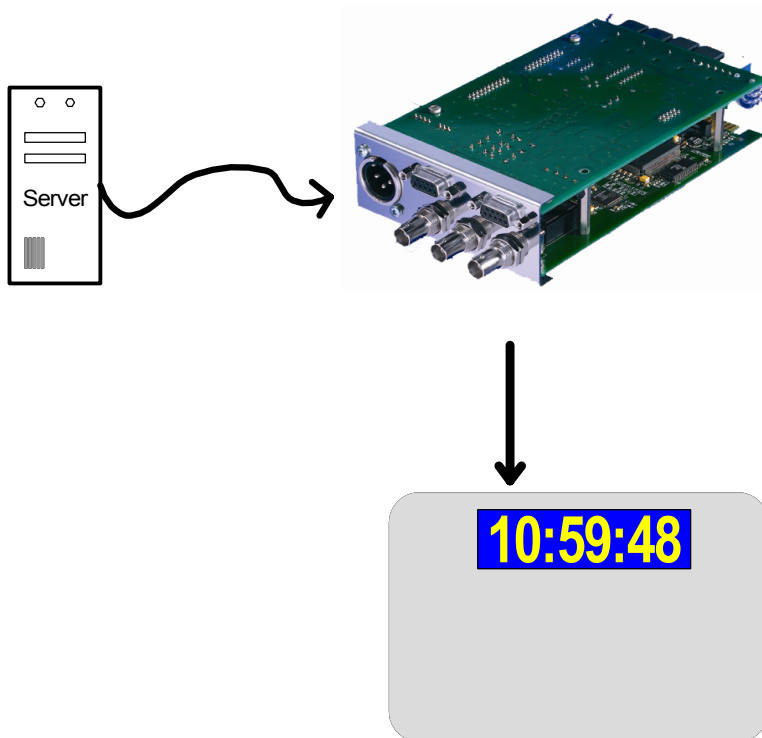


Clip Length Inserter

Two Down Counters,
Various Serial Protocols,
LTC Output,
for a RUBIDIUM Module (AI, DI, HI) with Option "CLIP"



Alpermann+Velte

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Option "CLIP" Clip Length Inserter

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A1 Revision History

No.	Date	Subject
0.n		Preliminary documents, changes without notice.
1.0	March 13, 2007	First released document.
1.1	October 26, 2010	Revised.

A2 Copyright

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A3 General Remarks

This manual is a supplement to the "Installation & Systems Manual RUBIDIUM SERIES". It describes a special operating mode of an AI or DI or HI module realized by the appropriate firmware. Please read the below listed chapters of the "Installation & Systems Manual RUBIDIUM SERIES", as these chapters are necessary for the safe and proper use of Rubidium module **AI** or **DI** or **HI**.

- A3 Warranty,
- A4 Unpacking/Shipping/Repackaging Information,
- A5 Safety Instructions,
- A6 Certifications & Compliances,
- Plug-In a Module,
- Remove a Module.

1 Functional Description

1.1 Overview

The option "CLIP" for a RUBIDIUM Module (AI or DI or HI) has been developed to operate together with an automation system. While the automation system runs the playlist, a simple command can be transmitted to transfer the clip length to the RUBIDIUM module. The module starts a DOWN counter, converts this time into an LTC format, and visibly inserts the time onto a video monitor. Choose the Rubidium module according to the video system:

RUB AT: CVBS analogue video 525/60 (NTSC) or 625/50 (PAL).

RUB DT: Digital video channel (SD).

RUB HT: SD or HD video channel.

The special RUBIDIUM module is able to transfer the data in a time code format to further RUBIDIUM modules, so the time can visibly inserted on different video channels. External time code reader units are able to decode and display the time of the DOWN counter.

These are the key features of the system:

- Various serial protocols selectable.
- Depending on the protocol, up to two stop watches can be set independently: Counter 1 and Counter 2.
- Once set, the module counts the time automatically. The DOWN counter stops at zero. Having a video signal connected, the counter synchronizes to the video frequency.
- Time code can be generated in an LTC format. The time of Counter 1 will be transferred to the time information, Counter 2 to the binary groups (user bits) of the time code – or vice versa. Having a video signal connected, the LTC output will be phase-locked to the video signal.
- Time code frame rate selectable: 24/25/30/30drop.
- Counter 1 and Counter 2 can visibly be inserted onto a video monitor. The video windows can be positioned over the entire screen. Size, brightness, background mask, etc., can be adjusted.

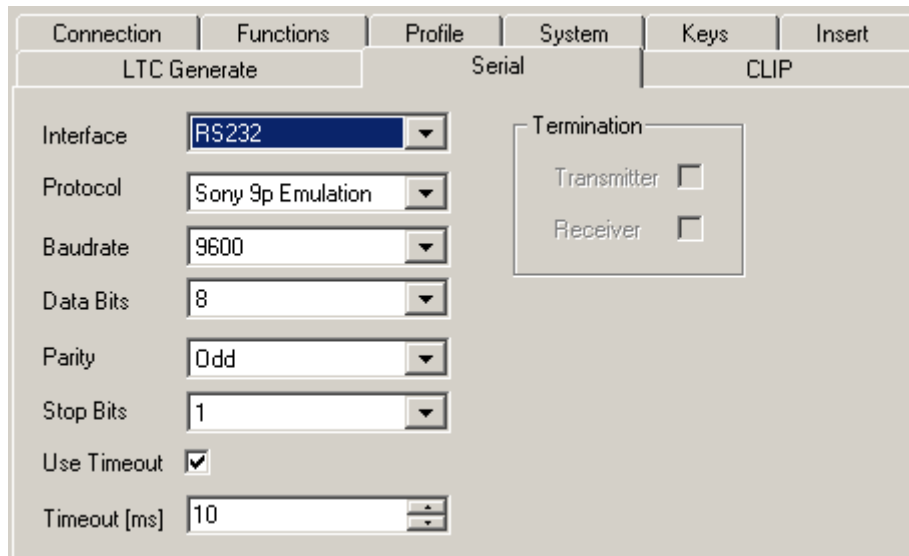
1.2 Configuring the RUBIDIUM Module

Upon delivery the RUBIDIUM module has got a setup to a basic configuration. The following guide describes the most important setups and enables you to find the configuration for your special environment. This example shows screen shots of the PC program tabs configuring an AI module.

