin (when the password defined in the PASS command is 33333):</p> <pre>#LOGIN_admin,33333&lt;CR&gt;</pre>
LOGIN?	<p>Get current protocol permission level.</p> <p><b>i</b> The permission system works only if security is enabled with the "SECUR" command.</p> <p>For devices that support security, LOGIN allows the user to run commands with an End User or Administrator permission level.</p> <p>In each device, some connections allow logging in to different levels. Some do not work with security at all.</p> <p>Connection may logout after timeout.</p>	<p><b>COMMAND</b></p> <pre>#LOGIN?_&lt;CR&gt;</pre> <p><b>FEEDBACK</b></p> <pre>~nn@LOGIN_login_level&lt;CR&gt;&lt;LF&gt;</pre>	<p><b>login_level</b> – Level of permissions required (User or Admin)</p>	<p>Get current protocol permission level:</p> <pre>#LOGIN?&lt;CR&gt;</pre>
LOGOUT	<p>Cancel current permission level.</p> <p><b>i</b> Logs out from End User or Administrator permission levels to Not Secure.</p>	<p><b>COMMAND</b></p> <pre>#LOGOUT&lt;CR&gt;</pre> <p><b>FEEDBACK</b></p> <pre>~nn@LOGOUT_ok&lt;CR&gt;&lt;LF&gt;</pre>		<pre>#LOGOUT&lt;CR&gt;</pre>
LOG-TAIL?	<p>Get the last "n" lines of message logs.</p> <p><b>i</b> Used for advanced troubleshooting. Helps find error root causes and gets details not displayed in the error code number.</p>	<p><b>COMMAND</b></p> <pre>#LOG-TAIL?_line_num&lt;CR&gt;</pre> <p><b>FEEDBACK</b></p> <pre>Get: ~nn@LOG-TAILnn&lt;CR&gt;&lt;LF&gt;</pre> <pre>Line content #1&lt;CR&gt;&lt;LF&gt;</pre> <pre>Line content #2&lt;CR&gt;&lt;LF&gt;</pre> <p>Etc...</p>	<p><b>line_num</b> – Optional, default line_num is 10</p>	<p>Get the last "2" lines of message logs:</p> <pre>#LOG-TAIL?_2&lt;CR&gt;</pre>

Function	Description	Syntax	Parameters/Attributes	Example
<b>MATRIX-STATUS?</b>	<p>Get routing status of all output ports.</p> <p><b>i</b> This syntax uses the new convention of using brackets to define a list of fields "[ ]".</p>	<p><b>COMMAND</b></p> <pre>#MATRIX-STATUS?_&lt;CR&gt;</pre> <p><b>FEEDBACK</b></p> <p>Multi-line:</p> <pre>~nn@MATRIX-STATUS_ [[&lt;direction_type&gt;.&lt;port_format&gt;.&lt;port_index1&gt;.&lt;signal_type1&gt;.&lt;index1&gt;],[&lt;direction_type2&gt;.&lt;port_format2&gt;.&lt;port_index2&gt;.&lt;signal_type2&gt;.&lt;index2&gt;],...]&lt;CR&gt;&lt;LF&gt;</pre>	<p>The following attributes comprise the output signal ID (suffix 1) and input signal ID (suffix 2 or greater):</p> <ul style="list-style-type: none"> <li>▪ <b>&lt;direction_type&gt;</b> – Direction of the port: <ul style="list-style-type: none"> <li>o IN – Input</li> <li>o OUT – Output</li> </ul> </li> <li>▪ <b>&lt;port_format&gt;</b> – Type of signal on the port: <ul style="list-style-type: none"> <li>o HDMI</li> </ul> </li> <li>▪ <b>&lt;port_index&gt;</b> – The port number as printed on the front or rear panel <ul style="list-style-type: none"> <li>1 – Input 1</li> <li>2 – Input 2</li> <li>3 – Input 3</li> <li>4 – Input 4</li> <li>1 – Output 1</li> <li>2 – Output 2</li> <li>3 – Output 3</li> <li>4 – Output 4</li> </ul> </li> <li>▪ <b>&lt;signal_type&gt;</b> – Signal ID attribute: <ul style="list-style-type: none"> <li>o VIDEO</li> </ul> </li> <li>▪ <b>&lt;index&gt;</b> – Indicates a specific channel number when there are multiple channels of the same type</li> </ul>	<p>Get the room controller current matrix state:</p> <pre>#MATRIX-STATUS?_&lt;CR&gt;</pre>
<b>MODEL?</b>	<p>Get device model.</p> <p><b>i</b> This command identifies equipment connected to VS-44H2 and notifies of identity changes to the connected equipment. The Matrix saves this data in memory to answer REMOTE-INFO requests.</p>	<p><b>COMMAND</b></p> <pre>#MODEL?_&lt;CR&gt;</pre> <p><b>FEEDBACK</b></p> <pre>~nn@MODEL_model_name&lt;CR&gt;&lt;LF&gt;</pre>	<p><b>model_name</b> – String of up to 19 printable ASCII chars</p>	<p>Get the device model:</p> <pre>#MODEL?_&lt;CR&gt;</pre>
<b>NAME</b>	<p>Set machine (DNS) name.</p> <p><b>i</b> The machine name is not the same as the model name. The machine name is used to identify a specific machine or a network in use (with DNS feature on).</p>	<p><b>COMMAND</b></p> <pre>#NAME_machine_name&lt;CR&gt;</pre> <p><b>FEEDBACK</b></p> <pre>~nn@NAME_machine_name&lt;CR&gt;&lt;LF&gt;</pre>	<p><b>machine_name</b> – String of up to 15 alpha-numeric chars (can include hyphen, not at the beginning or end)</p>	<p>Set the DNS name of the device to room-442:</p> <pre>#NAME_room-442&lt;CR&gt;</pre>
<b>NAME?</b>	<p>Get machine (DNS) name.</p> <p><b>i</b> The machine name is not the same as the model name. The machine name is used to identify a specific machine or a network in use (with DNS feature on).</p>	<p><b>COMMAND</b></p> <pre>#NAME?_&lt;CR&gt;</pre> <p><b>FEEDBACK</b></p> <pre>~nn@NAME_machine_name&lt;CR&gt;&lt;LF&gt;</pre>	<p><b>machine_name</b> – String of up to 15 alpha-numeric chars (can include hyphen, not at the beginning or end)</p>	<p>Get the DNS name of the device:</p> <pre>#NAME?_&lt;CR&gt;</pre>
<b>NAME-RST</b>	<p>Reset machine (DNS) name to factory default.</p> <p><b>i</b> Factory default of machine (DNS) name is "KRAMER_" + 4 last digits of device serial number.</p>	<p><b>COMMAND</b></p> <pre>#NAME-RST&lt;CR&gt;</pre> <p><b>FEEDBACK</b></p> <pre>~nn@NAME-RST_ok&lt;CR&gt;&lt;LF&gt;</pre>		<p>Reset the machine name (S/N last digits are 0102):</p> <pre>#NAME-RST_kramer_0102&lt;CR&gt;</pre>
<b>NET-CONFIG</b>	<p>Set a network configuration.</p> <p><b>i</b> Parameters [DNS1] and [DNS2] are optional.</p> <p><b>i</b> For Backward compatibility, the <b>id</b> parameter can be omitted. In this case, the Network ID, by default, is 0, which is the Ethernet control port.</p> <p><b>i</b> If the gateway address is not compliant to the subnet mask used for the host IP, the command will return an error. Subnet and gateway compliancy specified by RFC950.</p>	<p><b>COMMAND</b></p> <pre>#NET-CONFIG_netw_id,net_ip,net_mask,gateway,[dns1],[dns2]&lt;CR&gt;</pre> <p><b>FEEDBACK</b></p> <pre>~nn@NET-CONFIG_netw_id,net_ip,net_mask,gateway&lt;CR&gt;&lt;LF&gt;</pre>	<p><b>netw_id</b> – Network ID—the device network interface (if there are more than one). Counting is 0 based, meaning the control port is '0', additional ports are 1,2,3....</p> <p><b>net_ip</b> – Network IP</p> <p><b>net_mask</b> – Network mask</p> <p><b>gateway</b> – Network gateway</p>	<p>Set the device network parameters to IP address 192.168.113.10, net mask 255.255.0.0, and gateway 192.168.0.1:</p> <pre>#NET-CONFIG_0,192.168.113.10,255.255.0.0,192.168.0.1&lt;CR&gt;</pre>

