Alpermann+Velte

DT/XT module video inserter, reader and converter with LTC/VITC/ATC

Features
Time Code Reader
Time Code Converter
Time Code Inserter
LTC, DVITC, ATC, UMID, Ancillary Data
SDI (DT), 3G/HD/SD (XT)
MTD compatible
TC_link compatible
Programmable in/output GPIs
4 programmable front profile buttons

Optional available features
Video bypass relay (option B)
Sony 9P protocol converter (option S)
Programmable offset (option O)
Converter biphase/CTL to LTC (option P)

The Rubidium series modules DT, and XT are Time Code inserters and converters designed to work with different video formats. All Time Code and data formats are processed by a built-in reader and/or generator which is compliant to the EBU/SMPTE standards.

Both modules have almost identical features and differ mainly in the type of video that they can process:

RUBIDIUM DT:
digital video channel (SDI), window insertion, DVITC- and ATC Time Code, Ancillary Data, UMID

RUBIDIUM XT:
digital video channel (3G, HD-SDI and SDI) window insertion, DVITC- and ATC-Time Code, Ancillary Data, UMID

Die Timecode- Module DT und XT aus der Alpermann+Velte Rubidium Serie sind Timecode-Converter und Inserter für verschiedene Videosignale. Alle Timecode- und Datenformate werden durch einen Leser oder Generator verarbeitet, der die weiteren Standards der EBU/SMPTE erfüllt.

Die Module unterscheiden sich durch den Videokanal und den sich daraus ergebenden Möglichkeiten:

RUBIDIUM DT:
Digitaler Videokanal (SDI), farbige Einblendung, DVITC- und ATC-Timecode, Ancillary Data, UMID

RUBIDIUM XT:
Digitaler Videokanal (3G, HD-SDI und SDI) farbige Einblendung, DVITC- und ATC- Timecode, Ancillary Data, UMID

3G CAPABLE

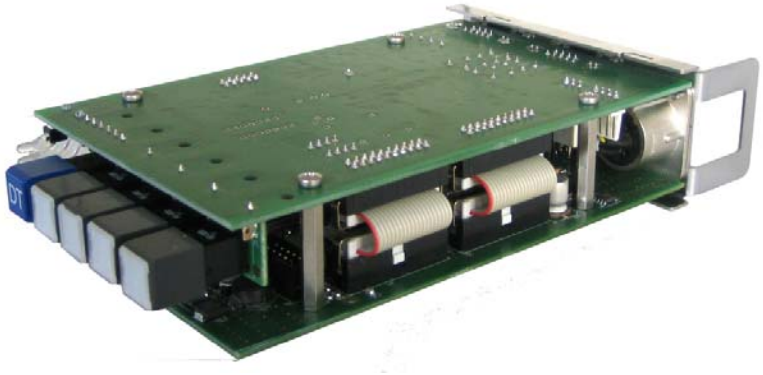
DT/XT module Specifications

The rear panel includes the following connectors:

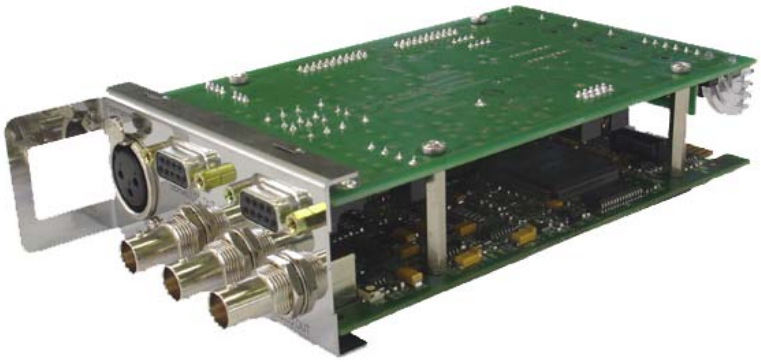
- LTC reader and generator
- RS485/422/232 interface, Time Code or inserter data, Ancillary Data
- 4 GPIOs for status signals, etc.
- Relay contact output, programmable for Time Code zero value, additional failure Signal(s), etc.

