

The following description walks you through the installation and the basic set-up process for your special application of an **AT/AV** or **DT/DV** or **HT/HV** or **XT/XV** Rubidium module:

Read and Insert Time & Date

Select the module:

- According to the video standard you are using:

AT/AV: Analogue video (CVBS).

DT/DV: SD digital video.

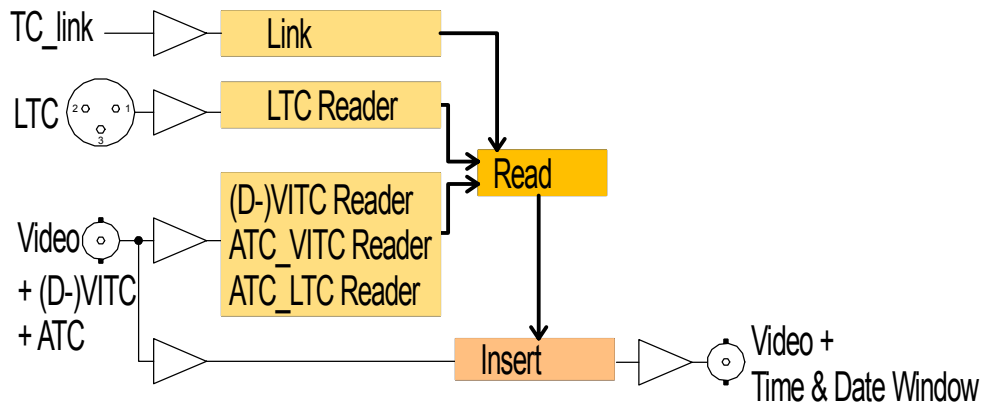
HT/HV: HD or SD digital video.

XT/XV: 3G or HD or SD digital video.

- According to the time code format you are using:

AT/DT/HT/XT: LTC time code involved.

AV/DV/HV/XV: No LTC time code involved, only video time codes.



Time code generators in a real-time mode (RUB GT, RUB GL, GM-TTT, ...) can generate the local time in the time addresses and the local date in the binary groups of the time code. Reading and inserting the local time does not need any special treatment, but care has to be taken decoding the date out of the binary groups properly:

1. Find out how the date is encoded.

There are many methods transporting the date in the binary groups. Some follow known specifications, others are a sort of manufacturer's standard. Because any number from 01 to 12 could mean a day or a month or a year, it is not possible for a time code reader to automatically detect the underlying method. Therefore the reader has to provide a suitable configuration and the operator has to know the method and do the correct installation.

2. Choose the representation of the date.

Once the correct date is known to the module, it now can be visibly displayed and inserted in various representations. Some people like it day-month-year, other month-day-year, and so on, with different delimiter symbols. RUBIDIUM inserters offer these configurations.

Note: *There is no automatic date counting provided, so a time code input containing the date is required.*

Step 1:

Load Factory Settings: Preset a Basic Configuration

Activate the **Profile** page and select: Profile: **Factory Settings**
 Click on the **OK** button.



Step 2:

Activate/Deactivate Functions, Enable the Time Code Reader

Activate the **Functions** page. Enable the time code reader according to your time code input.
 AT module: LTC or VITC or “Link” or any combination. AV module: VITC or “Link” or both.
 DT/HT/XT modules: LTC or D-VITC or ATC or “Link” or any combination.

DV/HV/XV modules: D-VITC or ATC or “Link” or any combination.

If there is time code input via RUBIDIUM TC_link, click **Use** at “Link”.

If there is time code input via ATC, click **Use** and **Edit** at “ANC Read” and enable the ATC_LTC and/or ATC_VITC reader with the **ANC Read** function.

This application further requires the **Read** and **Insert** functions.