Function	Description	Syntax	Parameters/Attributes	Example
NET-CONFIG?	Get a network configuration.	<b>COMMAND</b> #NET-CONFIG?_netw_id<CR> <b>FEEDBACK</b> ~nn@NET-CONFIG_netw_id,net_ip,net_mask,gateway<CR><LF>	<b>netw_id</b> – Network ID—the device network interface (if there are more than one). Counting is 0 based, meaning the control port is '0', additional ports are 1,2,3.... <b>net_ip</b> – Network IP <b>net_mask</b> – Network mask <b>gateway</b> – Network gateway	Get network configuration: #NET-CONFIG?_id<CR>
NET-DHCP	Set DHCP mode.  ① Only 1 is relevant for the mode value. To disable DHCP, the user must configure a static IP address for the device.  Connecting Ethernet to devices with DHCP may take more time in some networks.  To connect with a randomly assigned IP by DHCP, specify the device DNS name (if available) using the <b>NAME</b> command. You can also get an assigned IP by direct connection to USB or RS-232 protocol port, if available.  For proper settings consult your network administrator.  ① For Backward compatibility, the <b>id</b> parameter can be omitted. In this case, the Network ID, by default, is 0, which is the Ethernet control port.	<b>COMMAND</b> #NET-DHCP_netw_id,dhcp_state<CR> <b>FEEDBACK</b> ~nn@NET-DHCP_netw_id,dhcp_state<CR><LF>	<b>netw_id</b> – Network ID—the device network interface (if there are more than one). Counting is 0 based, meaning the control port is '0', additional ports are 1,2,3.... <b>dhcp_state</b> – 1 – Try to use DHCP. (If unavailable, use the IP address set by the factory or the <b>net-ip</b> command).	Enable DHCP mode for port 1, if available: #NET-DHCP_0,1<CR>
NET-DHCP?	Get DHCP mode. ① For Backward compatibility, the <b>id</b> parameter can be omitted. In this case, the Network ID, by default, is 0, which is the Ethernet control port.	<b>COMMAND</b> #NET-DHCP?_netw_id<CR> <b>FEEDBACK</b> ~nn@NET-DHCP_netw_id,dhcp_mode<CR><LF>	<b>netw_id</b> – Network ID—the device network interface (if there are more than one). Counting is 0 based, meaning the control port is '0', additional ports are 1,2,3.... <b>dhcp_mode</b> – 0 – Do not use DHCP. Use the IP set by the factory or using the <b>net-ip</b> or <b>net-config</b> command. 1 – Try to use DHCP. If unavailable, use the IP set by the factory or using the <b>net-ip</b> or <b>net-config</b> command.	Get DHCP mode: #NET-DHCP?_0<CR>
NET-DNS?	Get DNS name server.  ① There is no "Set" command. Use NET-CONFIG to set up network, including DNS name servers.  If dns_id is out of the defined DNS range, Error Code #3 (ERR_PARAMETER_OUT_OF_RANGE) is returned.  If no dns_id is defined, Error Code #3 is returned for any dns_id.	<b>COMMAND</b> #NET-DNS?_dns_id<CR> <b>FEEDBACK</b> ~nn@NET-DNS_dns_id,dns_ip<CR><LF>	<b>dns_id</b> – ID of the DNS name server to retrieve, indexing starts at "0" <b>dns_ip</b> – IP address of the DNS server	Get DNS name server: #NET-DNS?_<CR>
NET-GATE	Set gateway IP.  ① A network gateway connects the device via another network and maybe over the Internet. Be careful of security issues. For proper settings consult your network administrator.	<b>COMMAND</b> #NET-GATE_ip_address<CR> <b>FEEDBACK</b> ~nn@NET-GATE_ip_address<CR><LF>	<b>ip_address</b> – Format: xxx.xxx.xxx.xxx	Set the gateway IP address to 192.168.0.1: #NET-GATE_192.168.0.001<CR>
NET-GATE?	Get gateway IP.  ① A network gateway connects the device via another network and maybe over the Internet. Be aware of security problems.	<b>COMMAND</b> #NET-GATE?_<CR> <b>FEEDBACK</b> ~nn@NET-GATE_ip_address<CR><LF>	<b>ip_address</b> – Format: xxx.xxx.xxx.xxx	Get the gateway IP address: #NET-GATE?_<CR>
NET-IP	Set IP address.  ① For proper settings consult your network administrator.	<b>COMMAND</b> #NET-IP_ip_address<CR> <b>FEEDBACK</b> ~nn@NET-IP_ip_address<CR><LF>	<b>ip_address</b> – Format: xxx.xxx.xxx.xxx	Set the IP address to 192.168.1.39: #NET-IP_192.168.001.039<CR>




Function	Description	Syntax	Parameters/Attributes	Example
NET-IP?	Get IP address.	<b>COMMAND</b> #NET-IP?_<CR> <b>FEEDBACK</b> ~nn@NET-IP_ip_address<CR><LF>	<b>ip_address</b> – Format: xxx.xxx.xxx.xxx	Get the IP address: #NET-IP?_<CR>
NET-MAC?	Get MAC address. <i>i</i> For backward compatibility, the <b>id</b> parameter can be omitted. In this case, the Network ID, by default, is 0, which is the Ethernet control port.	<b>COMMAND</b> #NET-MAC?_id<CR> <b>FEEDBACK</b> ~nn@NET-MAC_id,mac_address<CR><LF>	<b>id</b> – Network ID—the device network interface (if there are more than one). Counting is 0 based, meaning the control port is '0', additional ports are 1,2,3.... <b>mac_address</b> – Unique MAC address. Format: XX-XX-XX-XX-XX-XX where X is hex digit	#NET-MAC?_id<CR>
NET-MASK	Set subnet mask. <i>i</i> For proper settings consult your network administrator.	<b>COMMAND</b> #NET-MASK_net_mask<CR> <b>FEEDBACK</b> ~nn@NET-MASK_net_mask<CR><LF>	<b>net_mask</b> – Format: xxx.xxx.xxx.xxx	Set the subnet mask to 255.255.0.0: #NET-MASK_255.255.000.000<CR>
NET-MASK?	Get subnet mask.	<b>COMMAND</b> #NET-MASK?_<CR> <b>FEEDBACK</b> ~nn@NET-MASK_net_mask<CR><LF>	<b>net_mask</b> – Format: xxx.xxx.xxx.xxx	Get the subnet mask: #NET-MASK?<CR>
PASS	Set password for login level. <i>i</i> The default password is an empty string.	<b>COMMAND</b> #PASS_login_level,password<CR> <b>FEEDBACK</b> ~nn@PASS_login_level,password<CR><LF>	<b>login_level</b> – Level of login to set (End User or Administrator). <b>password</b> – Password for the <i>login_level</i> . Up to 15 printable ASCII chars	Set the password for the Admin protocol permission level to 33333: #PASS_admin,33333<CR>
PASS?	Get password for login level. <i>i</i> The default password is an empty string.	<b>COMMAND</b> #PASS?_login_level<CR> <b>FEEDBACK</b> ~nn@PASS_login_level,password<CR><LF>	<b>login_level</b> – Level of login to set (End User or Administrator). <b>password</b> – Password for the <i>login_level</i> . Up to 15 printable ASCII chars	Get the password for the Admin protocol permission level: #PASS?_admin<CR>
PORTS-LIST?	Get the port list of this machine. <i>i</i> The response is returned in one line and terminated with<CR><LF>. The response format lists port IDs separated by commas. This is an Extended Protocol 3000 command.	<b>COMMAND</b> #PORTS-LIST?_<CR> <b>FEEDBACK</b> ~nn@PORTS-LIST_ [<direction_type>.<port_format>.<port_index>,... ]<CR><LF>	The following attributes comprise the port ID: <ul style="list-style-type: none"> <li>▪ <b>&lt;direction_type&gt;</b> – Direction of the port: <ul style="list-style-type: none"> <li>o IN</li> <li>o OUT</li> </ul> </li> <li>▪ <b>&lt;port_format&gt;</b> – Type of signal on the port: <ul style="list-style-type: none"> <li>o HDMI</li> </ul> </li> <li>▪ <b>&lt;port_index&gt;</b> – The port number as printed on the front or rear panel: <ul style="list-style-type: none"> <li>1 – Input 1</li> <li>2 – Input 2</li> <li>3 – Input 3</li> <li>4 – Input 4</li>   <li>1 – Output 1</li> <li>2 – Output 2</li> <li>3 – Output 3</li> <li>4 – Output 4</li> </ul> </li> </ul>	Get the ports list: #PORTS-LIST?_<CR>
PROT-VER?	Get device protocol version.	<b>COMMAND</b> #PROT-VER?_<CR> <b>FEEDBACK</b> ~nn@PROT-VER_3000:version<CR><LF>	<b>version</b> – XX.XX where X is a decimal digit	Get the device protocol version: #PROT-VER?_<CR>
PRST-LOCK	Set a preset as read-only. <i>i</i> Prevents users from overriding the preset by mistake.	<b>COMMAND</b> #PRST-LOCK_preset_index,mode<CR> <b>FEEDBACK</b> ~nn@PRST-LOCK_preset_index,mode<CR><LF>	<b>preset_index</b> – Preset number <ul style="list-style-type: none"> <li>1 – Preset 1</li> <li>2 – Preset 2</li> <li>3 – Preset 3</li> <li>4 – Preset 4</li> <li>5 – Preset 5</li> <li>6 – Preset 6</li> <li>7 – Preset 7</li> <li>8 – Preset 8</li> </ul> <b>mode</b> – On/Off	#PRST-LOCK_2,on<CR> ~01@PRST-LOCK 2,ON #PRST-LOCK_2<CR> ~01@PRST-LOCK 2,ON
PRST-LOCK?	Get the preset read-only status. <i>i</i> Prevents users from overriding the preset by mistake.	<b>COMMAND</b> #PRST-LOCK?_preset_index<CR> <b>FEEDBACK</b> ~nn@PRST-LOCK_preset_index,mode<CR><LF>	<b>preset_index</b> – Preset number <ul style="list-style-type: none"> <li>1 – Preset 1</li> <li>2 – Preset 2</li> <li>3 – Preset 3</li> <li>4 – Preset 4</li> <li>5 – Preset 5</li> <li>6 – Preset 6</li> <li>7 – Preset 7</li> <li>8 – Preset 8</li> </ul> <b>mode</b> – On/Off	#PRST-LOCK?_1<CR> ~01@PRST-LOCK 1,OFF #PRST-LOCK?_2<CR> ~01@PRST-LOCK 2,OFF
PRST-LST?	Get saved preset list. <i>i</i> In most units, video and audio presets with the same number are stored and recalled together by commands #PRST-STO and #PRST-RCL.	<b>COMMAND</b> #PRST-LST?_<CR> <b>FEEDBACK</b> ~nn@PRST-LST_preset,preset,...<CR><LF>	<b>preset</b> – Preset number <ul style="list-style-type: none"> <li>1 – Preset 1</li> <li>2 – Preset 2</li> <li>3 – Preset 3</li> <li>4 – Preset 4</li> <li>5 – Preset 5</li> <li>6 – Preset 6</li> <li>7 – Preset 7</li> <li>8 – Preset 8</li> </ul>	Show preset list: #PRST-LST?<CR>