1. "Factory Settings": Start the configuration after a "Reset" of the module. Activate the "Profile" page and select: Profile: **Factory Settings**
Click on the **OK** button.



2. **Serial:** Select the parameters of the serial interface.

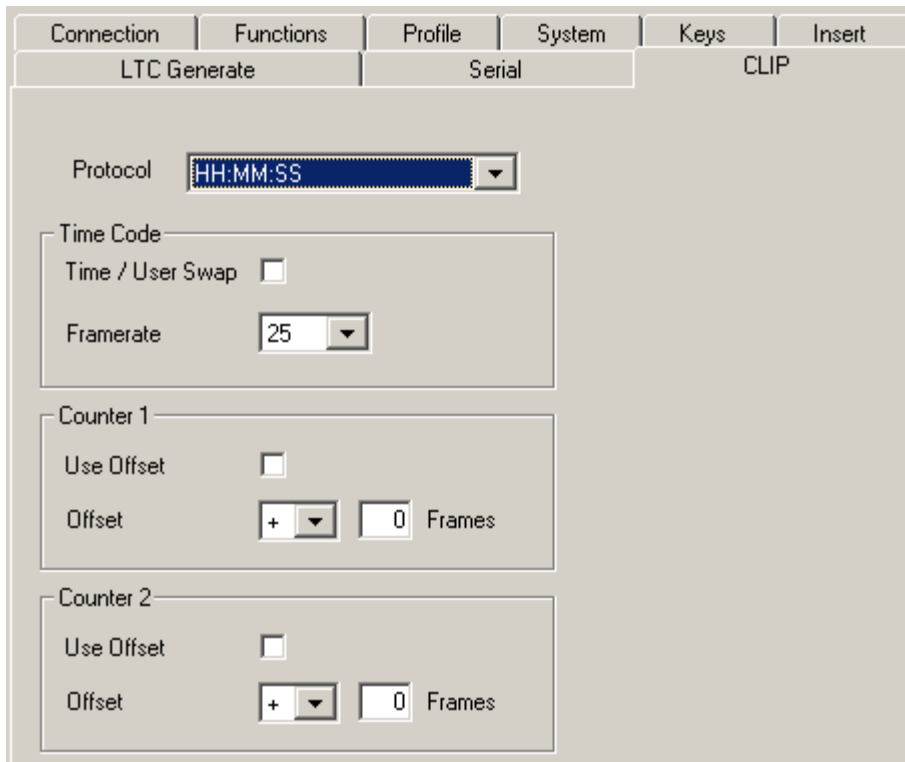


This special module uses only the following parameters. These parameters have to be identical to those of the source (transmitter):

- Interface** RS232, RS422 or RS485.
- Termination** Having RS422 or RS485 selected a termination can be selected.
- Baudrate** 2400, 4800, 9600, 19200, 38400, 57600, 115200.
- Data Bits** 7 or 8.
- Parity** None, even or odd.

Option "CLIP" Clip Length Inserter

3. **Clip:** Select the serial protocol and configure the counters.



Protocol

The RUBIDIUM module receives data according to one of the following protocols:	
HH:MM:SS	"Hours : Minutes : Seconds" in ASCII format: HH:MM:SS<CR>
HH:MM:SS.FF	"Hours : Minutes : Seconds . Frames" in ASCII format: HH:MM:SS.FF<CR>
BFE HH:MM:SS	"Hours : Minutes : Seconds" in ASCII format: <STX> <*ADDR>HH:MM:SS<ETX>
LOUTH HH:MM:SS	"Hours : Minutes : Seconds" in ASCII format: Three commands will be accepted: <STX> <*ADDR><E>HHMMSS<ETX> = set time <STX> <*ADDR><D><ETX> = start DOWN <STX> <*ADDR><R><ETX> = reset
OMNIBUS/TSL HH:MM:SS	"Hours : Minutes : Seconds" in ASCII format: <HEADER> 00h HH:MM:SS <HEADER> = 80h + address (81h or 82h)
<*ADDR>	= address ASCII (31h or 32h). The address selects Counter 1 or Counter 2.

Time Code

Time/User Swap	The time of Counter 1 will be transferred to the time information, Counter 2 to the binary groups (user bits) of the time code. If you click on this check box this arrangement will be reversed.
Framerate	Select the framerate of the time code: 24/25/30/30 df. Having a video signal connected the frame rate has to match to the picture frequency of the video, for example: Framerate = 25 in a 625/50 television system (PAL), Framerate = 30 df in a 525/60 television system (NTSC).

Counter 1

Configuration of Counter 1.	
To compensate for delays (e.g. produced from the serial interface or from the video path) an offset can be programmed. This offset is defined by a number of frames and can have a plus or minus sign.	
Utilizing the RUBIDIUM CONFIGURATION PC program you enter a number pressing the tabulator key at the PC's keyboard afterwards.	
Use Offset	If you click on this check box any counter start value (received by a serial interface command) will be added or subtracted with the offset, the result will be the counter's set value.
Offset	Sign + or - and number of frames (0 - 63).