Folgende Anschlüsse befinden sich auf der Rückseite:

- LTC-Leser- und Generator
- RS485/422/232-Schnittstelle, Timecode- oder Inserter-Daten, Ancillary Data
- 4 GPIOs für Statussignalisierungen, etc.
- Relaiskontaktausgang, programmierbar für z.B. Timecode-Nulldurchgang, zusätzliche Fehlermeldung, etc.



RUBIDIUM H1 DT/XT modules front view



RUBIDIUM H1 DT/XT modules rear view

Four configurable function keys are located on the front panel, allowing fast selection of functions or loading preset profiles. Backlit keys and four signal LEDs indicate the status of the module. A blue identification button shows the module's model name.

Vier programmierbare Tasten in der Front erlauben schnelle Funktions- oder Profil-Abrufe. LEDs in den Tasten und vier weitere LEDs als generelle Statusanzeigen signalisieren den Betriebszustand des Moduls. Ein Button in der Front zeigt die Modulart an.

RUBIDIUM H1 DT module in H1 housing

DT/XT module Specifications

RUBIDIUM H3 DT/XT module rear

Modules can be inserted in any order into the slots of the housing. Each slot position has its own address within the communal housing identification system. This enables a specific identification of each module within a bigger system. Alias names can be given to the hard stamped numerical address via the supplied configuration software.

Via our IE Ethernet module, browser configuration, status control and SNMP functions are available. Every module is connected to an internal hot swappable bus, which bilaterally connects all modules within a particular housing. The internal bus can be distributed over several housings by using the RLC port.The RLC-plug contains a voltage feed, a failure relay output and a TC_link interface. TC_link is a real time capable proprietary interface, which is based on a customized RS485 interface.

On the rearside of every housing, a PC interface (USB) can be found. This serial connection is used for configuration, status control, and also software and firmware updates.

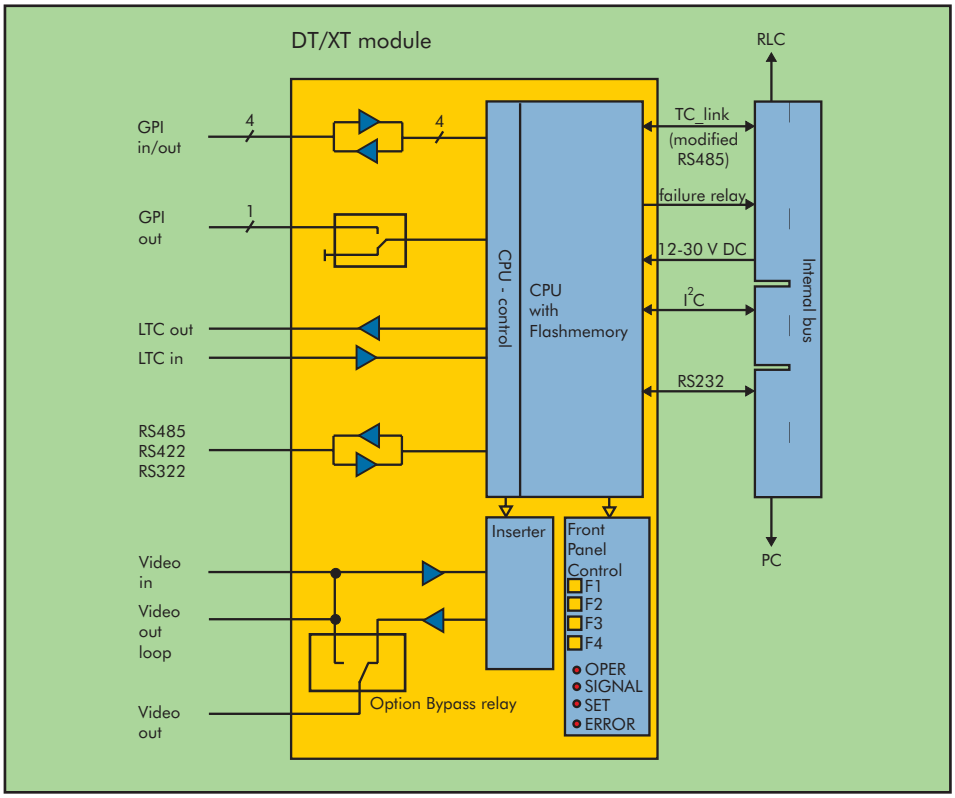
Das Modul wird in einen beliebigen Steckplatz des Gehäuses eingesetzt. Mit der Adresse des Steckplatzes und des Gehäuses hat das Modul eine feste ID, unter der es im System anzusprechen ist. Die Adresse kann mit einem Aliasnamen versehen werden.