For example **activate/deactivate** as shown:

RUB AT			RUB DT, RUB HT, RUB XT		
	Edit	Use		Edit	Use
System	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	System	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Keys	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Keys	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Read	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Read	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
LTC Read	<input type="checkbox"/>	<input checked="" type="checkbox"/>	LTC Read	<input type="checkbox"/>	<input checked="" type="checkbox"/>
VITC Read	<input type="checkbox"/>	<input checked="" type="checkbox"/>	D-VITC Read	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Jam	<input type="checkbox"/>	<input type="checkbox"/>	ANC Read	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Generate	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Jam	<input type="checkbox"/>	<input type="checkbox"/>
LTC Generate	<input type="checkbox"/>	<input type="checkbox"/>	Generate	<input type="checkbox"/>	<input checked="" type="checkbox"/>
VITC Generate	<input type="checkbox"/>	<input type="checkbox"/>	LTC Generate	<input type="checkbox"/>	<input type="checkbox"/>
Link	<input type="checkbox"/>	<input checked="" type="checkbox"/>	D-VITC Generate	<input type="checkbox"/>	<input type="checkbox"/>
Video	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ANC Generate	<input type="checkbox"/>	<input type="checkbox"/>
Insert	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Link	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Serial	<input type="checkbox"/>	<input type="checkbox"/>	Video	<input type="checkbox"/>	<input checked="" type="checkbox"/>
			Insert	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
			Serial	<input type="checkbox"/>	<input type="checkbox"/>

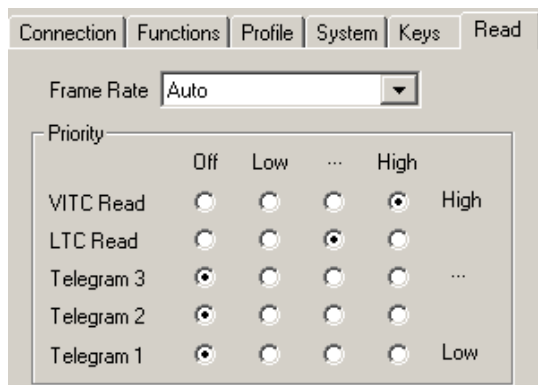
- We suggest that you deactivate the **Use** check-boxes of all functions you are presently not using.
- We suggest that you deactivate the **Edit** check-boxes of all functions after the installation process. That avoids unintentional operating and malfunctions.

Step 3:
Configuration of the Reader

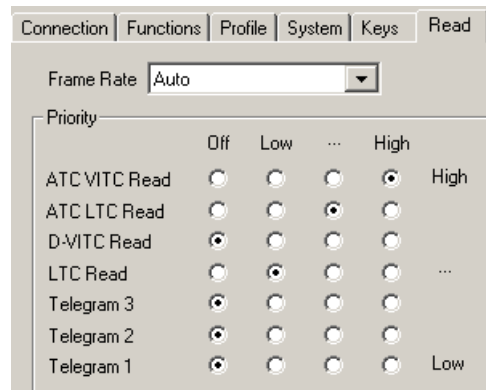
Activate the **Read** page.

Once you have selected your time code sources (step 2), now select which source should be taken into account for your time & date decoding. Telegram 1 – 3 are the three channels of the *TC_link* interface. If you have more than one source, select a **Priority**:

RUB AT example

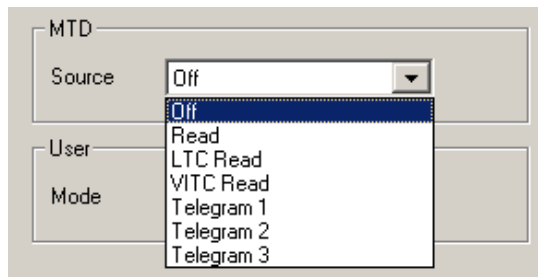


RUB DT/HT/XT example

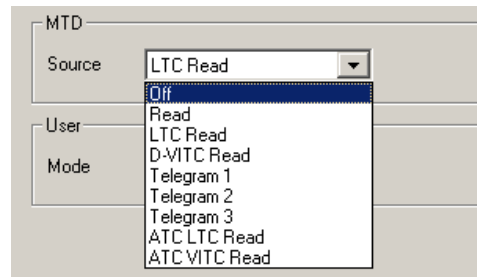


If the time code input is of the MTD format (= time code used for the Alpermann+Velte MTD Timer System, where the binary groups contain MTD data), then the source of this time code has to be selected from the **MTD Source** dropdown list. "Read" would be the preferred selection in this case. If no MTD decoding is required, select "Off".