Function	Description	Syntax	Parameters/Attributes	Example
PRST-RCL	Recall saved preset list.   In most units, video and audio presets with the same number are stored and recalled together by commands #PRST-STO and #PRST-RCL.	<b>COMMAND</b> #PRST-RCL_preset<CR> <b>FEEDBACK</b> ~nn@PRST-RCL_preset<CR><LF>	<b>preset</b> – Preset number 1 – Preset 1 2 – Preset 2 3 – Preset 3 4 – Preset 4 5 – Preset 5 6 – Preset 6 7 – Preset 7 8 – Preset 8	Recall preset 1: #PRST-RCL_1<CR>
PRST-STO	Store current connections, volumes and modes in preset.   In most units, video and audio presets with the same number are stored and recalled together by commands #PRST-STO and #PRST-RCL.	<b>COMMAND</b> #PRST-STO_preset<CR> <b>FEEDBACK</b> ~nn@PRST-STO_preset<CR><LF>	<b>preset</b> – Preset number 1 – Preset 1 2 – Preset 2 3 – Preset 3 4 – Preset 4 5 – Preset 5 6 – Preset 6 7 – Preset 7 8 – Preset 8	Store preset 1: #PRST-STO_1<CR>
RESET	Reset device.   To avoid locking the port due to a USB bug in Windows, disconnect USB connections immediately after running this command. If the port was locked, disconnect and reconnect the cable to reopen the port.	<b>COMMAND</b> #RESET<CR> <b>FEEDBACK</b> ~nn@RESET_ok<CR><LF>		Reset the device: #RESET<CR>
SECUR	Start/stop security.   The permission system works only if security is enabled with the "SECUR" command.	<b>COMMAND</b> #SECUR_security_state<CR> <b>FEEDBACK</b> ~nn@SECUR_security_state<CR><LF>	<b>security_state</b> – Security state 0 – OFF (disables security) 1 – ON (enables security)	Enable the permission system: #SECUR_0<CR>
SECUR?	Get current security state.   The permission system works only if security is enabled with the "SECUR" command.	<b>COMMAND</b> #SECUR?_<CR> <b>FEEDBACK</b> ~nn@SECUR_security_state<CR><LF>	<b>security_state</b> – Security state 0 – OFF (disables security) 1 – ON (enables security)	Get current security state: #SECUR?_<CR>
SIGNAL?	Get input signal status.	<b>COMMAND</b> #SIGNAL?_in_index<CR> <b>FEEDBACK</b> ~nn@SIGNAL_in_index,status<CR><LF>	<b>in_index</b> – Number that indicates the specific input: 1 – Input 1 2 – Input 2 3 – Input 3 4 – Input 4 <b>status</b> – Signal status according to signal validation: 0 – Off 1 – On	Get the input signal lock status of Input 1: #SIGNAL?_1<CR>
SIGNALS-LIST?	Get signal ID list of this machine.   The response is returned in one line and terminated with<CR><LF>.  The response format lists signal IDs separated by commas.  This is an Extended Protocol 3000 command.	<b>COMMAND</b> #SIGNALS-LIST?_<CR><LF> <b>FEEDBACK</b> ~nn@SIGNALS-LIST_[<direction_type>.<port_format>.<port_label>.<signal_type>.<index>,...]<CR><LF>	The following attributes comprise the signal ID: <ul style="list-style-type: none"> <li>▪ &lt;direction_type&gt; – Direction of the port: <ul style="list-style-type: none"> <li>o IN – Input</li> <li>o OUT – Output</li> </ul> </li> <li>▪ &lt;port_format&gt; – Type of signal on the port: <ul style="list-style-type: none"> <li>o HDMI</li> </ul> </li> <li>▪ &lt;port_index&gt; – The port number as printed on the front or rear panel 1 – Input 1 2 – Input 2 3 – Input 3 4 – Input 4  1 – Output 1 2 – Output 2 3 – Output 3 4 – Output 4</li> <li>▪ &lt;signal_type&gt; – Signal ID attribute: <ul style="list-style-type: none"> <li>o VIDEO</li> </ul> </li> <li>▪ &lt;index&gt; – Indicates a specific channel number when there are multiple channels of the same type</li> </ul>	Get signal ID list: #SIGNALS-LIST?_<CR>
SN?	Get device serial number.	<b>COMMAND</b> #SN?_<CR> <b>FEEDBACK</b> ~nn@SN_serial_num<CR><LF>	<b>serial_num</b> – 14 decimal digits, factory assigned	Get the device serial number: #SN?_<CR>