Counter 2

Configuration of Counter 2, same way as for Counter 1.
--

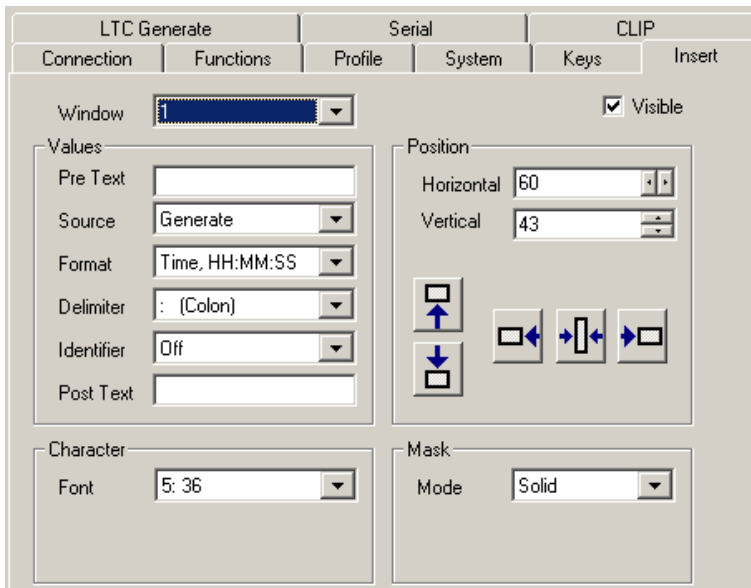
Option "CLIP" Clip Length Inserter

4. Adjust the video windows:

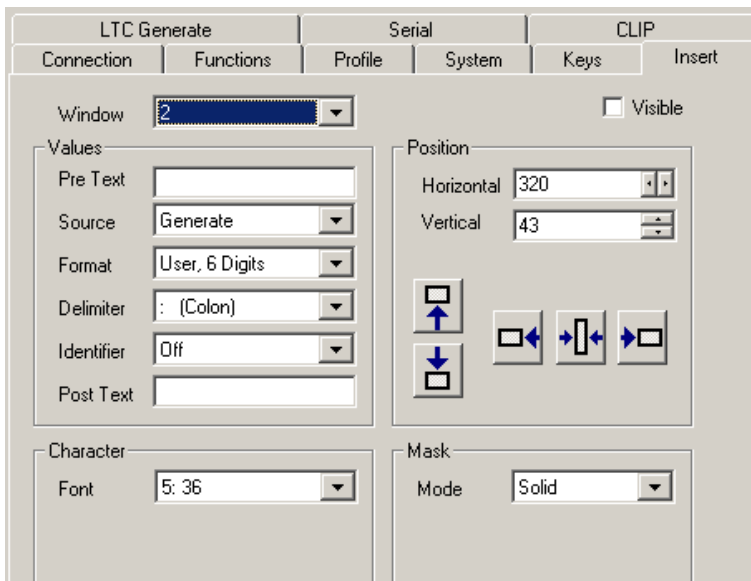
The video window can be adjusted according to your needs.

Please notice the 'Source' and 'Format' selection! Because the time code generator will be the source of the counters, 'Source = Generate' has to be selected. One counter will be identical to the time addresses of the time code ('Format = Time ...'), the other counter will be contained in the binary groups or user bits of the time code ('Format = User ...').

For example the time of Counter 1 at "Window 1":



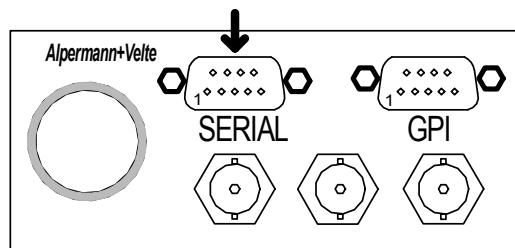
For example the time of Counter 2 at "Window 2":



1.3 Connecting the Serial Interface

The SERIAL DSUB connector at the rear of the RUBIDIUM module has the inputs for the serial interface. Three types of interfaces can be used: RS232 or RS422 or RS485. Please connect only those signals (pins) as described.

DSUB9 RS232:	DSUB9 RS422:	DSUB9 RS485:
5: GND	5: GND	1: TRA (-)
6: RTS Output	6: R- Input	2: TRB (+)
7: RxD Input	7: R+ Input	5: GND



**RUB
AI/DI/HI**

Example of connecting to the RS232 of a PC:

DSUB9 RUBIDIUM		DSUB9 PC
5: GND	—————	5: GND
6: RTS Output	—————	8: CTS Input
7: RxD Input	—————	3: TxD Output

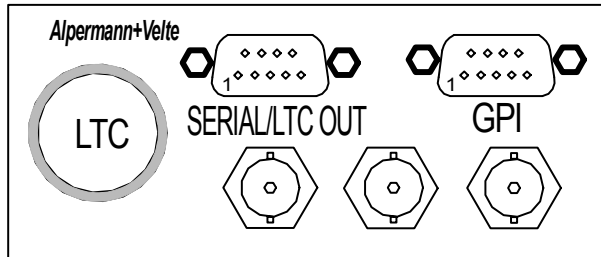
Option "CLIP" Clip Length Inserter


1.4 LTC Output

The LTC output is available at two connectors:

3-pins XLR male LTC,

9-pins DSUB female SERIAL/LTC OUT.



XLR3M:	LTC
	1: GND
	2: LTC_OUT_A
	3: LTC_OUT_B

SERIAL/LTC OUT DSUB9F	3: LTC_OUT_A
	4: LTC_OUT_B
	5: GND

The LTC carries a down-counting time, so the LTC will be coded as running "reverse".

2 Modules AI, DI and HI

2.1 Overview

The hardware consists of the video channel, the inputs for the serial interface, the LTC output, and some general purpose interfaces which may be used for various special applications (GPI in/outputs).

A PC is required for the initial set-up and for configuration of this module. The front panel label visibly identifies where each module is located:

AI: CVBS analogue video 525/60 (NTSC) or 625/50 (PAL).

DI: Digital video channel (SD).

HI: SD or HD video channel.

The serial number is located on the bottom side of the lower circuit board of each module.

The standard hardware of this module has all of the following key features:

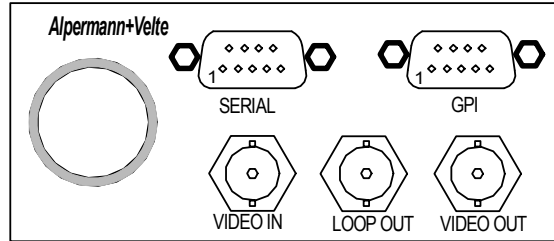
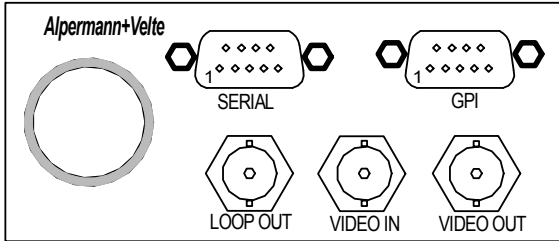
- "Hot Swapping", i.e. it is possible to insert or remove a module without interrupting the operation of other modules in this frame.
- Failure relay, connected to the FAIL_A and FAIL_B pins of the **RLC** connector at the rear of the frame.
- RS232 and TC_link (RLC connector) interfaces to have access to the internal bus of the chassis.
- Video input/output to insert characters.
- LTC generator.
- Serial interfaces RS232, RS422, RS485.
- Four programmable function keys on the front panel.
- Flash memory containing the firmware, so configuration and updates are possible via a PC connection (email attachments with software/firmware update files are possible).
- Four digital in- or outputs and one relay contact may be used in special applications.