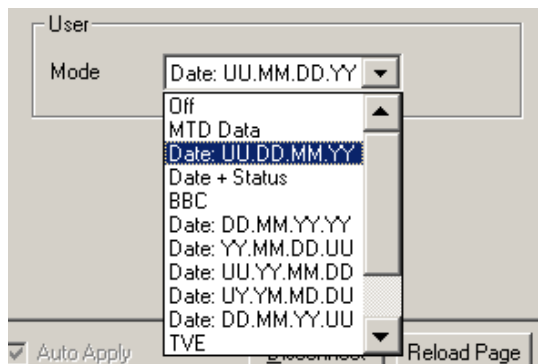
RUB AT example



RUB DT/HT/XT example



Select the date format from the **User Mode** dropdown list. This tells the module, which method the time code source is using to encode the date in the binary groups. Please refer to the appendix for the various formats presently available.

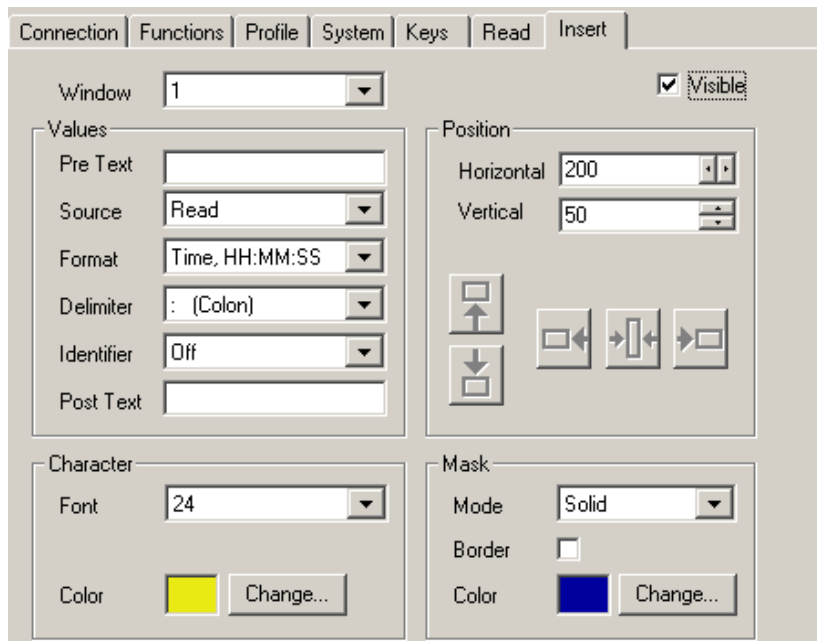


Step 4:
Configuration of the Inserter

Activate the **Insert** page and setup the video windows for time and date.

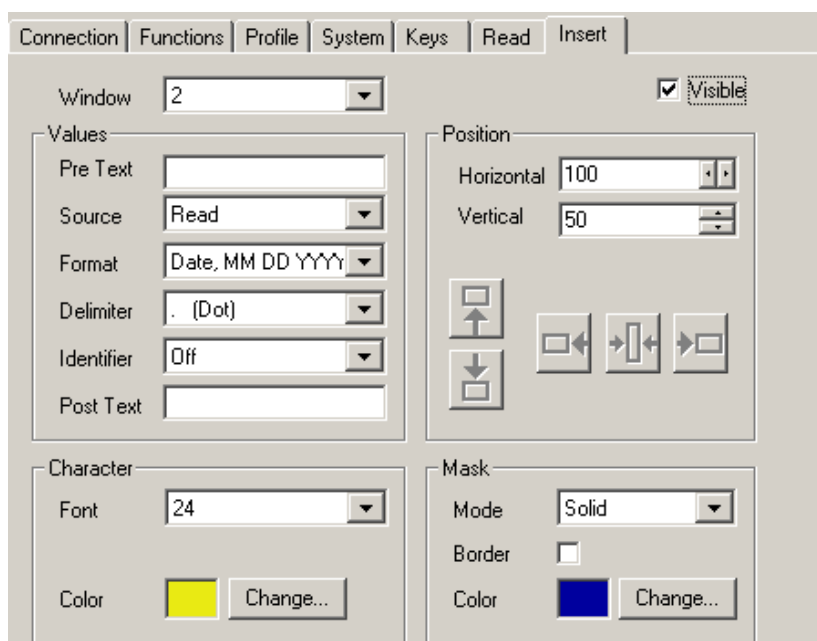
Example: Window 1 = Time:

Click the **Visible** checkbox. Select “**Source = Read**”.
 Select the representation of the time from the **Format** and **Delimiter** dropdown lists.
 Examples: HH:MM:SS:FF or HH:MM:SS or HH.MM.SS.FF or HH.MM.SS etc.



Example: Window 2 = Date:

Click the **Visible** checkbox. Select “**Source = Read**”.
 Select the representation of the date from the **Format** and **Delimiter** dropdown lists.
 Examples: MM.DD.YYYY or DD.MM.YY or MM/DD/YYYY or DD/MM/YY etc.



Appendix:

Date Formats

The time code consists of eight four-bit groups containing time address and flag bits, and eight four-bit binary groups for user-defined data. The date can be encoded within these user-defined data.

The binary groups will be named BG1 to BG8. Displaying the data at an 8 digits display, there is the following correspondence to a time display:

Hours	Minutes	Seconds	Frames
Tens Units	Tens Units	Tens Units	Tens Units
BG8 BG7	BG6 BG5	BG4 BG3	BG2 BG1

The list below uses the following abbreviations:

- Y1000 = Thousands of year
- Y100 = Hundreds of year
- Y10 = Tens of year
- Y1 = Units of year
- M10 = Tens of month
- M1 = Units of month
- D10 = Tens of day
- D1 = Units of day

Date Format Description

- MTD Data** Alpermann+Velte standard encoding time & date and MTD timer data.
- AUXOFFS** LEITCH CSD-5300 format. Encoding the date corresponds to the BBC format.
- BBC** All binary groups are used for the date, with a special format according to EBU Technical Information I29-1995 (BBC format). The date is BCD-coded and assigned to the binary groups as follows:
 - BG1 reserved bits = 0
 - BG2 D1 4 bits, lsb = LTC bit 12
 - BG3 M1 4 bits, lsb = LTC bit 20
 - BG4 D10 2 bits, lsb = LTC bit 28
 - M10 1 bit = LTC bit 30, LTC bit 31 = 0
 - BG5 reserved bits = 0
 - BG6 Y1 4 bits, lsb = LTC bit 44
 - BG7 reserved bits = 0
 - BG8 Y10 4 bits, lsb = LTC bit 60

TVE Encoding the date:

BG8	BG7	BG6	BG5	BG4	BG3	BG2	BG1
CS	Y10	Y1	M10	M1	D10	D1	AC

- BG1 = AC = Appointment code = \$8
- BG8 = CS = Check sum = Bit-wise complement of the sum (modulo-16) of BG1 to BG7.

SMPTE 309M: YYMMDD Date according to SMPTE 309M-1999: YYMMDD format.

SMPTE 309M: MJD Date according to SMPTE 309M-1999: Modified Julian Date format.

Further date formats, as selectable out of the **User Mode** dropdown list, are available.

U: This binary group contains user defined data with no importance for the date.

Format	BG8	BG7	BG6	BG5	BG4	BG3	BG2	BG1
UU.DD.MM.YY			D10	D1	M10	M1	Y10	Y1
Date + Status			D10	D1	M10	M1	Y10	Y1
DD.MM.YY.YY	D10	D1	M10	M1	Y1000	Y100	Y10	Y1
YY.MM.DD.UU	Y10	Y1	M10	M1	D10	D1		
UU.YY.MM.DD			Y10	Y1	M10	M1	D10	D1
UY.YM.MD.DU		Y10	Y1	M10	M1	D10	D1	
DD.MM.YY.UU	D10	D1	M10	M1	Y10	Y1		
MM.DD.YY.UU	M10	M1	D10	D1	Y10	Y1		
UU.MM.DD.YY			M10	M1	D10	D1	Y10	Y1