Function	Description	Syntax	Parameters/Attributes	Example
TIME?	<p>Get device time and date.</p> <p><b>i</b> The year must be 4 digits.</p> <p>The device does not validate the day of week from the date.</p> <p>Time format - 24 hours.</p> <p>Date format - Day, Month, Year.</p>	<p><b>COMMAND</b></p> <pre>#TIME?_&lt;CR&gt;</pre> <p><b>FEEDBACK</b></p> <pre>~nn@TIME_day_of_week,date,data&lt;CR&gt;&lt;LF&gt;</pre>	<p><b>day_of_week</b> – One of {SUN,MON,TUE,WED,THU,FRI,SAT}</p> <p><b>date</b> – Format: YYYY/MM/DD where            YYYY = Year            MM = Month            DD = Day</p> <p><b>data</b> – Format: hh:mm:ss where            hh = hours            mm = minutes            ss = seconds</p>	<p>Get device time and date:  <b>#TIME?&lt;CR&gt;</b></p>
TIME-LOC?	<p>Get local time offset from UTC/GMT.</p> <p><b>i</b> If the time server is configured, device time calculates by adding UTC_off to UTC time (that it got from the time server) + 1 hour if daylight savings time is in effect.</p> <p>TIME command sets the device time without considering these settings.</p>	<p><b>COMMAND</b></p> <pre>#TIME-LOC?_&lt;CR&gt;</pre> <p><b>FEEDBACK</b></p> <pre>~nn@TIME-LOC_utc_off,dst_state&lt;CR&gt;&lt;LF&gt;</pre>	<p><b>utc_off</b> – Offset of device time from UTC/GMT (without daylight time correction)</p> <p><b>dst_state</b> – Daylight saving time state            0 – no daylight saving time            1 – daylight saving time</p>	<p>Get local time offset from UTC/GMT:  <b>#TIME-LOC?&lt;CR&gt;</b></p>
TIME-SRV?	<p>Get time server.</p> <p><b>i</b> This command is needed for setting UDP timeout for the current client list.</p>	<p><b>COMMAND</b></p> <pre>#TIME-SRV?_&lt;CR&gt;</pre> <p><b>FEEDBACK</b></p> <pre>~nn@TIME-SRV_mode,time_server_ip,sync_hour,server_status&lt;CR&gt;&lt;LF&gt;</pre>	<p><b>mode</b> – On/Off            0 – Off            1 – On</p> <p><b>time_server_ip</b> – Time server IP address</p> <p><b>sync_hour</b> – Hour in day for time server sync</p> <p><b>server_status</b> – On/Off            0 – Off            1 – On</p>	<p>Get time server:  <b>#TIME-SRV?&lt;CR&gt;</b></p>
UPGRADE	<p>Perform firmware upgrade.</p> <p><b>i</b> Not necessary for some devices.</p> <p>Firmware usually uploads to a device via a command like LDFW.</p> <p>Reset the device to complete the process.</p>	<p><b>COMMAND</b></p> <pre>#UPGRADE&lt;CR&gt;</pre> <p><b>FEEDBACK</b></p> <pre>~nn@UPGRADE_ok&lt;CR&gt;&lt;LF&gt;</pre>		<p>Perform firmware upgrade:  <b>#UPGRADE&lt;CR&gt;</b></p>
VERSION?	<p>Get firmware version number.</p>	<p><b>COMMAND</b></p> <pre>#VERSION?_&lt;CR&gt;</pre> <p><b>FEEDBACK</b></p> <pre>~nn@VERSION_firmware_version&lt;CR&gt;&lt;LF&gt;</pre>	<p><b>firmware_version</b> – XX.XX.XXXX where the digit groups are: major.minor.build version</p>	<p>Get the device firmware version number:  <b>#VERSION?_&lt;CR&gt;</b></p>
X-AUD-ONLY	<p>Set audio only mode, where a black pattern is shown and Audio is played over HDMI.</p> <p><b>i</b> This is an Extended Protocol 3000 command.</p>	<p><b>COMMAND</b></p> <pre>#X-AUD-ONLY_&lt;direction_type&gt;.&lt;port_format&gt;.&lt;port_index&gt;.&lt;signal_type&gt;.&lt;index&gt;,mode&lt;CR&gt;</pre> <p><b>FEEDBACK</b></p> <pre>~nn@X-AUD-ONLY_&lt;direction_type&gt;.&lt;port_format&gt;.&lt;port_index&gt;.&lt;signal_type&gt;.&lt;index&gt;,mode&lt;CR&gt;&lt;LF&gt;</pre>	<p>The following attributes comprise the signal ID:</p> <ul style="list-style-type: none"> <li>▪ <b>&lt;direction_type&gt;</b> – Direction of the port:           <ul style="list-style-type: none"> <li>○ IN – Input</li> <li>○ OUT – Output</li> </ul> </li> <li>▪ <b>&lt;port_format&gt;</b> – Type of signal on the port:           <ul style="list-style-type: none"> <li>○ HDMI</li> </ul> </li> <li>▪ <b>&lt;port_index&gt;</b> – The port number as printed on the front or rear panel           <ul style="list-style-type: none"> <li>1 – Input 1</li> <li>2 – Input 2</li> <li>3 – Input 3</li> <li>4 – Input 4</li> </ul> </li> <li>1 – Output 1</li> <li>2 – Output 2</li> <li>3 – Output 3</li> <li>4 – Output 4</li> </ul> <p>▪ <b>&lt;signal_type&gt;</b> – Signal ID attribute:           <ul style="list-style-type: none"> <li>○ VIDEO</li> <li>○ AUDIO</li> </ul> </p> <p>▪ <b>&lt;index&gt;</b> – Indicates a specific channel number when there are multiple channels of the same type</p> <p><b>mode</b> – OFF/ON (not case sensitive)</p>	<p>Set Output 3 to audio only:  <b>#X-AUD-ONLY_out.hDMI.3.video.1,on&lt;CR&gt;</b></p>


Function	Description	Syntax	Parameters/Attributes	Example
X-AUD-ONLY?	Get audio only mode.  ⓘ This is an Extended Protocol 3000 command.	<b>COMMAND</b> #X-AUD-ONLY?_<direction_type>.<port_format>.<port_index>.<signal_type>.<index><CR> <b>FEEDBACK</b> ~nn@X-AUD-ONLY_<direction_type>.<port_format>.<port_index>.<signal_type>.<index>,mode<CR><LF>	The following attributes comprise the signal ID: ▪ <direction_type> – Direction of the port: ○ IN – Input ○ OUT – Output ▪ <port_format> – Type of signal on the port: ○ HDMI ▪ <port_index> – The port number as printed on the front or rear panel 1 – Input 1 2 – Input 2 3 – Input 3 4 – Input 4  1 – Output 1 2 – Output 2 3 – Output 3 4 – Output 4 ▪ <signal_type> – Signal ID attribute: ○ VIDEO ○ AUDIO ▪ <index> – Indicates a specific channel number when there are multiple channels of the same type mode – OFF/ON (not case sensitive)	Get the audio only mode: #X-AUD-ONLY?_out.hdmi.2.video.1<CR>
X-AV-SW-MODE	Set auto-switch mode per output.  ⓘ This is an Extended Protocol 3000 command.	<b>COMMAND</b> #X-AV-SW-MODE_<direction_type>.<port_format>.<port_index>.<signal_type>.<index>,connection_mode<CR> <b>FEEDBACK</b> ~nn@X-AV-SW-MODE_<direction_type>.<port_format>.<port_index>.<signal_type>.<index>,connection_mode<CR><LF>	The following attributes comprise the signal ID: ▪ <direction_type> – Direction of the port: ○ OUT – Output ▪ <port_format> – Type of signal on the port: ○ HDMI ▪ <port_index> – The port number as printed on the front or rear panel ▪ 1 – Input 1 ▪ 2 – Input 2 ▪ 3 – Input 3 ▪ 4 – Input 4 ▪ ▪ 1 – Output 1 ▪ 2 – Output 2 ▪ 3 – Output 3 ▪ 4 – Output 4 ▪ <signal_type> – Signal ID attribute: ○ VIDEO ▪ <index> – Indicates a specific channel number when there are multiple channels of the same type connection_mode – Connection mode 0 – manual 1 – priority 2 – last connected	Set auto switch mode for Output 1 (last connected): #X-AV-SW-MODE_out.hdm.i.1.video.1,2<CR>
X-AV-SW-MODE?	Get auto-switch mode.  ⓘ This is an Extended Protocol 3000 command.	<b>COMMAND</b> #X-AV-SW-MODE?_<direction_type>.<port_format>.<port_index>.<signal_type>.<index><CR> <b>FEEDBACK</b> ~nn@X-AV-SW-MODE_<direction_type>.<port_format>.<port_index>.<signal_type>.<index>,connection_mode<CR><LF>	The following attributes comprise the signal ID: ▪ <direction_type> – Direction of the port: ○ OUT – Output ▪ <port_format> – Type of signal on the port: ○ HDMI ▪ <port_index> – The port number as printed on the front or rear panel ▪ 1 – Output 1 ▪ 2 – Output 2 ▪ 3 – Output 3 ▪ 4 – Output 4 ▪ <signal_type> – Signal ID attribute: ○ VIDEO ▪ <index> – Indicates a specific channel number when there are multiple channels of the same type connection_mode – Connection mode 0 – manual 1 – priority 2 – last connected	Get auto switch mode for Output 1: #X-AV-SW-MODE?_out.hdmi.1.video.1<CR>

