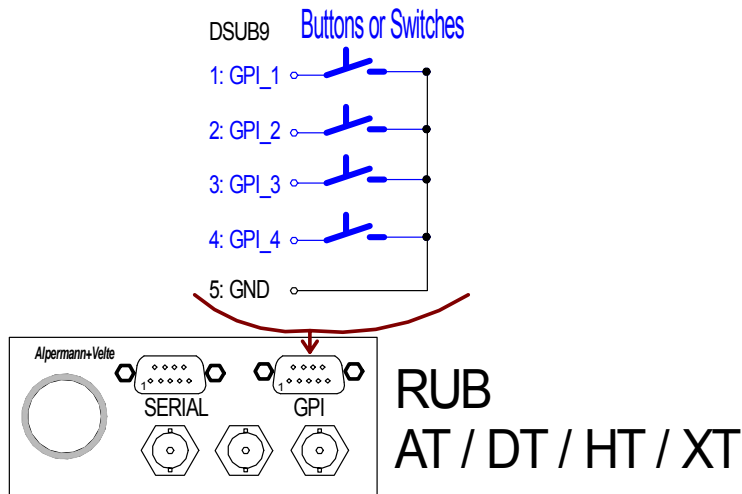


GPI used as Input

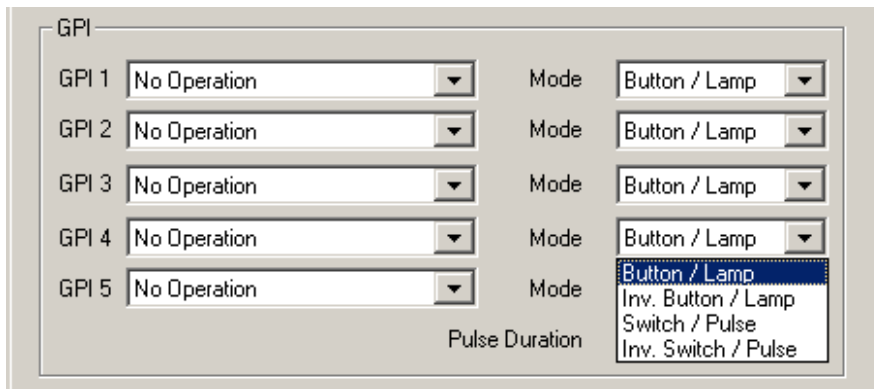


Input Specifications

GPI_1 ... GPI_4: Input specification	Input "Low": -2.0 to +1.0 V Input "High": +3.0 to +24.0 V Impedance: 4.7 kΩ Frequency: 0 - 1 MHz
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Input Switching Characteristic

The input switching characteristic is programmable utilizing the **Key** function with one of the Rubidium configuration tools. Example:

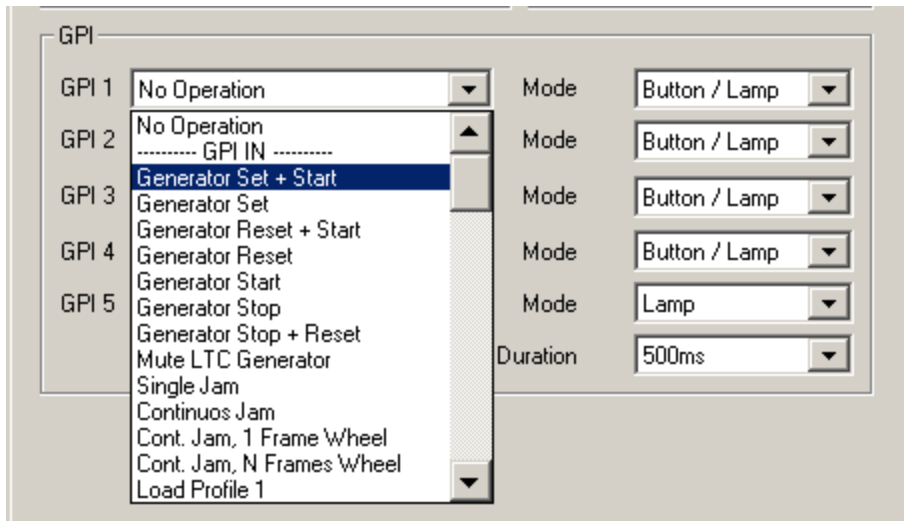


The four GPIs can be programmed to have a switching characteristic as a "Push Button" or a "Toggle Switch". This can be selected independently using the dropdown list at "Mode":