Option "CLIP" Clip Length Inserter

2.2 Rear Panels and Connections

Connections at modules AI/DI – version 1

Connections at modules HI and AI/DI – version 2




Pin assignments

SERIAL DSUB9F female	1: T- _TxD
	2: T+ _CTS
	3: LTC_OUT_A
	4: LTC_OUT_B
	5: GND
	6: R- _RTS
	7: R+ _RxD
	8: GPI_3
	9: GPI_4

GPI DSUB9F female	1: GPI_1
	2: GPI_2
	3: GPI_3
	4: GPI_4
	5: GND
	6: 24 VDC Out
	7: GPI_5
	8: LTC_IN_A
	9: LTC_IN_B

Signal descriptions

GND	Signal ground.
LTC_OUT_A, LTC_OUT_B	Balanced LTC (Linear Time Code) output.
LTC_IN_A, LTC_IN_B	Reserved.
T-_TxD T+_CTS R-_RTS R+_RxD	In- or outputs of the local serial interface. By configuration one of the following electrical interface can be selected: RS485: signals T- and T+, balanced in/output. RS422: signals T- and T+ = balanced output, signals R- and R+ = balanced input. RS232: TxD = transmit line, unbalanced data output. CTS = clear to send, handshake input. RTS = request to send, handshake output. RxD = receive line, unbalanced data input.
GPI_1 ... GPI_4	General Purpose Interface, may be used as input or as output for digital signals according to application.
GPI_5	Relay contact (normally open). The relay contact shortens this pin to GND.
24 VDC Out	24 VDC voltage output, 200 mA reversible fused. This output corresponds to the voltage output of the inserted "Power Supply" module. Please notice the power supply specifications.  Using this output please make sure not to exceed the total power rating of the "Power Supply" module.

Option "CLIP" Clip Length Inserter

2.3 Specifications

Video channel VIDEO IN/LOOP OUT/VIDEO OUT

	AI	DI	HI
Format	CVBS analogue video: PAL 625/50, NTSC 525/60	Serial digital (SD) video, ANSI/SMPTE 259M	Serial digital HD video, SMPTE 292M or serial digital SD video, ANSI/SMPTE 259M
Connector	BNC (IEC169-8), 75 Ω	BNC (IEC169-8), 75 Ω	BNC (IEC169-8), 75 Ω
Signal level VIDEO IN	1 V ± 15 mV	800 mV ± 10 %	800 mV ± 10 %
Signal level LOOP OUT	Loop-through of VIDEO IN	800 mV ± 10 %	800 mV ± 10 %
Signal level VIDEO OUT	Gain 1 ± 1 % (adjustable ± 4 %)	800 mV ± 10 %	800 mV ± 10 %

LTC Output

Format	according to ANSI/SMPTE 12M-1-2008
Connector	Balanced signals LTC_OUT_A and LTC_OUT_B, <ul style="list-style-type: none">• via the 3-pins XLR male connector LTC,• via 2 pins of the DSUB female connector SERIAL/LTC OUT.
Output impedance	< 50 Ω
Frame rates	24, 25, 30, 30-Drop
Signal level	Adjustable 140 mV _{p-p} - 4.9 V _{p-p}

GPI

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
GPI_1 ... GPI_4: Output specification	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 (≤ 600 mV), @10 mA: typ. 90 mV (≤ 250 mV). Frequency: 0 - 150 kHz.
GPI_5: SPST-NO relay	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

24 VDC Out

Output of the DC power supply of this module, normally = 24 VDC.	Reversible fused. A continuous current of up to 120 mA can be applied over the whole specified operating temperature range. At an ambient temperature of e.g. 22 °C the output switches to a high-resistance state after a few seconds if a current of 300 mA is applied.
--	---

Others

Operating voltage	12 - 30 VDC
Power consumption	AI module: Max. 5.0 W DI module: Max. 4.5 W HI module: Max. 6.2 W
Weight	0.4 kg approx.
Mechanical	2 circuit boards (W x D): 100 x 160 mm / 3.94 x 6.30 inch Rear panel: Rub H1: 103 x 44 mm / 4.06 x 1.73 inch Rub H3: 8HP, 3RU
Environmental characteristics, operating	Temperature: 5 °C to 40 °C Relative humidity: 30 % to 85 %, non-condensing
Environmental characteristics, non-operating	Temperature: -10 °C to +60 °C Relative humidity: 5 % to 95 %, non-condensing

Option "CLIP" Clip Length Inserter

2.4 Software Update

Software updates require a (windows operating system) computer and the "RUBIDIUM CONFIGURATION" program.

Please check the **PC** connector at your RUBIDIUM housing: There is an USB or RS232 (with a DSUB9 connector) interface installed. You now need the same interface at your computer.

The new firmware should already be stored as a **.tcf** file at your computer.

Please now execute the following steps:

1. Connect your computer to the **PC** connector of that RUBIDIUM frame where the module has been plugged.

In case of an RS232 interface: Use a straight (1:1) connection between the **PC** connector at the RUBIDIUM frame and the RS232 of the computer.

In case of an USB interface: Use a USB A-B cable between your computer and the RUBIDIUM frame.

Switch on the power of all units.

2. Execute "Rubidium Config.exe" on your computer. Select the "Port" according to the interface (USB, RS232) you are using.
3. Select the module (unit 1, 2, 3 ...).
4. Select "Flash Update" in the *File* menu.
5. Open the **.tcf**-file. Standard name: "Rubidium AI OPT41 version.tcf" or
"Rubidium AI (v2) OPT41 version.tcf" or
"Rubidium DI OPT41 version.tcf" or
"Rubidium DI (v2) OPT41 version.tcf" or
"Rubidium HI OPT41 version.tcf".