Per Ethernet-Modul IE sind Konfiguration und Statusabfrage über einen Browser möglich. SNMP-Funktionen werden somit ebenfalls freigeschaltet.

Das Modul wird über einen internen Bus angeschlossen, der so gestaltet ist, dass „Hot swapping“ möglich ist. Der interne Bus verbindet alle Module untereinander. Über den RLC-Port kann der interne Bus auch über mehrere Gehäuse verteilt werden.

Der RLC-Stecker trägt die Spannungsversorgung, einen Fehlerrelaisausgang und TC_link. TC_link ist eine von A+V definierte, echtzeitfähige Schnittstelle, die auf einer modifizierten RS485 basiert. Die zweite am Gehäuse befindliche Schnittstelle ist ein USB-Port.

Alle Datentransfers, wie Datenaustausch der Module untereinander, Konfiguration, Statusüberwachung und auch ein komplettes Software-Update, erfolgen über TC_link oder die PC-Schnittstelle.



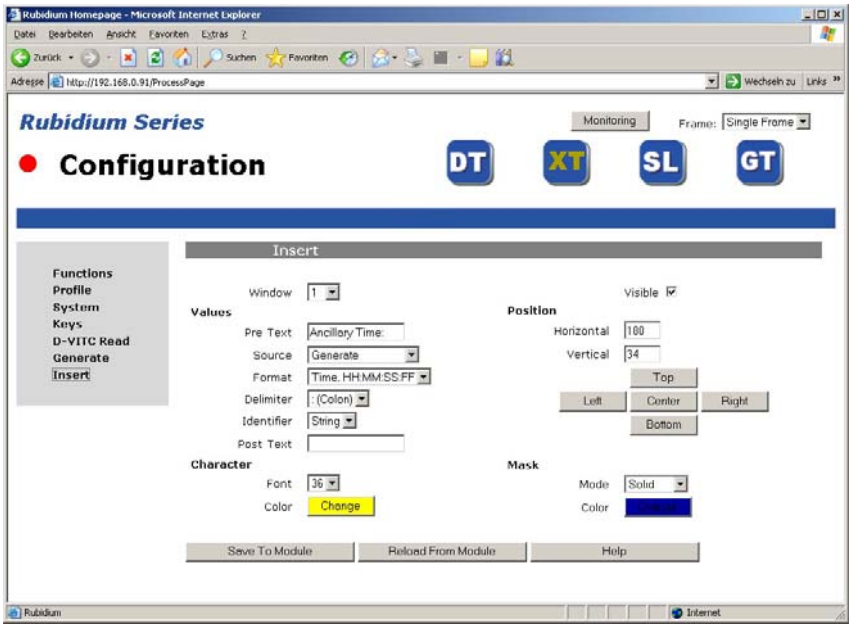
All data and Time Code formats received via RS232/422, LTC/DVITC/ATC/Ancillary Data, and TC_link can be inserted and converted.