Selection at „Mode“	GPI Characteristic
Button / Lamp	Trigger at falling edge ("High" → "Low")
Inv. Button / Lamp	Trigger at rising edge ("Low" → "High")
Switch	Level sensitive: "Low" = active, "High" = inactive
Inv. Switch	Level sensitive: "High" = active, "Low" = inactive

Functionality

The functionality is programmable utilizing the **Key** function with one of the Rubidium configuration tools. Example:



The functionality can be selected independently using the dropdown list.

The following table gives a short overview of the input functions presently available with a standard firmware:

Function	Description	Recommended "Mode"
No Operation	No input or output functionality.	-
Generator Set/Start	Presets the time code generator to the current set values (= "Set Time" values presented at the Generate function). Generator starts counting. Switches off any "Jam-Sync" mode.	Button
Generator Set	Presets the time code generator to the current set values (= "Set Time" values presented at the Generate function).	Button
Generator Reset+Start	Resets the time addresses of the generated time code to zero; generator starts counting. Switches off any "Jam-Sync" mode.	Button
Generator Reset	Resets the time addresses of the generated time code to zero. Switches off any "Jam-Sync" mode.	Button
Generator Start	Generator starts counting upwards.	Button
Generator Stop	Generator stops counting.	Button
Generator Stop+Reset	Resets the time addresses of the generated time code to zero; generator stops counting. Switches off any "Jam-Sync" mode.	Button
Mute LTC Generator	Mutes the LTC output (on/off toggling).	Switch
Single Jam	Initiates a "Single Jam Sync".	Button
Continuous Jam	Switches the "Continuous Jam Sync" on/off.	Switch

Cont. Jam, 1 Frame Wheel	Switches the “Cont. 1 Frame” mode on/off.	Switch
Cont. Jam, N Frames Wheel	Switches the “Cont. Wheel” mode on/off.	Switch
Load Profile ...	The module gets a new set-up according to the parameters stored in the selected profile.	Button
Insert Bypass	Switches the Insert Bypass mode on/off.	Switch
Insert Visible	Switches the currently selected video window on/off.	Switch
Insert Select	Selects the next video window.	Button
Insert Up Insert Down Insert Left Insert Right	Moves the currently selected video window. Repeated function, if button is pressed constantly.	Button
Insert Size	Selects the next font for the currently selected video window.	Button
Insert Source	Toggles the source between “generator” and “reader” for the currently selected video window.	Switch
Insert Top/Bottom	Moves the currently selected video window either to the top or to the bottom of the screen.	Button
Insert Left/Centre/Right	Moves the currently selected video window either to the left side or to the centre position or to the right side of the screen.	Button
Video Bypass Relay	If video bypass relay (option “B”) has been assembled: Switches video channel to bypass via relay. Without option “B” (not for AT/AV modules): Switches video channel to bypass (“pass thru”) via software. Switching occurs free from interferences.	Switch
Read Offset to 00:00:00:00	The time code reader calculates an offset so that the currently read time + offset results to 00:00:00:00. Further read time values will be calculated \pm this offset before displaying.	Button
Read Offset to 10:00:00:00	The time code reader calculates an offset so that the currently read time + offset results to 10:00:00:00. Further read time values will be calculated \pm this offset before displaying.	Button
Read Offset Clear	Sets the read offset value to zero.	Button
TC Bypass Off	Disables the TC Bypass function. TC Bypass means: All video time code outputs (VITC, D-VITC, ATC) of the time code generator will be stopped. This function triggered by a GPI or key works additionally to the automatic TC Bypass functions for the (D-)VITC and ATC generators as described in the manual of the module.	Button
TC Bypass On	Activates the TC Bypass function.	Button
TC Bypass Toggle	Toggles the TC Bypass function (on/off).	Button