"version" stands for a revision no., e.g. 2.0.184.

Click the OK button, update starts. Click the OK button at the end.

6. Update is finished now. We recommend to check module's configuration utilizing the "RUBIDIUM CONFIGURATION" program.

<i>During the flash update the operation of the module stops!</i>

3 The Rubidium Configuration Tools

3.1 The Rubidium Configuration PC Program

Please refer to the

"Installation & Systems Manual RUBIDIUM SERIES"

for a general description of this program and how to install it. At this document please notice the following subchapters:

- Overview
- Installation
- Connection to RUBIDIUM SERIES Chassis
- Starting the Program
- Store, Load and Update the Configuration on your PC
- The "Profile" Tab: Store and Load Configurations on the Module
- The "System" Tab: Module Identification, Reset, SNMP, Fan Control ...

The program RUBIDIUM CONFIGURATION uses various tab cards. With one click on the button **Configure**, all available and currently activated tabs of this specific module are displayed.

Any changes at a tab will immediately be stored at the module. If you enter a number or a text press the **tabulator key** at the PC's keyboard afterwards.

3.2 The Rubidium Series HTTP Server

Please refer to the

"Installation & Systems Manual RUBIDIUM SERIES"

for a functional overview and for an installation description of this program. You will find the chapter "The RUBIDIUM SERIES HTTP Server" and its subchapters:

- Overview, Connecting the IE Module
- IP Configuration, the Rubidium Homepage
- Access to a RUBIDIUM SERIES Module
- The "Profile" Page: Store and Load Configurations on the Module or on the PC
- The "System" Page: Module Identification, Reset, SNMP, Fan Control ...

As soon as a communication to a single module has been established, the **Configuration** page gives a list of all the links, which correspond to all the currently available or used pages of this specific module.

Changes at a page will not be stored at the module automatically. At the bottom of each page there are two buttons which should be used to store or load the module's configuration:

Button **Save To Module**:

- Click on this button to transfer all settings on this page to the module.

Button **Reload From Module**:

- Click on this button to load the current configuration of the module.



Every time you click on the blue button which indicates the module under configuration a **Reload** will be done automatically.

3.3 "Functions"

Click on **Functions** to see all applicable tabs/pages listed, and to activate or deactivate tabs/pages. For example (screen shot of the PC program tab):

LTC Generate		Serial		CLIP	
Connection	Functions	Profile	System	Keys	Insert
	Edit	Use			
System	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			
Keys	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			
Video	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
Insert	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			

A tab/page reflects a function of the module. The columns **Edit** and **Use** determine whether the function in the module is activated/deactivated and whether user configuration of that specific function is allowed or not.

Click on the applicable **Edit** and/or **Use** check boxes to activate/deactivate a function:

Edit	Use	
		Function is deactivated, the tab is not visible.
√	√	Function is activated, the tab is visible and configurable.
	√	Function is activated but the tab not visible and therefore not configurable.

- We suggest that you deactivate the **Use** check boxes of all functions you are presently not using.
- We suggest that you deactivate the **Edit** check boxes of all functions you are presently not configuring. That avoids unintentional operating and malfunctions.

List of tabs/functions:

System:	Identification, Reset, SNMP Traps, Fan Control ... (*1)
Keys:	Keys, Lamps, LEDs and GPIs
Video:	Video System and General Setup of the Video Channel
Insert:	Setup of all Video Windows
LTC Generate:	LTC Generator Function (*2)
Serial:	Serial Interfaces (*2, *3)
Clip:	DOWN Counter Adjustment (*2,*3)
Profile:	Store and Load Configurations on the Module (*1, *2)

*1: Refer to "Installation & Systems Manual RUBIDIUM SERIES"

*2: This is a basic function of this special module, so no **Edit** and **Use** check boxes have been provided.

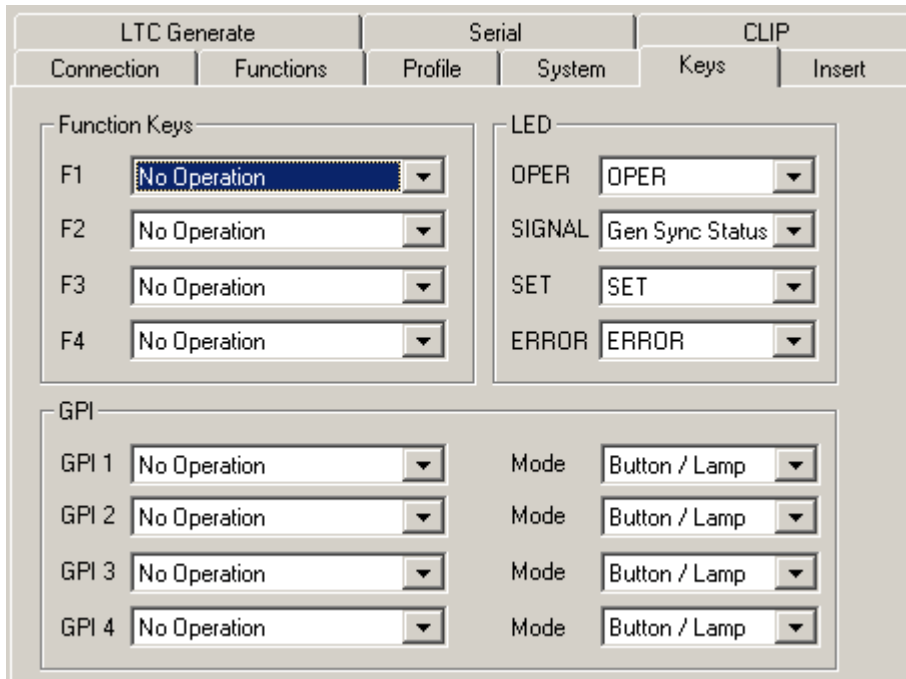
*3: Refer to chapter "Configuring the RUBIDIUM Module".

3.4 "Keys": Keys, Lamps, LEDs and GPIs

The module has four illuminated buttons (keys and lamps), four LEDs (Light Emitting Diodes) and four GPIs (General Purpose Interface). The functions of these in- and outputs are programmable.