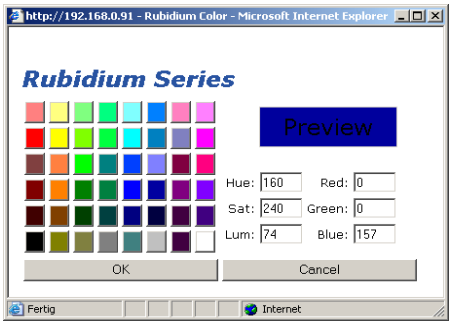
Up to fifteen separate user configurable windows can be inserted. Each inserter window has its own character set, character / windows attributes and source data. This defines the size of the window, the character size and type as well as the character and mask colour. The inserters specifications can be stored and recalled via the configuration program as a profile. These profiles can be selected via the front-sided backlit buttons or via the serial PC configuration port.

Alle Daten und Timecodeformate, die über die Schnittstellen RS232/422, LTC/DVITC/ATC/Ancillary Data und TC_link gelesen werden, können insertiert und konvertiert werden.

Bis zu fünfzehn separate Fenster sind beliebig auf dem Bildschirm positionierbar. Jedes Fenster bekommt einen Zeichensatz, Zeichenattribute und Daten zugewiesen, wodurch sich die Größe des Fensters, Zeichen- und Hintergrundfarbe und die Darstellungsart wählen lassen. Die Einstellungen können als Profile gespeichert werden und sind per Schnittstelle oder Tasten wieder aufzurufen.

Web Browser Configuration





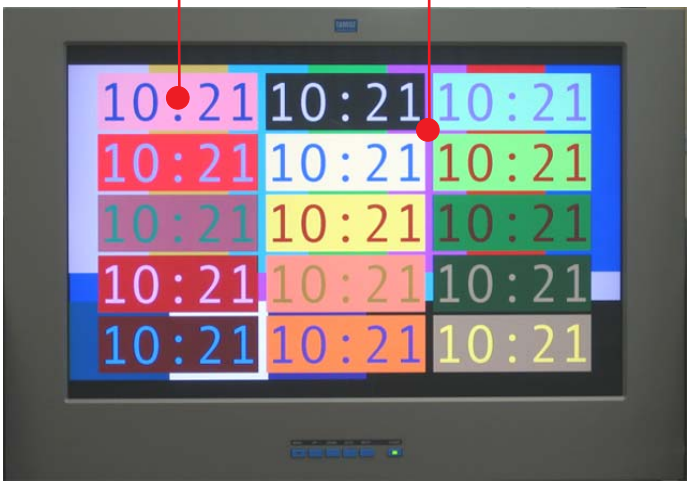
Greytone of mask and characters are individually adjustable

Freely programmable position of the insertion

DT module insertion

Selectable mask- and character color, solid or transparent masks are selectable

Up to 15 separate insertion windows

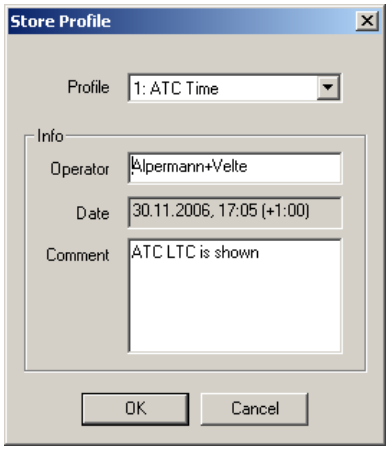


DT module insertion with various colored masks and characters

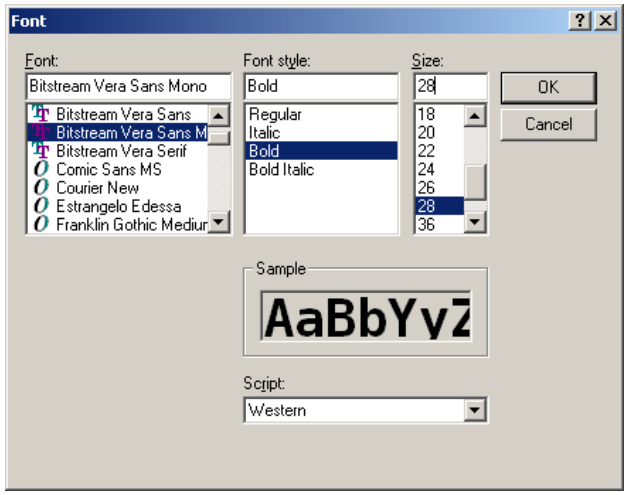
Up to eight character sets from the local characters memory are stored in the module and can be recalled simultaneously for insertion. The DT/XT supports full multi-colour insertions. All insertions are available with and without a mask. Brightness and color values are separately selectable. Character size can be selected between 16 to 72 lines (DT) or 16 to 139 lines (XT). Transparent masks and flashing characters can be chosen as well.