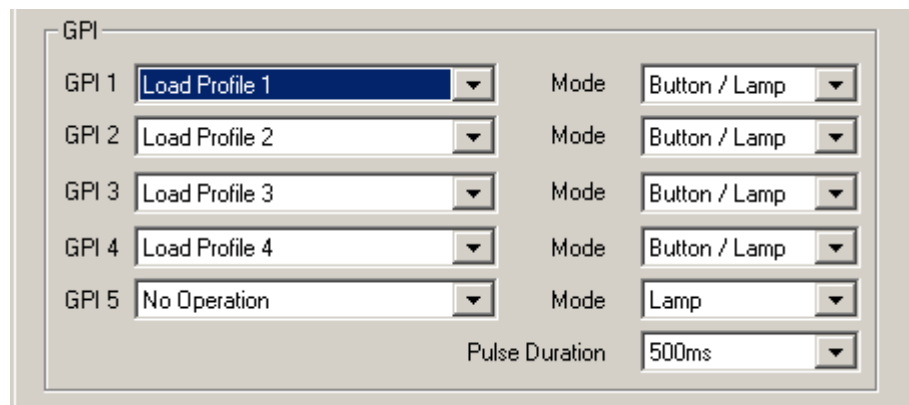
Please contact *Alpermann+Velte Electronic Engineering GmbH* if you would like to add further functions.

“Load Profile” Application

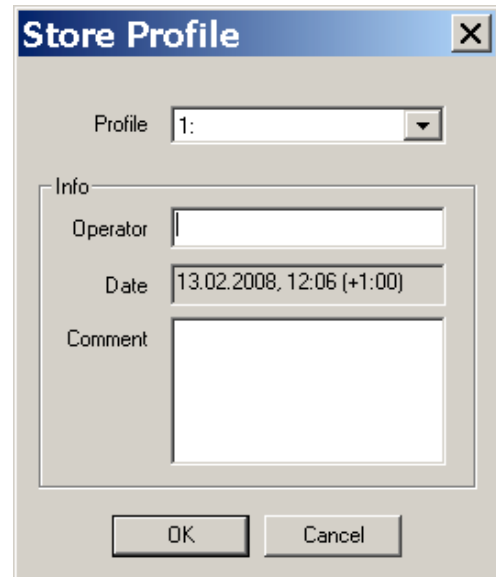
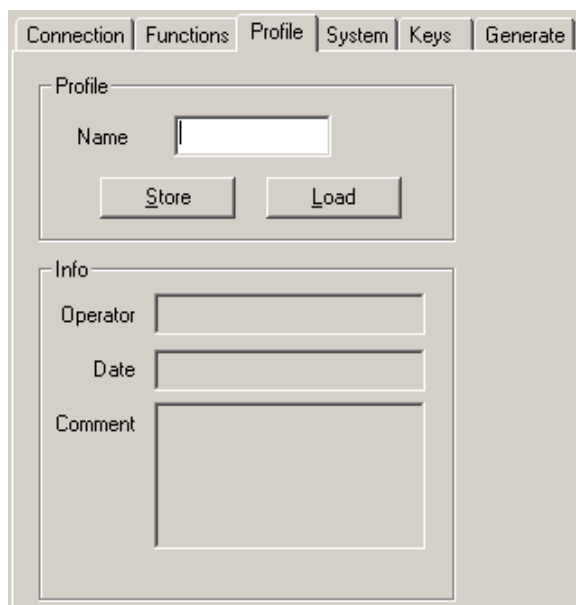
One of the most important usages of a GPI input is given by the “Load Profile” function. With one “button” you will be able to switch to a complete new configuration. But it will be as well useful if you just want to change the position of one video window.

The following steps walk you through the set-up process.