Some functions are assigned to special options, and therefore are not applicable with the standard firmware. For further information, please contact **Alpermann+Velte**.

Configuration (example shows a screen shot of the PC program tab):



Function Keys

Four keys F1, F2, F3 and F4 can get a function independently from each other. Select a function from the dropdown list. This selects the function of the lamps as well.

LED

Four LEDs (named OPER, SIGNAL, SET and ERROR) can get a function independently from each other. Select a function from the dropdown list.

GPI

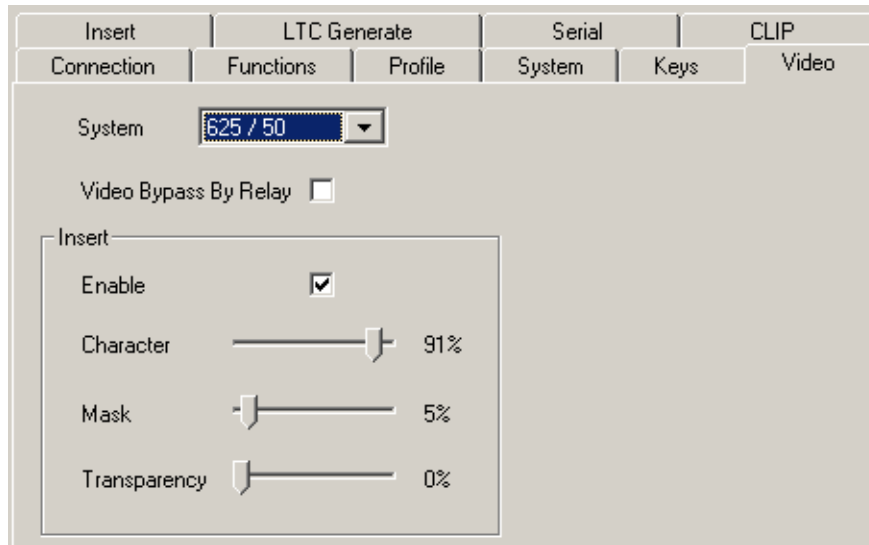
Four GPIs can get a function independently from each other, as an input or as an output. Additionally the switching characteristic (as a push button or a toggle switch) is selectable. Select from the dropdown lists.

3.5 "Video": Video System and General Setup of the Video Channel

3.5.1 Module AI: Analogue Video Channel

"AI" modules have a CVBS analogue video channel.

Configuration (example shows a screen shot of the PC program tab):



System: Select the video standard:
 Auto Auto-detect of video standard.
 625/50 PAL system.
 525/59.94 NTSC system.

It is recommended not to use the "Auto" mode if the module operates only at one video standard.

Video Bypass By Relay: Option B only (Video Bypass Relay): Enables to manually switch to video bypass.

Insert

Enable: If this check box is activated: All video windows which have the "visible" check box activated (see the **Insert** tab) will be inserted in the video signal.
 If this check box is deactivated: Bypass of the video signal, i.e. all the video windows will be switched off.

If you change the "Character", "Mask" and "Transparency" setup you should verify the changes, so make sure to have a video window inserted, and connect the video output to a video control monitor.

Character: Draw the slider to adjust the brightness of all the inserted characters.

Mask: Draw the slider to adjust the brightness of all the background masks.

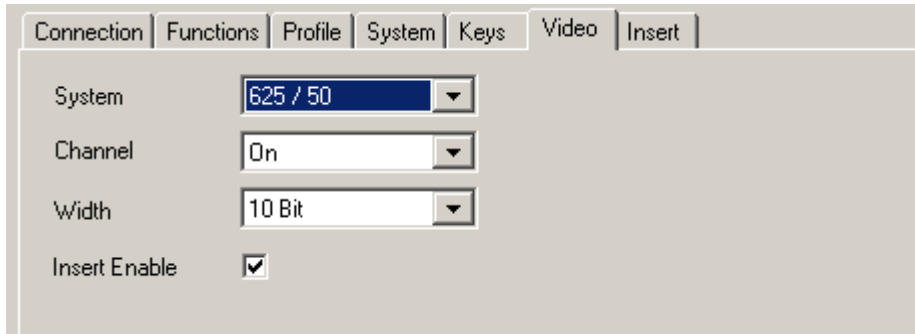
Transparency: Draw the slider to adjust the mixing of video signal and character insertion.

Option "CLIP" Clip Length Inserter

3.5.2 Module DI: Digital Video Channel (SD)

"DI" modules have a serial digital video channel (SD).

Configuration (example shows a screen shot of the PC program tab):



System: Select the video standard:
Auto Auto-detect of the video standard.
625/50 PAL system.
525/59.94 NTSC system.

It is recommended not to use the "Auto" mode if the module operates only at one video standard.

Channel: Setup of the video output:
Off Video output switched off.
On Normal operation: The video input signal passes through the video channel; signals will be added as programmed (visible video windows).
Pass Thru The video input signal passes through the video channel, but the video signal will be left unchanged.
Short Pass Thru The video input signal will be left unchanged and will be passed to the output with minimum delay.
Relay Bypass Option B only (Video Bypass Relay): Enables to manually switch to video bypass.

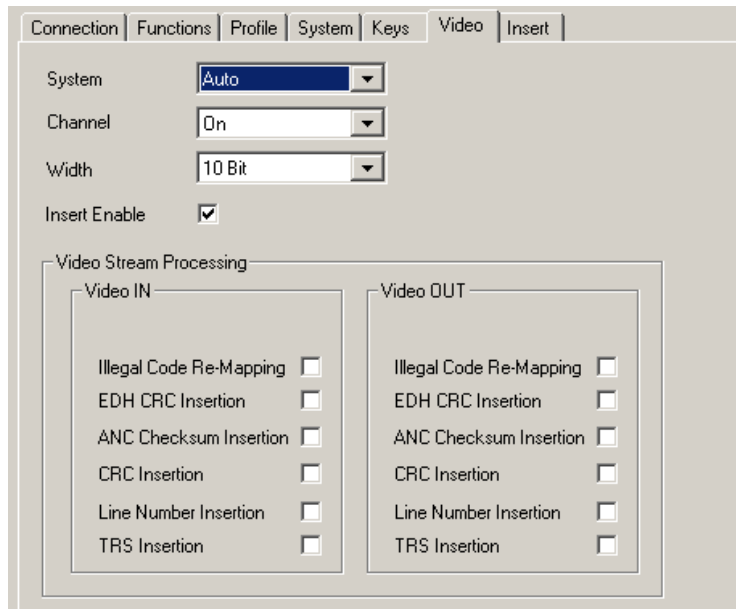
Width: Format of the serial data words: 8 bit or 10 bit.