Function	Description	Syntax	Parameters/Attributes	Example
<b>X-LABEL</b>	<p>Set the port label.</p> <p> Labels are used commonly by WEB pages.</p> <p>This is an Extended Protocol 3000 command.</p>	<p><b>COMMAND</b></p> <pre>#X-LABEL_&lt;direction_type&gt;.&lt;port_format&gt;.&lt;port_index&gt;,label_txt&lt;CR&gt;</pre> <p><b>FEEDBACK</b></p> <pre>~nn@X-LABEL_&lt;direction_type&gt;.&lt;port_format&gt;.&lt;port_index&gt;,label_txt&lt;CR&gt;&lt;LF&gt;</pre>	<p>The following attributes comprise the port ID:</p> <ul style="list-style-type: none"> <li>▪ <b>&lt;direction_type&gt;</b> – Direction of the port: <ul style="list-style-type: none"> <li>○ IN</li> <li>○ OUT</li> </ul> </li> <li>▪ <b>&lt;port_format&gt;</b> – Type of signal on the port: <ul style="list-style-type: none"> <li>○ HDMI</li> </ul> </li> <li>▪ <b>&lt;port_index&gt;</b> – The port number as printed on the front or rear panel <ul style="list-style-type: none"> <li>1 – Input 1</li> <li>2 – Input 2</li> <li>3 – Input 3</li> <li>4 – Input 4</li> </ul> </li> </ul> <p>1 – Output 1 2 – Output 2 3 – Output 3 4 – Output 4</p> <p><b>label_txt</b> – ASCII characters without space</p>	<p>Set the port label for Input 1:</p> <pre>#X-LABEL_in.hdmi.1,dvd&lt;CR&gt;</pre>
<b>X-LABEL?</b>	<p>Get the port label.</p> <p> Labels are used commonly by WEB pages.</p> <p>This is an Extended Protocol 3000 command.</p>	<p><b>COMMAND</b></p> <pre>#X-LABEL?&lt;direction_type&gt;.&lt;port_format&gt;.&lt;port_index&gt;&lt;CR&gt;</pre> <p><b>FEEDBACK</b></p> <pre>~nn@X-LABEL_&lt;direction_type&gt;.&lt;port_format&gt;.&lt;port_index&gt;,label_txt&lt;CR&gt;&lt;LF&gt;</pre>	<p>The following attributes comprise the port ID:</p> <ul style="list-style-type: none"> <li>▪ <b>&lt;direction_type&gt;</b> – Direction of the port: <ul style="list-style-type: none"> <li>○ IN</li> <li>○ OUT</li> </ul> </li> <li>▪ <b>&lt;port_format&gt;</b> – Type of signal on the port: <ul style="list-style-type: none"> <li>○ HDMI</li> </ul> </li> <li>▪ <b>&lt;port_index&gt;</b> – The port number as printed on the front or rear panel <ul style="list-style-type: none"> <li>1 – Input 1</li> <li>2 – Input 2</li> <li>3 – Input 3</li> <li>4 – Input 4</li> </ul> </li> </ul> <p>1 – Output 1 2 – Output 2 3 – Output 3 4 – Output 4</p> <p><b>label_txt</b> – ASCII characters without space</p>	<p>Get the port label for Output 4:</p> <pre>#X-LABEL?_out.hdmi.4&lt;CR&gt;</pre>
<b>X-MTX-SET-INPUTS</b>	<p>Set auto switching input signals group per output.</p> <p> The order of the inputs in the list is fixing implicitly the priority of each input in case the user choose later "Priority" auto switching strategy.</p> <p>The highest priority is 1, then 2 etc. in the decreasing order.</p> <p>X-MTX-SET-INPUTS can be used to define the Group list for "Priority" auto-switching strategy.</p> <p>X-MTX-SET-INPUTS override X-PRIORITY configuration. Auto switching group list is common for all Auto switching strategies (last connected/ priority).</p> <p>This syntax uses the new convention of using brackets to define a list of fields "[ ]".</p> <p>This is an Extended Protocol 3000 command.</p>	<p><b>COMMAND</b></p> <pre>#X-MTX-SET-INPUT_&lt;direction_type1&gt;.&lt;port_type1&gt;.&lt;port_index1&gt;.&lt;signal_type1&gt;.&lt;index1&gt;,[&lt;direction_type2&gt;.&lt;port_type2&gt;.&lt;port_index2&gt;.&lt;signal_type2&gt;.&lt;index2&gt;,...]&lt;CR&gt;</pre> <p><b>FEEDBACK</b></p> <pre>~nn@X-MTX-SET-INPUT_&lt;direction_type1&gt;.&lt;port_type1&gt;.&lt;port_index1&gt;.&lt;signal_type1&gt;.&lt;index1&gt;,[&lt;direction_type2&gt;.&lt;port_type2&gt;.&lt;port_index2&gt;.&lt;signal_type2&gt;.&lt;index2&gt;,...]&lt;CR&gt;&lt;LF&gt;</pre>	<p>The following attributes comprise the signal ID:</p> <ul style="list-style-type: none"> <li>▪ <b>&lt;direction_type&gt;</b> – Direction of the port: <ul style="list-style-type: none"> <li>○ IN – Input</li> <li>○ OUT – Output</li> </ul> </li> <li>▪ <b>&lt;port_format&gt;</b> – Type of signal on the port: <ul style="list-style-type: none"> <li>○ HDMI</li> </ul> </li> <li>▪ <b>&lt;port_index&gt;</b> – The port number as printed on the front or rear panel <ul style="list-style-type: none"> <li>1 – Input 1</li> <li>2 – Input 2</li> <li>3 – Input 3</li> <li>4 – Input 4</li> </ul> </li> </ul> <p>1 – Output 1 2 – Output 2 3 – Output 3 4 – Output 4</p> <ul style="list-style-type: none"> <li>▪ <b>&lt;signal_type&gt;</b> – Signal ID attribute: <ul style="list-style-type: none"> <li>○ VIDEO</li> </ul> </li> <li>▪ <b>&lt;index&gt;</b> – Indicates a specific channel number when there are multiple channels of the same type</li> </ul>	<p>Set auto switching input signals group for Output 1.</p> <pre>#X-MTX-SET-INPUTS_out.hdmi.1.video.1,[in.hdmi.1.video.1,in.hdmi.2.video.1...]&lt;CR&gt;</pre>