Aus dem lokalen Schriftenfundus können bis zu acht verschiedene Schriften im Modul gespeichert und zur Einblendung abgerufen werden. Die Insertierung ist in Farbe mit oder ohne Maske möglich. Die Luminanz- und Farbwerte von Zeichen und Maske können unabhängig voneinander eingestellt werden. Zeichensätze sind in der Größe variierbar von 16 bis 72 (DT), bzw. 139 Zeilen (XT). Weitere Eigenschaften sind z.B. transparente Masken und blinkende Zeichen.

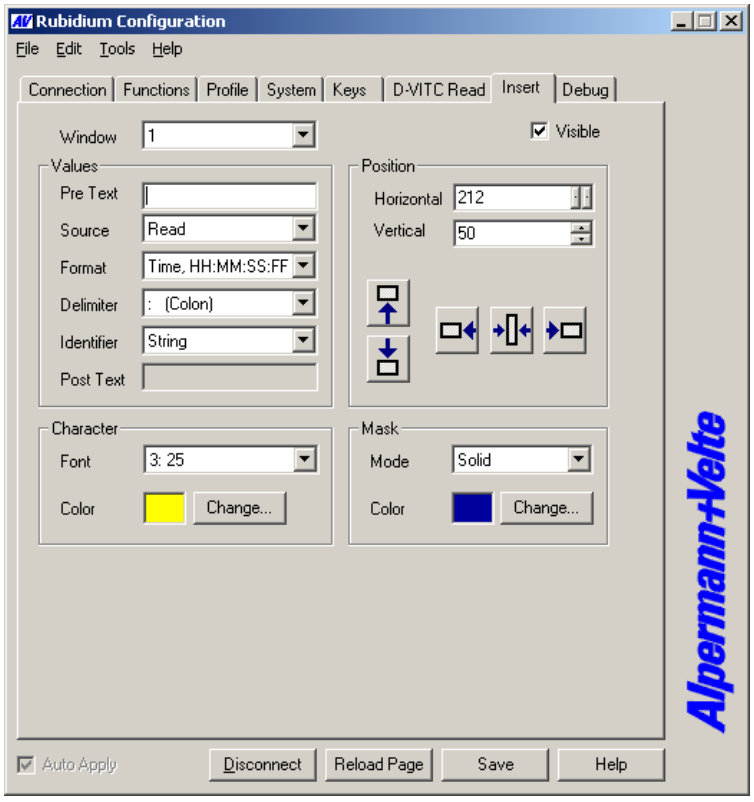
Store Profile



Font Compiler



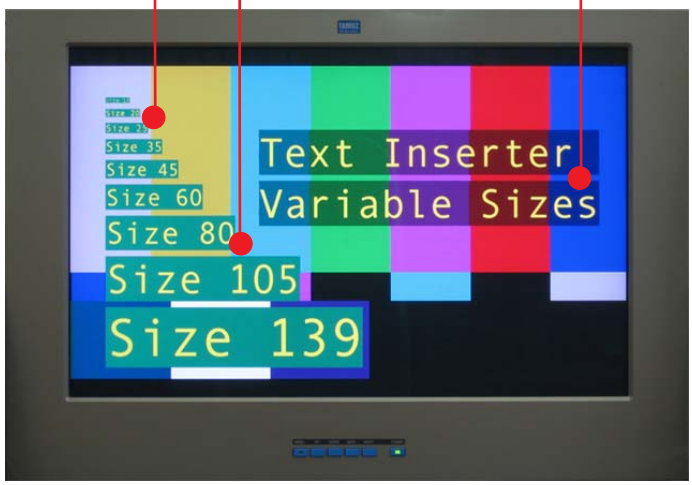
RUBIDIUM Configuration Program



Various character sizes from 16 to 139 lines (XT)