Insert Enable: If this check box is activated: All video windows which have the "visible" check box activated (see the **Insert** tab) will be inserted in the video signal.
If this check box is deactivated: Bypass of the video signal, i.e. all the video windows will be switched off. The input to output delay will be left unchanged.

3.5.3 Module HI: Digital Video Channel (HD or SD)

"HI" modules have a high-definition digital video channel (HD or SD).

Configuration (example shows a screen shot of the PC program tab):



System: Select the video standard:
 Auto Auto-detect of the video standard.
 All other Select the video standard from the dropdown list.

It is recommended not to use the "Auto" mode if the module operates only at one video standard.

Channel: Setup of the video output:
 Off Video output switched off.
 On Normal operation: The video input signal passes through the video channel, signals will be added as programmed (visible video windows).
 Pass Thru The video input signal passes through the video channel, but the video signal will be left unchanged.
 Short Pass Thru The video input signal will be left unchanged and will be passed to the output with minimum delay.
 Relay Bypass Option B only (Video Bypass Relay): Enables to manually switch to video bypass.

Width: Format of the serial data words: 8 bit or 10 bit.

Insert Enable: If this check box is activated: All video windows which have the "visible" check box activated (see the **Insert** tab) will be inserted in the video signal.

If this check box is deactivated: Bypass of the video signal, i.e. all the video windows will be switched off. The input to output delay will be left unchanged.

Video Stream Processing

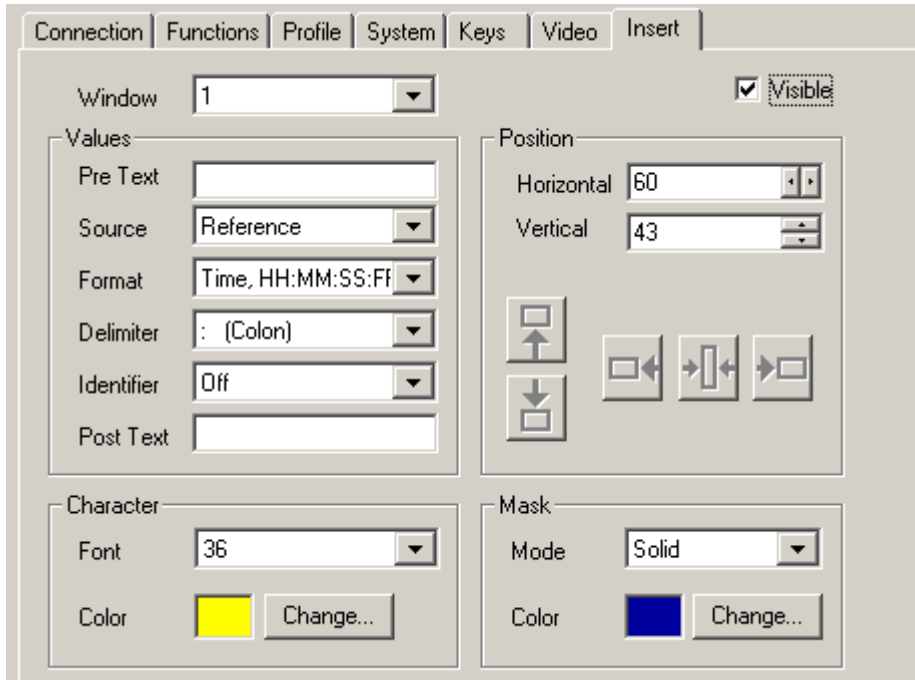
Activate or deactivate some data processing functions – independent for Video IN and Video OUT handling.

Option "CLIP" Clip Length Inserter

3.6 "Insert": Setup of all Video Windows

Each video window can get an individual setup. It is recommended to connect the video output to a video control monitor so you can verify the changes at this tab immediately.

Configuration (example shows a screen shot of the PC program tab for a DI or HI module):



Window: Select the video window, all the following setups refer to this window.

Visible: Click on the control box to select "visible" (window insertion switched on) or not visible (window insertion switched off).

Position

Horizontal: Adjust the horizontal position of the video window: Enter a number and press the **tabulator key** at the PC's keyboard or click on the arrow keys by the side of the window.

Vertical: Adjust the vertical position of the video window: Enter a number and press the **tabulator key** at the PC's keyboard or click on the arrow keys by the side of the window.

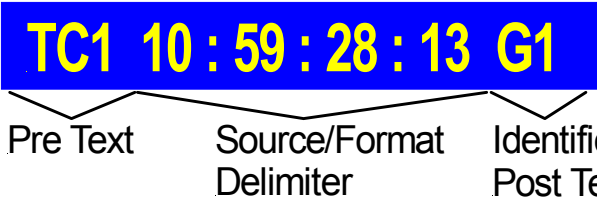


Click on these buttons to set the video window at the upper/lower border of the screen. The horizontal position will be left unchanged.



Click on these buttons to set the video window at the most left/center/most right position of the screen. The vertical position will be left unchanged.

Values



TC1 10 : 59 : 28 : 13 G1

Pre Text Source/Format Delimiter Identifier Post Text

Pre Text: A text can be placed right before the source characters. Enter the text and press the **tabulator key** at the PC's keyboard.

Source: Select the data source from the drop-down list.

Format: Select the data format (representation of the data) from the drop-down list.

Delimiter: Select the delimiter from the drop-down list, if the data format uses one.

Identifier: You can add a source identifier following the source characters. Select from the drop-down list:
 Off = No source identifier.
 Letter = One character, e.g. "G" for generator.
 String = Two characters plus possibly a field identifier, e.g. "VR1" stays for VITC reader data of the first field.