Function	Description	Syntax	Parameters/Attributes	Example
<b>X-MTX-SET-INPUTS?</b>	<p>Get auto switching input signals group per output.</p> <p><b>i</b> The order of the inputs in the list is fixing implicitly the priority of each input in case the user choose later "Priority" auto switching strategy.</p> <p>The highest priority is 1, then 2 etc. in the decreasing order.</p> <p>X-MTX-SET-INPUTS can be used to define the Group list for "Priority" auto-switching strategy.</p> <p>X-MTX-SET-INPUTS override X-PRIORITY configuration. Auto switching group list is common for all Auto switching strategies (last connected/ priority).</p> <p>This syntax uses the new convention of using brackets to define a list of fields "[ ]".</p> <p>This is an Extended Protocol 3000 command.</p>	<p><b>COMMAND</b></p> <pre>#X-MTX-SET-INPUT?_&lt;direction_type&gt;.&lt;port_type&gt;.&lt;port_index1&gt;.&lt;signal_type1&gt;.&lt;index1&gt;&lt;CR&gt;</pre> <p><b>FEEDBACK</b></p> <p>Get:</p> <pre>~nn@X-MTX-SET-INPUT_&lt;direction_type&gt;.&lt;port_type&gt;.&lt;port_index1&gt;.&lt;signal_type1&gt;.&lt;index1&gt;,[&lt;direction_type2&gt;.&lt;port_type2&gt;.&lt;port_index2&gt;.&lt;signal_type2&gt;.&lt;index2&gt;,...]&lt;CR&gt;&lt;LF&gt;</pre>	<p>The following attributes comprise the signal ID:</p> <ul style="list-style-type: none"> <li>▪ <b>&lt;direction_type&gt;</b> – Direction of the port: <ul style="list-style-type: none"> <li>o IN – Input</li> <li>o OUT – Output</li> </ul> </li> <li>▪ <b>&lt;port_format&gt;</b> – Type of signal on the port: <ul style="list-style-type: none"> <li>o HDMI</li> </ul> </li> <li>▪ <b>&lt;port_index&gt;</b> – The port number as printed on the front or rear panel <ul style="list-style-type: none"> <li>1 – Input 1</li> <li>2 – Input 2</li> <li>3 – Input 3</li> <li>4 – Input 4</li> </ul> </li> <li>1 – Output 1</li> <li>2 – Output 2</li> <li>3 – Output 3</li> <li>4 – Output 4</li> </ul> <li>▪ <b>&lt;signal_type&gt;</b> – Signal ID attribute: <ul style="list-style-type: none"> <li>o VIDEO</li> </ul> </li> <li>▪ <b>&lt;index&gt;</b> – Indicates a specific channel number when there are multiple channels of the same type</li>	<p>Get auto switching input signals group for Output 3.</p> <pre>#X-MTX-SET-INPUTS?_out.hdmi.3.video.1&lt;CR&gt;</pre>
<b>X-MUTE</b>	<p>Set mute ON/OFF on a specific signal.</p> <p><b>i</b> This command is designed to Mute a Signal. This means that it could be applicable on any type of signal. Could be audio, video and maybe IR, USB or data if this capability is supported by the product.</p> <p>This is an Extended Protocol 3000 command.</p>	<p><b>COMMAND</b></p> <pre>#X-MUTE_&lt;direction_type&gt;.&lt;port_format&gt;.&lt;port_index&gt;.&lt;signal_type&gt;.&lt;index&gt;,state&lt;CR&gt;</pre> <p><b>FEEDBACK</b></p> <pre>~nn@X-MUTE_&lt;direction_type&gt;.&lt;port_format&gt;.&lt;port_index&gt;.&lt;signal_type&gt;.&lt;index&gt;,state&lt;CR&gt;&lt;LF&gt;</pre>	<p>The following attributes comprise the signal ID:</p> <ul style="list-style-type: none"> <li>▪ <b>&lt;direction_type&gt;</b> – Direction of the port: <ul style="list-style-type: none"> <li>o IN – Input</li> <li>o OUT – Output</li> </ul> </li> <li>▪ <b>&lt;port_format&gt;</b> – Type of signal on the port: <ul style="list-style-type: none"> <li>o HDMI</li> </ul> </li> <li>▪ <b>&lt;port_index&gt;</b> – The port number as printed on the front or rear panel <ul style="list-style-type: none"> <li>1 – Input 1</li> <li>2 – Input 2</li> <li>3 – Input 3</li> <li>4 – Input 4</li> </ul> </li> <li>1 – Output 1</li> <li>2 – Output 2</li> <li>3 – Output 3</li> <li>4 – Output 4</li> </ul> <li>▪ <b>&lt;signal_type&gt;</b> – Signal ID attribute: <ul style="list-style-type: none"> <li>o VIDEO</li> <li>o AUDIO</li> </ul> </li> <li>▪ <b>&lt;index&gt;</b> – Indicates a specific channel number when there are multiple channels of the same type</li> <p>state – OFF/ON (not case sensitive)</p>	<p>Mute the video on Output 4:</p> <pre>#X-MUTE_out.hdmi.4.video.1,on&lt;CR&gt;</pre> <p>The device accepts any parameter that is put in the command</p>
<b>X-MUTE?</b>	<p>Get mute ON/OFF state on a specific signal.</p> <p><b>i</b> This command is designed to Mute a Signal. This means that it could be applicable on any type of signal. Could be audio, video and maybe IR, USB or data if this capability is supported by the product.</p> <p>This is an Extended Protocol 3000 command.</p>	<p><b>COMMAND</b></p> <pre>#X-MUTE?_&lt;direction_type&gt;.&lt;port_format&gt;.&lt;port_index&gt;.&lt;signal_type&gt;.&lt;index&gt;&lt;CR&gt;</pre> <p><b>FEEDBACK</b></p> <pre>~nn@X-MUTE_&lt;direction_type&gt;.&lt;port_format&gt;.&lt;port_index&gt;.&lt;signal_type&gt;.&lt;index&gt;,state&lt;CR&gt;&lt;LF&gt;</pre>	<p>The following attributes comprise the signal ID:</p> <ul style="list-style-type: none"> <li>▪ <b>&lt;direction_type&gt;</b> – Direction of the port: <ul style="list-style-type: none"> <li>o IN – Input</li> <li>o OUT – Output</li> </ul> </li> <li>▪ <b>&lt;port_format&gt;</b> – Type of signal on the port: <ul style="list-style-type: none"> <li>o HDMI</li> </ul> </li> <li>▪ <b>&lt;port_index&gt;</b> – The port number as printed on the front or rear panel</li> <li>▪ <b>&lt;signal_type&gt;</b> – Signal ID attribute: <ul style="list-style-type: none"> <li>o VIDEO</li> <li>o AUDIO</li> </ul> </li> <li>▪ <b>&lt;index&gt;</b> – Indicates a specific channel number when there are multiple channels of the same type</li> </ul> <p>state – OFF/ON (not case sensitive)</p>	<p>Get the mute ON/OFF state on Input 3:</p> <pre>#X-MUTE?_out.hdmi.4.video.1&lt;CR&gt;</pre>

Function	Description	Syntax	Parameters/Attributes	Example
<b>X-PATTERN</b>	<p>Set a pattern on a specific output signal.</p> <p><b>i</b> This command is designed to enable pattern on any signal. commonly pattern makes sense for video, but on some products audio pattern is also supported. In the future, data pattern will be also supported to generate some data on RS232 lines.</p> <p>This is an Extended Protocol 3000 command.</p>	<p><b>COMMAND</b>  <b>#X-PATTERN_&lt;direction_type&gt;.&lt;port_format&gt;.&lt;port_index&gt;.&lt;signal_type&gt;.&lt;index&gt;,pattern_id&lt;CR&gt;</b></p> <p><b>FEEDBACK</b>  <b>~nn@X-PATTERN_&lt;direction_type&gt;.&lt;port_format&gt;.&lt;port_index&gt;.&lt;signal_type&gt;.&lt;index&gt;,pattern_id&lt;CR&gt;&lt;LF&gt;</b></p>	<p>The following attributes comprise the signal ID:</p> <ul style="list-style-type: none"> <li>▪ <b>&lt;direction_type&gt;</b> – Direction of the port: <ul style="list-style-type: none"> <li>o OUT – Output</li> </ul> </li> <li>▪ <b>&lt;port_format&gt;</b> – Type of signal on the port: <ul style="list-style-type: none"> <li>o HDMI</li> </ul> </li> <li>▪ <b>&lt;port_index&gt;</b> – The port number as printed on the front or rear panel <ul style="list-style-type: none"> <li>1 – Output 1</li> <li>2 – Output 2</li> <li>3 – Output 3</li> <li>4 – Output 4</li> </ul> </li> <li>▪ <b>&lt;signal_type&gt;</b> – Signal ID attribute: <ul style="list-style-type: none"> <li>o VIDEO</li> </ul> </li> <li>▪ <b>&lt;index&gt;</b> – Indicates a specific channel number when there are multiple channels of the same type</li> </ul> <p><b>pattern_id</b> – Pattern index number</p> <ul style="list-style-type: none"> <li>0 – Pattern mode is OFF</li> <li>1 – Color bar</li> <li>2 – Blue screen</li> <li>3 – Green screen</li> <li>4 – Red screen</li> </ul> <p>Pattern index numbers can be retrieved using the command: <b>#x-patterns-list?</b></p>	<p>Set video pattern 3 on Output 3 (enabled):  <b>#X-PATTERN_out.hdmi.3.video.1,3&lt;CR&gt;</b></p>
<b>X-PATTERN?</b>	<p>Get selected pattern on a specific output signal.</p> <p><b>i</b> This command is designed to enable pattern on any signal. commonly pattern makes sense for video, but on some products audio pattern is also supported. In the future, data pattern will be also supported to generate some data on RS232 lines.</p> <p>This is an Extended Protocol 3000 command.</p>	<p><b>COMMAND</b>  <b>#X-PATTERN?_&lt;direction_type&gt;.&lt;port_format&gt;.&lt;port_index&gt;.&lt;signal_type&gt;.&lt;index&gt;&lt;CR&gt;</b></p> <p><b>FEEDBACK</b>  <b>~nn@X-PATTERN_&lt;direction_type&gt;.&lt;port_format&gt;.&lt;port_index&gt;.&lt;signal_type&gt;.&lt;index&gt;,pattern_id&lt;CR&gt;&lt;LF&gt;</b></p>	<p>The following attributes comprise the signal ID:</p> <ul style="list-style-type: none"> <li>▪ <b>&lt;direction_type&gt;</b> – Direction of the port: <ul style="list-style-type: none"> <li>o OUT – Output</li> </ul> </li> <li>▪ <b>&lt;port_format&gt;</b> – Type of signal on the port: <ul style="list-style-type: none"> <li>o HDMI</li> </ul> </li> <li>▪ <b>&lt;port_index&gt;</b> – The port number as printed on the front or rear panel <ul style="list-style-type: none"> <li>1 – Output 1</li> <li>2 – Output 2</li> <li>3 – Output 3</li> <li>4 – Output 4</li> </ul> </li> <li>▪ <b>&lt;signal_type&gt;</b> – Signal ID attribute: <ul style="list-style-type: none"> <li>o VIDEO</li> </ul> </li> <li>▪ <b>&lt;index&gt;</b> – Indicates a specific channel number when there are multiple channels of the same type</li> </ul> <p><b>pattern_id</b> – Pattern index number</p> <ul style="list-style-type: none"> <li>0 – Pattern mode is OFF</li> <li>1 – Color bar</li> <li>2 – Blue screen</li> <li>3 – Green screen</li> <li>4 – Red screen</li> </ul> <p>Pattern list can be retrieved using the command: <b>#patterns-list?</b></p>	<p>Get the selected pattern on a Output 1:  <b>#X-PATTERN?_out.hdmi.1.video.1&lt;CR&gt;</b></p>
<b>X-PATTERNS-LIST?</b>	<p>Get pattern indexes available per signal ID and usable in the command X-PATTERN.</p> <p><b>i</b> Not all products support patterns for all layers. This list can be usable into X-PATTERN.</p> <p>This is an Extended Protocol 3000 command.</p>	<p><b>COMMAND</b>  <b>#X-PATTERNS-LIST?_&lt;direction_type&gt;.&lt;port_format&gt;.&lt;port_index&gt;.&lt;signal_type&gt;.&lt;index&gt;&lt;CR&gt;</b></p> <p><b>FEEDBACK</b>  <b>~nn@X-PATTERNS-LIST_&lt;direction_type&gt;.&lt;port_format&gt;.&lt;port_index&gt;.&lt;signal_type&gt;.&lt;index&gt;,pattern_id&lt;CR&gt;&lt;LF&gt;</b></p>	<p>The following attributes comprise the signal ID:</p> <ul style="list-style-type: none"> <li>▪ <b>&lt;direction_type&gt;</b> – Direction of the port: <ul style="list-style-type: none"> <li>o OUT – Output</li> </ul> </li> <li>▪ <b>&lt;port_format&gt;</b> – Type of signal on the port: <ul style="list-style-type: none"> <li>o HDMI</li> </ul> </li> <li>▪ <b>&lt;port_index&gt;</b> – The port number as printed on the front or rear panel <ul style="list-style-type: none"> <li>1 – Output 1</li> <li>2 – Output 2</li> <li>3 – Output 3</li> <li>4 – Output 4</li> </ul> </li> <li>▪ <b>&lt;signal_type&gt;</b> – Signal ID attribute: <ul style="list-style-type: none"> <li>o VIDEO</li> </ul> </li> <li>▪ <b>&lt;index&gt;</b> – Indicates a specific channel number when there are multiple channels of the same type</li> </ul> <p><b>pattern_id</b> – Pattern index number</p> <ul style="list-style-type: none"> <li>0 – None</li> <li>1 – Color bar</li> <li>2 – Blue screen</li> <li>3 – Green screen</li> <li>4 – Red screen</li> </ul>	<p>Get the patterns list:  <b>#X-PATTERNS-LIST?_out.hdmi.1.video.1&lt;CR&gt;</b></p>