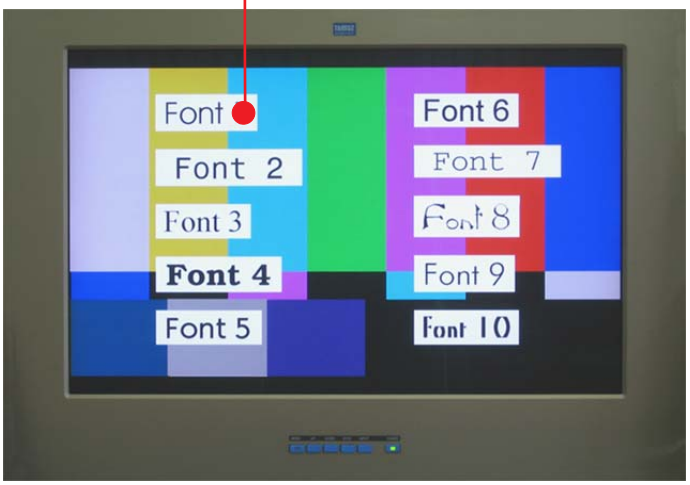
Solid mask

Transparent mask



DT module insertion in various sizes and different masks

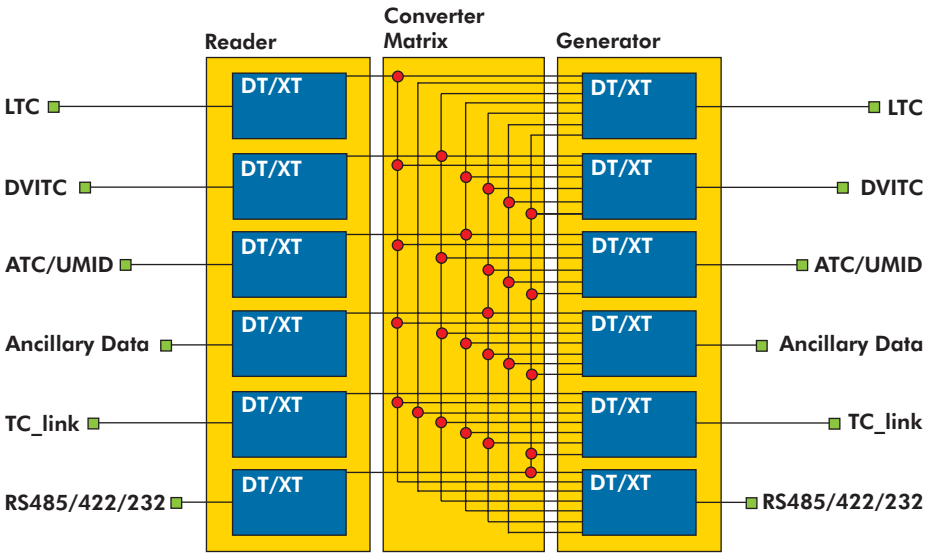
Own character sets are loadable



DT module insertion with different character sets

TC_link enables data interchange between different modules. A generator module could e.g. be set (triggered) with an external VITC value, which could simultaneously be converted into an ATC by an module. The modules are equipped with the following reader/generator/converter functions:

TC_link ermöglicht einen Datentransfer zwischen verschiedenen Modulen. Ein Generator könnte z.B. durch einen externen VITC-Wert gesetzt werden, während dieser gleichzeitig von einem Modul in einen ATC konvertiert wird. Die Module haben folgende Leser/ Generatoren/ Konverter:

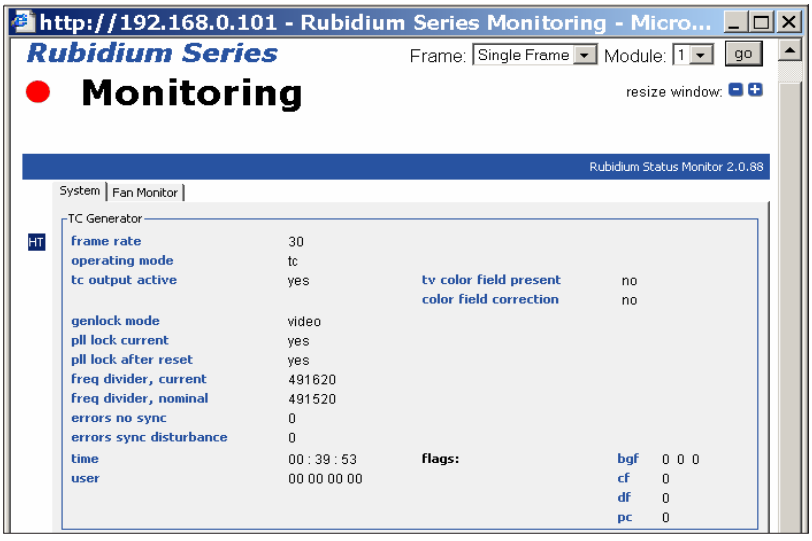


All data in the SMPTE/EBU metadata dictionary can be inserted as Ancillary Data. Methods for the implementation of these values are included. Various options for specifically designed or custom broadcast encoded transfers, e.g. the "monochrome transfer for MPEG" for transporting ancillary data are available and are supported by an optionally obtainable software. The universal input/output interfaces of all RUB modules allow for various optional converter features.

Some popular examples are a biphase converter (CTL to Time Code), Sony 9P-Converter and „offset-generation". There are many customer specific applications possible, so please do not hesitate to ask us for suggested solutions.

Als „Ancillary Data" können alle Daten des EBU/SMPTE-Metadaten-Kataloges implementiert werden. Es gibt dazu auch spezielle Übertragungsvarianten, wie z.B. den „monochrom transfer" in Verbindung mit MPEG.

Die universellen Schnittstellen lassen Optionen wie Biphase-Converter (CTL zu Time Code), Sony 9P-Converter und programmierbare Offset-Zeiten zu. Darüber hinaus sind Sonderapplikationen im Rahmen Ihrer Projekte möglich. Bitte fragen Sie uns nach einer Umsetzung Ihrer Applikation.



DT/XT specifications

Video input, loop, output

Format DT
Serial digital video, according to ANSI/SMPTE 259M

Format XT
Serial digital video according to ANSI/SMPTE 259M, SMPTE 292M or SMPTE 424M

Connector
BNC (IEC 169-8), 75 Ω

Signal level
800 mV ± 10%

DC offset
0.0 V ± 0.5 V

Digital Data
8-bit, 10-bit

DVITC input/output
According to SMPTE 266M-2002

ATC input/output
According to ANSI/SMPTE 12M-2-2008

LTC input/output.

Format
According to ANSI/SMPTE 12M-1-2008

Connector input
- balanced signals LTC_IN_A and LTC_IN_B
- via 3-pin XLR female (according to IEC 268-1)
- via 2 pins of the 9-pin DSUB female GPI/LTC IN

Connector output
- balanced signals LTC_OUT_A and LTC_OUT_B
- via 3-pin XLR male, optionally available instead of LTC input XLR female above (according to IEC 268-1)
- via 2 pins of 9-pin D-Sub female SERIAL/LTC OUT

Frame rates
24, 25, 30, 30 drop

Input impedance
18 kΩ

Output impedance
< 50 Ω

Input signal level
100 mVpp - 5 Vpp

Output signal level
Adjustable 140 mVpp - 4.9 Vpp

GPI input/output

GPI_1...GPI_4 Input specification
Input "Low": -15.0 to +1.0 V
Input "High": + 3.0 to +15.0 V
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: 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

Standard features of the Time Code generator/reader

Frame rate
Selectable: 24, 25, 30, 30 drop, automatic

Start value for the time addresses/binary groups
Selectable

Start value for the binary groups
Selectable

LTC output level
Adjustable

DVITC lines
Selectable

Jam-Sync application
Jam-Sync mode enabled/disabled
Time offset selectable
Jam-Sync only time, only user or both
With stop or flying wheel feature

Others

4 frontside buttons
Only RUB 1 modules

Operating voltage DT module
8 - 30 VDC

Operating voltage XT module
12 - 30 VDC

Power consumption DT module
max. 5.9 W

Power consumption XT module
max. 4.7 W

Weight
0.4 kg approx.