1. Assign the “Load Profile” function to you GPI inputs, example:



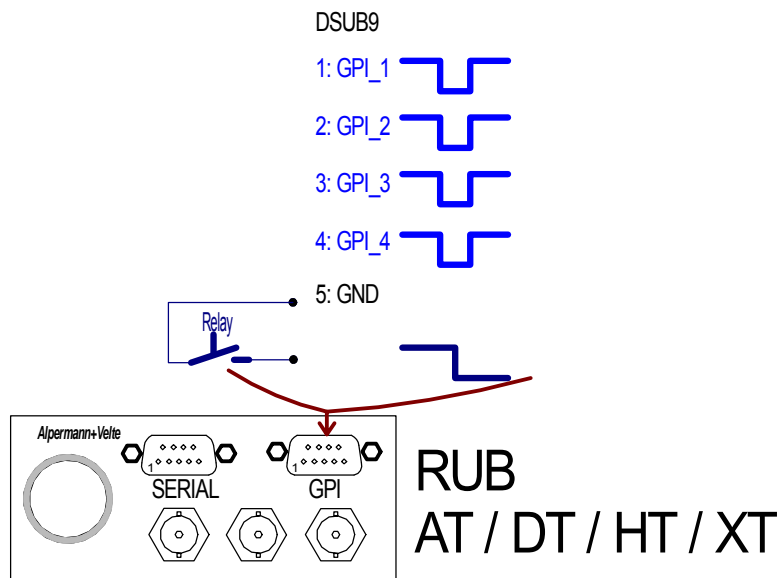
2. Perform all other set-ups according to your first application.
3. Store this configuration as “Profile 1” using the “Store Profile” function:



4. Now you perform your set-up according to your second application. If you start with a “Factory Setting” it is important to execute step 1 again!
5. Store this second configuration as “Profile 2” using the “Store Profile” function.

In this way you proceed with further configurations if needed.

GPI used as Output

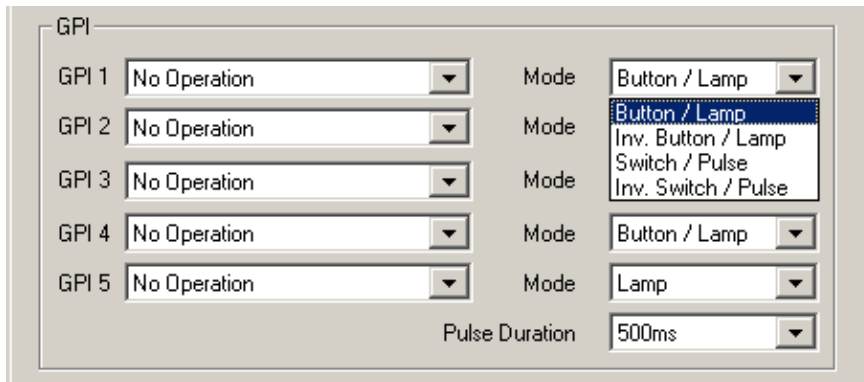


Output Specifications

<p>GPI_1 ... GPI_4: Output specification</p>	<p>Open Collector output of a NPN transistor at 4k7 pull-up resistor (5 VDC). Max. power dissipation: 200 mW. "High" state: 4.3 V (no load). "Low" state: output switched to GND. Max. collector current: 100 mA DC, fused by a 100 mA auto-recovery fuse. Collector-emitter saturation voltage: @100 mA: typ. 200 mV (\leq 600 mV), @10mA: typ. 90 mV (\leq 250 mV). Frequency: 0 - 150 kHz.</p>
<p>GPI_5: SPST-NO relay</p>	<p>Contact resistance: 0.2 Ω Max. switching power: 10 W Max. switching voltage: 175 VDC Max. switching current: 0.5 A Max. transportable current: 0.8 A</p>

Output Switching Characteristic

This is programmable utilizing the **Key** function with one of the Rubidium configuration tools. Example:



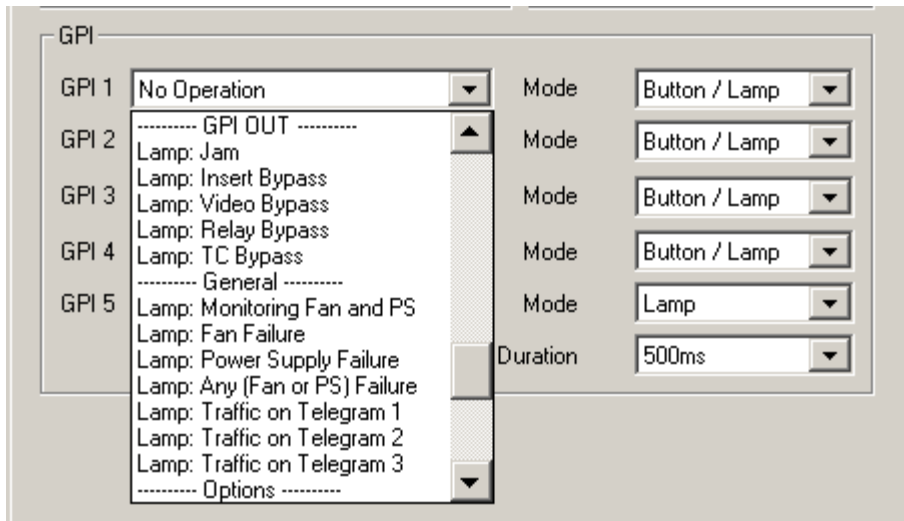
The five GPIs can be programmed to have a switching characteristic as a “Lamp” or a “Pulse”. This can be selected independently using the dropdown list at “Mode”:

Selection at „Mode“	GPI Characteristic
Lamp	Active “Low”.
Inv. Lamp	Active “High”.
Pulse	Active “Low”. The pulse duration is selectable (one selection for all GPIs).
Inv. Pulse	Active “High”. The pulse duration is selectable (one selection for all GPIs).

Please remember that GPI_5 represents a relay.

Functionality

The functionality is programmable utilizing the **Key** function with one of the Rubidium configuration tools. Example:



The functionality can be selected independently using the dropdown list.

The following table gives a short overview of the output functions presently available with a standard firmware:

Function	Description	Recommended "Mode"
No Operation	No input or output functionality.	-
Jam	Returns the Jam Sync status: <ul style="list-style-type: none"> • On: Generator receives and accepts time code during a continuous Jam Sync. • Slowly flashing: No time code can be read during a continuous Jam Sync. • Fast flashing: Single Jam currently active. • Off: Jam Sync is switched off. 	Lamp
Insert Bypass	Returns the Insert Bypass status. Output active/inactive = Insert Bypass active/inactive. Insert Bypass (= switching off all video windows of the character inserter) can be selected by assigning the Insert Bypass function to a key or GPI (GPI as input) or by unchecking the "Insert Enable" checkbox at the "Video" configuration.	Lamp
Video Bypass	Returns the Video Bypass status. Output active/inactive = Video Bypass active/inactive. Video Bypass (= video input will be passed through to the output) can be selected by assigning the Video Bypass Relay function to a key or GPI (GPI as input), or as soon as "Channel" is no longer "On" at the "Video" configuration (not for AT/AV modules).	Lamp
Video Relay	Returns the status of the Video Bypass Relay	Lamp

Bypass	<p>function.</p> <p>The Video Bypass Relay function can be switched on by assigning the Video Bypass Relay function to a key or GPI (GPI as input), or as soon as “Channel = Relay Bypass” has been selected at the “Video” configuration (not for AT/AV modules).</p>	
TC Bypass	<p>Returns the status of the TC Bypass function.</p> <p>This function will be controlled assigning a TC Bypass Off or TC Bypass On or TC Bypass Toggle function to a key or GPI (GPI as input). This function works additionally to the automatic TC Bypass functions for the (D-)VITC and ATC generators as described in the manual of the module.</p>	Lamp
Monitoring Fan and PS	<p>Active if this module is monitoring the fans and power supplies within this housing.</p> <p>This module must have the “Fan monitoring” checkbox enabled. Even if more than one module has this checkbox enabled, there will be only one module responsible for monitoring the fans and power supplies.</p>	Lamp
Fan Failure	<p>A fan failure has been detected.</p> <p>This status can be returned even if this module does not actively monitor the fan.</p>	Lamp
Power Supply Failure	<p>A power supply failure has been detected.</p> <p>This status can be returned even if this module does not actively monitor the power supply.</p>	Lamp
Any (Fan or PS) Failure	<p>A fan or power supply failure has been detected.</p> <p>This status can be returned even if this module does not actively monitor the fans and power supplies.</p>	Lamp
Traffic on Telegram ...	<p>Indicates that there is traffic on the “TC_link” channel (1, 2 or 3).</p>	Lamp

Please contact *Alpermann+Velte Electronic Engineering GmbH* if you would like to add further functions.