Function	Description	Syntax	Parameters/Attributes	Example
<b>X-PRIORITY</b>	<p>Set auto switching input signals group &amp; priorities per output.</p> <p><b>i</b> The order of the inputs in the list is fixing the order to the priority. The highest priority is 1, then 2 etc..</p> <p>X-PRIORITY is also defining implicitly the video inputs group list for Last-connected auto switching strategy.</p> <p>X-PRIORITY override X-MTX-SET-INPUTS configuration.</p> <p>Auto switching group list is common for all Auto switching strategies (last connected/ priority).</p> <p>This syntax uses the new convention of using brackets to define a list of fields "[ ]".</p> <p>This is an Extended Protocol 3000 command.</p>	<p><b>COMMAND</b></p> <pre>#X-PRIORITY_&lt;direction_type&gt;.&lt;port_type&gt;.&lt;port_index1&gt;.&lt;signal_type1&gt;.&lt;index1&gt;,[&lt;direction_type2&gt;.&lt;port_type2&gt;.&lt;port_index2&gt;.&lt;signal_type2&gt;.&lt;index2&gt;,...]&lt;CR&gt;</pre> <p><b>FEEDBACK</b></p> <pre>~nn@X-PRIORITY_&lt;direction_type&gt;.&lt;port_type&gt;.&lt;port_index1&gt;.&lt;signal_type1&gt;.&lt;index1&gt;,[&lt;direction_type2&gt;.&lt;port_type2&gt;.&lt;port_index2&gt;.&lt;signal_type2&gt;.&lt;index2&gt;,...]&lt;CR&gt;&lt;LF&gt;</pre>	<p>The following attributes comprise the signal ID:</p> <ul style="list-style-type: none"> <li>▪ <b>&lt;direction_type&gt;</b> – Direction of the port: <ul style="list-style-type: none"> <li>o IN – Input</li> <li>o OUT – Output</li> </ul> </li> <li>▪ <b>&lt;port_format&gt;</b> – Type of signal on the port: <ul style="list-style-type: none"> <li>o HDMI</li> </ul> </li> <li>▪ <b>&lt;port_index&gt;</b> – The port number as printed on the front or rear panel <ul style="list-style-type: none"> <li>1 – Input 1</li> <li>2 – Input 2</li> <li>3 – Input 3</li> <li>4 – Input 4</li> </ul> </li> <li>1 – Output 1</li> <li>2 – Output 2</li> <li>3 – Output 3</li> <li>4 – Output 4</li> </ul> <li>▪ <b>&lt;signal_type&gt;</b> – Signal ID attribute: <ul style="list-style-type: none"> <li>o VIDEO</li> </ul> </li> <li>▪ <b>&lt;index&gt;</b> – Indicates a specific channel number when there are multiple channels of the same type</li>	<p>Set the auto switching input signals group &amp; priorities per output:</p> <pre>#X-PRIORITY_out.hdmi.7.video.1,[in.hdmi.1.video.1,in.hdmi.2.video.1,in.hdmi.3.video.1]&lt;CR&gt;</pre>
<b>X-PRIORITY?</b>	<p>Get auto switching input signals group priorities per output.</p> <p><b>i</b> The order of the inputs in the list is fixing the order to the priority. The highest priority is 1, then 2 etc..</p> <p>X-PRIORITY is also defining implicitly the video inputs group list for Last-connected auto switching strategy.</p> <p>X-PRIORITY override X-MTX-SET-INPUTS configuration.</p> <p>Auto switching group list is common for all Auto switching strategies (last connected/ priority).</p> <p>This syntax uses the new convention of using brackets to define a list of fields "[ ]".</p> <p>This is an Extended Protocol 3000 command.</p>	<p><b>COMMAND</b></p> <pre>#X-PRIORITY?_&lt;direction_type&gt;.&lt;port_type&gt;.&lt;port_index1&gt;.&lt;signal_type1&gt;.&lt;index1&gt;&lt;CR&gt;</pre> <p><b>FEEDBACK</b></p> <pre>~nn@X-PRIORITY?_&lt;direction_type&gt;.&lt;port_type&gt;.&lt;port_index1&gt;.&lt;signal_type1&gt;.&lt;index1&gt;,[&lt;direction_type2&gt;.&lt;port_type2&gt;.&lt;port_index2&gt;.&lt;signal_type2&gt;.&lt;index2&gt;,...]&lt;CR&gt;&lt;LF&gt;</pre>	<p>The following attributes comprise the signal ID:</p> <ul style="list-style-type: none"> <li>▪ <b>&lt;direction_type&gt;</b> – Direction of the port: <ul style="list-style-type: none"> <li>o IN – Input</li> <li>o OUT – Output</li> </ul> </li> <li>▪ <b>&lt;port_format&gt;</b> – Type of signal on the port: <ul style="list-style-type: none"> <li>o HDMI</li> </ul> </li> <li>▪ <b>&lt;port_index&gt;</b> – The port number as printed on the front or rear panel <ul style="list-style-type: none"> <li>1 – Input 1</li> <li>2 – Input 2</li> <li>3 – Input 3</li> <li>4 – Input 4</li> </ul> </li> <li>1 – Output 1</li> <li>2 – Output 2</li> <li>3 – Output 3</li> <li>4 – Output 4</li> </ul> <li>▪ <b>&lt;signal_type&gt;</b> – Signal ID attribute: <ul style="list-style-type: none"> <li>o VIDEO</li> </ul> </li> <li>▪ <b>&lt;index&gt;</b> – Indicates a specific channel number when there are multiple channels of the same type</li>	<p>Get the auto switching input signals group &amp; priorities for Output 4:</p> <pre>#X-PRIORITY?_out.hdmi.4.video.1&lt;CR&gt;</pre>
<b>X-ROUTE</b>	<p>Send routing command to matrix.</p> <p><b>i</b> It is recommended to use the command <b>#SIGNALS-LIST</b> to get the list of all signal IDs available in the system and which can be used in this command.</p> <p>Video 1 is the default port in this command and is implied even if not written:</p> <pre>#X-ROUTE_out.sdi.5,in.sdi.1&lt;CR&gt;</pre> <p>is interpreted as:</p> <pre>#X-ROUTE_out.sdi.5.video.1,in.sdi.1.video.1&lt;CR&gt;</pre> <p>This is an Extended Protocol 3000 command.</p>	<p><b>COMMAND</b></p> <pre>#X-ROUTE_&lt;direction_type&gt;.&lt;port_type&gt;.&lt;port_index1&gt;.&lt;signal_type1&gt;.&lt;index1&gt;,&lt;direction_type2&gt;.&lt;port_type2&gt;.&lt;port_index2&gt;.&lt;signal_type2&gt;.&lt;index2&gt;&lt;CR&gt;</pre> <p><b>FEEDBACK</b></p> <pre>~nn@X-ROUTE_&lt;direction_type&gt;.&lt;port_type&gt;.&lt;port_index1&gt;.&lt;signal_type1&gt;.&lt;index1&gt;,&lt;direction_type2&gt;.&lt;port_type2&gt;.&lt;port_index2&gt;.&lt;signal_type2&gt;.&lt;index2&gt;&lt;CR&gt;&lt;LF&gt;</pre>	<p>The following attributes comprise the signal ID:</p> <ul style="list-style-type: none"> <li>▪ <b>&lt;direction_type&gt;</b> – Direction of the port: <ul style="list-style-type: none"> <li>o IN – Input</li> <li>o OUT – Output</li> </ul> </li> <li>▪ <b>&lt;port_format&gt;</b> – Type of signal on the port: <ul style="list-style-type: none"> <li>o HDMI</li> </ul> </li> <li>▪ <b>&lt;port_index&gt;</b> – The port number as printed on the front or rear panel <ul style="list-style-type: none"> <li>1 – Input 1</li> <li>2 – Input 2</li> <li>3 – Input 3</li> <li>4 – Input 4</li> </ul> </li> <li>1 – Output 1</li> <li>2 – Output 2</li> <li>3 – Output 3</li> <li>4 – Output 4</li> </ul> <li>▪ <b>&lt;signal_type&gt;</b> – Signal ID attribute: <ul style="list-style-type: none"> <li>o VIDEO</li> <li>o AUDIO</li> </ul> </li> <li>▪ <b>&lt;index&gt;</b> – Indicates a specific channel number when there are multiple channels of the same type</li>	<p>Route HDMI IN 2 to HDMI OUT 3:</p> <pre>#X-ROUTE_out.hdmi.3.video.1,in.hdmi.2.video.1&lt;CR&gt;</pre> <p>Route an ARC audio signal to HDBT input #1 from HDMI output #1:</p> <pre>#X-ROUTE_in.hdbt.1.arc.1,out.hdmi.1.arc.1&lt;CR&gt;</pre>