Dimensions Rub 1 (W x H x D)
2 circuit board (W x D): 100 x 160 mm/3.94 x 6.30 inch
Rear panel: 103 (B) x 44 mm/4.06 x 1.73 inch

Dimensions Rub 3
19" 3 RU, 8HP

Environmental characteristics, operating
Temperature: +5 °C - +40 °C
Relative humidity: 30 % - 85 %, non-condensing

Environmental characteristics, non-operating
Temperature: -10 °C - +60 °C
Relative humidity: 5 % - 95 %, non-condensing

Standard features of the video channel and character inserter

Video channel
VITC (DVITC) lines insert enabled/disabled
Character insert enabled/disabled
8-bit, 10-bit (DT, XT)
Bypass (DT, XT)

Character inserter
Video window/colour/position/size/format selectable

Product ordering ID DT/XT modules

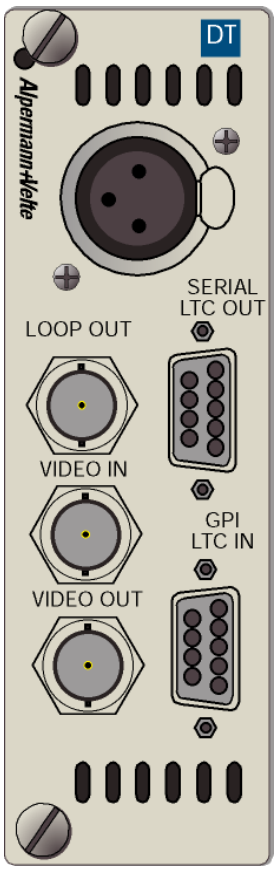
RUB 1 DT
SDI digital video inserter and data processor module (1RU)
RUB 3 DT
SDI digital video inserter and data processor module (3RU)
RUB 1 XT
3G/HD/SDI digital video inserter and data processor module (1RU)
RUB 3 XT
3G/HD/SDI digital video inserter and data processor module (3RU)

Option B
Video bypass relay
Option S
Sony 9P protocol converter
Option O
Programmable offset
Option P
Converter biphase/CTL to LTC

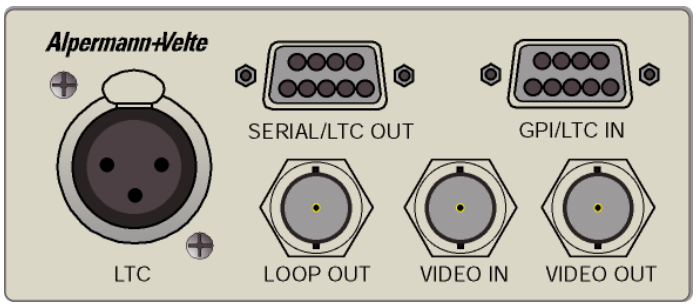
The RUBIDIUM modules must be used in conjunction with a RUBIDIUM housing and a RUBIDIUM power supply, please see our overview leaflet for more information.

We reserve the right to modify specifications without notice.

Legend:
LTC:
Longitudinal Time Code
(audio signal, SMPTE 12M-1-2008)
DVITC:
Vertical Interval Time Code
(SDI digital video, SMPTE 266M-2002)
ATC:
Ancillary Time Code
(SMPTE 12M-2-2008)
TC_LINK:
Internal Communication of values between modules via the front bus



RUBIDIUM H3 DT rear panel



RUBIDIUM H1 DT rear panel

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