Post Text: Instead of an identifier ("Identifier = Off") you can add a text following the source characters. Enter the text and press the **tabulator key** at the PC's keyboard.

Character

Font: Select the character font from the drop-down list:

Font	Pixel Matrix H x V (*)	max. characters horizontal (about)	max. windows vertical (about)
16	10 x 16	63	32
20	12 x 20	52	25
24	14 x 24	44	21
28	16 x 28	39	18
36	20 x 36	31	14
48	27 x 48	23	11
64	35 x 64	17	8
72	39 x 72	16	7

(*: Pixel clock horizontal = 13.5 MHz, vertical = "interlaced" video line)

Color: Module DI and HI only: Select the colour of the character insertion. The current colour is indicated. Click on the **Change...** button to change the colour. Refer to the description below for more information.

Option "CLIP" Clip Length Inserter

Mask

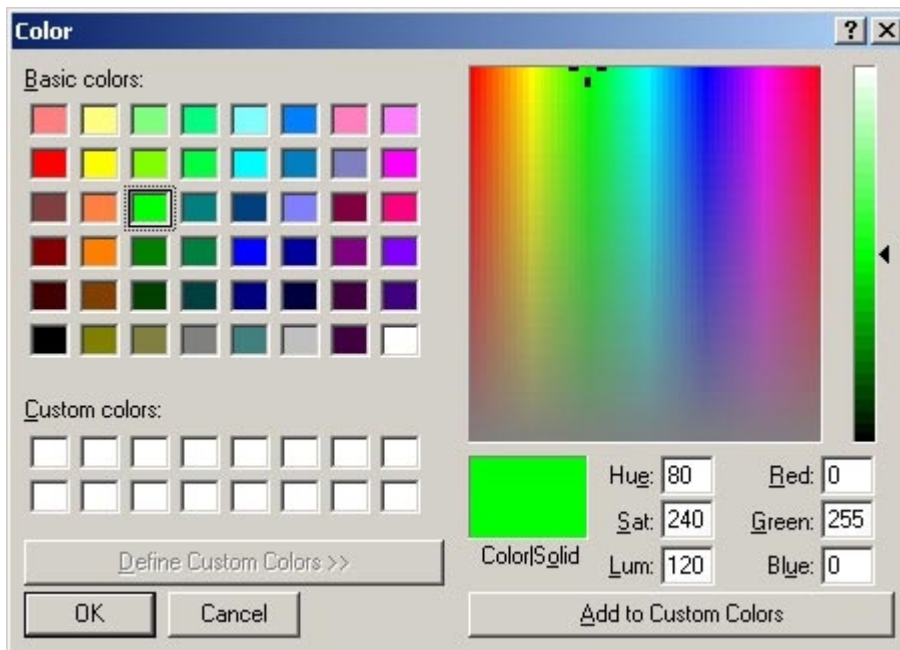
A background mask can be added to the character insertion. Select from the drop-down list:

Mode: Off No background mask.
Solid With background mask.
Dimmed Module DI and HI only: Reducing the luminance of the video signal in the video window area.

Color: Module DI and HI only: Select the colour of the background mask ("Mode" = "Solid" only). The current colour is indicated. Click on the **Change...** button to change the colour. Refer to the description below for more information.

Module DI and HI only:

Change...: Select the colour of the character insertion or the background mask:



Click on any of the colour boxes to use an already defined colour: "Basic color" or "Custom color".

If you want to define your own colour you can:

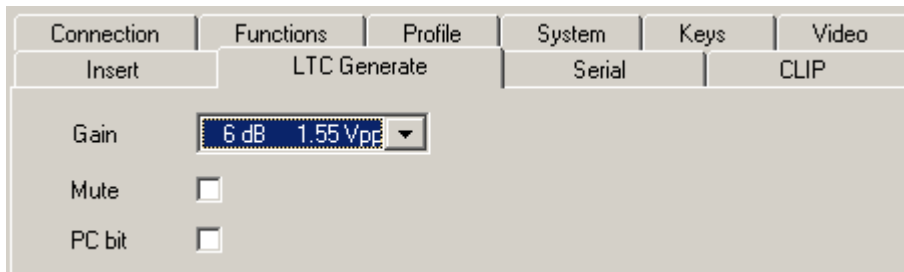
- Enter a value in the **Hue, Sat, Lum** boxes.
- Enter a value in the **Ret, Green, Blue** boxes.
- Select colour and saturation: Use the mouse button to draw the pointer at any place within the colour spectrum. Select brightness: Use the mouse button to draw the pointer at any place within the brightness bar.

Press the **OK** button at the end.

3.7 "LTC Generate": LTC Generator Function

Adjust the output of the LTC (Linear Time Code).

Configuration (example shows a screen shot of the PC program tab):



Gain: Select the output level from the drop-down list.

Mute: LTC output mute on/off!

PC bit: If this check box is activated: The polarity of the synchronization word of the LTC output will be stabilised. The polarity correction bit is put in a state, so that every 80-bit word contains an even number of logical zeros. The polarity correction bit is bit no. 27 in the 525/60 system, no. 59 in the 625/50 system. Activating this checkbox is helpful if you do some LTC measurements with an oscilloscope.

4 Options

4.1 Option B: Video Bypass Relay

With this option the module is equipped with a bypass relay:

- The bypass relay appears in the video input to output path, not in the video loop path.
- The main functionality is to maintain the video path even in an event of power failure.
- The bypass relay can be switched remote controlled by a GPI function: A function key or one of the GPI inputs can be programmed with the "GPI: Relay Bypass" function (see the "Keys" page of a Rubidium configuration tool).

Technical data of the relay:

Module AI	
Initial insulation resistance	100 MΩ minimum
Initial contact resistance	50 mΩ maximum
Max switching power	24 W
Max switching current	1 A
Max switching voltage	24 V
Module DI	
Cutoff frequency	1 GHz
Insertion loss	< 1 dB
Impedance	75 Ω
Max switching power	24 W
Max switching current	1 A
Max switching voltage	24 V
Module HI	
Cutoff frequency	2.6 GHz
V.S.W.R.	Max. 1.5
Insertion loss	< 1 dB
Impedance	75 Ω
Max switching power	1 W
Max switching current	0.5 A
Max switching voltage	30 V