Function	Description	Syntax	Parameters/Attributes	Example
X-ROUTE?	<p>Get routing status.</p> <p> It is recommended to use the command #SIGNALS-LIST to get the list of all signal IDs available in the system and which can be used in this command.</p> <p>VIDEO.1 are the default &lt;signal_type&gt; and &lt;index&gt; in this command and are implied even if not written:</p> <p>#X-ROUTE_out.sdi.5.in.sdi.1&lt;CR&gt;</p> <p>is interpreted as:</p> <p>#X-ROUTE_out.sdi.5.video.1,in.sdi.1.video.1&lt;CR&gt;</p> <p>This is an Extended Protocol 3000 command.</p>	<p><b>COMMAND</b></p> <pre>#X-ROUTE?_&lt;direction_type&gt;.&lt;port_type&gt;.&lt;port_index&gt;.&lt;signal_type&gt;.&lt;index1&gt;&lt;CR&gt;</pre> <p><b>FEEDBACK</b></p> <pre>~nn@X-ROUTE_&lt;direction_type&gt;.&lt;port_type&gt;.&lt;port_index1&gt;.&lt;signal_type&gt;.&lt;index1&gt;,&lt;direction_type2&gt;.&lt;port_type2&gt;.&lt;port_index2&gt;.&lt;signal_type2&gt;.&lt;index2&gt;&lt;CR&gt;&lt;LF&gt;</pre>	<p>The following attributes comprise the signal ID:</p> <ul style="list-style-type: none"> <li>▪ &lt;direction_type&gt; – Direction of the port: <ul style="list-style-type: none"> <li>○ IN – Input</li> <li>○ OUT – Output</li> </ul> </li> <li>▪ &lt;port_format&gt; – Type of signal on the port: <ul style="list-style-type: none"> <li>○ HDMI</li> </ul> </li> <li>▪ &lt;port_index&gt; – The port number as printed on the front or rear panel <ul style="list-style-type: none"> <li>1 – Input 1</li> <li>2 – Input 2</li> <li>3 – Input 3</li> <li>4 – Input 4</li> </ul> </li> <li>1 – Output 1</li> <li>2 – Output 2</li> <li>3 – Output 3</li> <li>4 – Output 4</li> <li>▪ &lt;signal_type&gt; – Signal ID attribute: <ul style="list-style-type: none"> <li>○ VIDEO</li> <li>○ AUDIO</li> </ul> </li> <li>▪ &lt;index&gt; – Indicates a specific channel number when there are multiple channels of the same type</li> </ul>	<p>Get the routing status:</p> <pre>#X-ROUTE?_out.hdmi.5.video.1&lt;CR&gt;</pre>



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# Result and Error Codes

## Syntax

In case of an error, the device responds with an error message. The error message syntax:

- **~NN@ERR XXX<CR><LF>** – when general error, no specific command
- **~NN@CMD ERR XXX<CR><LF>** – for specific command
- **NN** – machine number of device, default = 01
- **XXX** – error code

## Error Codes

Error Name	Error Code	Description
P3K_NO_ERROR	0	No error
ERR_PROTOCOL_SYNTAX	1	Protocol syntax
ERR_COMMAND_NOT_AVAILABLE	2	Command not available
ERR_PARAMETER_OUT_OF_RANGE	3	Parameter out of range
ERR_UNAUTHORIZED_ACCESS	4	Unauthorized access
ERR_INTERNAL_FW_ERROR	5	Internal FW error
ERR_BUSY	6	Protocol busy
ERR_WRONG_CRC	7	Wrong CRC
ERR_TIMEOUT	8	Timeout
ERR_RESERVED	9	(Reserved)
ERR_FW_NOT_ENOUGH_SPACE	10	Not enough space for data (firmware, FPGA...)
ERR_FS_NOT_ENOUGH_SPACE	11	Not enough space – file system
ERR_FS_FILE_NOT_EXISTS	12	File does not exist
ERR_FS_FILE_CANT_CREATED	13	File can't be created
ERR_FS_FILE_CANT_OPEN	14	File can't open
ERR_FEATURE_NOT_SUPPORTED	15	Feature is not supported
ERR_RESERVED_2	16	(Reserved)
ERR_RESERVED_3	17	(Reserved)
ERR_RESERVED_4	18	(Reserved)
ERR_RESERVED_5	19	(Reserved)
ERR_RESERVED_6	20	(Reserved)
ERR_PACKET_CRC	21	Packet CRC error
ERR_PACKET_MISSED	22	Packet number isn't expected (missing packet)
ERR_PACKET_SIZE	23	Packet size is wrong
ERR_RESERVED_7	24	(Reserved)
ERR_RESERVED_8	25	(Reserved)
ERR_RESERVED_9	26	(Reserved)
ERR_RESERVED_10	27	(Reserved)
ERR_RESERVED_11	28	(Reserved)
ERR_RESERVED_12	29	(Reserved)
ERR_EDID_CORRUPTED	30	EDID corrupted
ERR_NON_LISTED	31	Device specific errors
ERR_SAME_CRC	32	File has the same CRC – no changed
ERR_WRONG_MODE	33	Wrong operation mode
ERR_NOT_CONFIGURED	34	Device/chip was not initialized