Application

The 23WT25 modem is designed for the operation on telecontrol lines together with the ABB RTU560. However it can also be connected to other data terminal equipments because it operates at the interfaces like a universal FSK-modem in the voice-band range (300- 3400 Hz) according to CCITT. The 23WT25 modem allows the assignment of a two- or four-wire line with communication channels in the CCITT raster for 600 and 1200 Bit/s.

- 1 channel 600 Bit/s
- 1 channel 1200 Bit/s (V.23)

Full duplex operation is possible without special additional provisions like butterfly connection according to channel assignment. It is designed for the transfer characteristics of local-cable-wires.
Light emitting diodes indicate the most important operation states and disconnect test sockets on the front plate allow an easy testing and measuring of the VFT-channels as also of the data terminal equipment (DTE) interface signals.

Characteristics

There are two versions (Rubrik) available:
- 23WT25 R0001 5 V DC Supply
- 23WT25 R0002 24 V DC Supply

Within a RTU560 subrack the board occupies one slot. The modem can be delivered in two different rubrics for two different supply voltages. Within the RTU 560 subracks it supplies itself by the 24 V DC (R0002). The rubric R0002 (24 V DC) can also be used for 24 V supply voltage with voltages tolerance from ± 20 %. Therefore it can also be used outside of RTU 560. The rubric R0001 will be used if only 5 V DC are available.
A central processor along with a modulator and a demodulator sections are responsible for the conversion of the binary information into the voice band and vice versa.

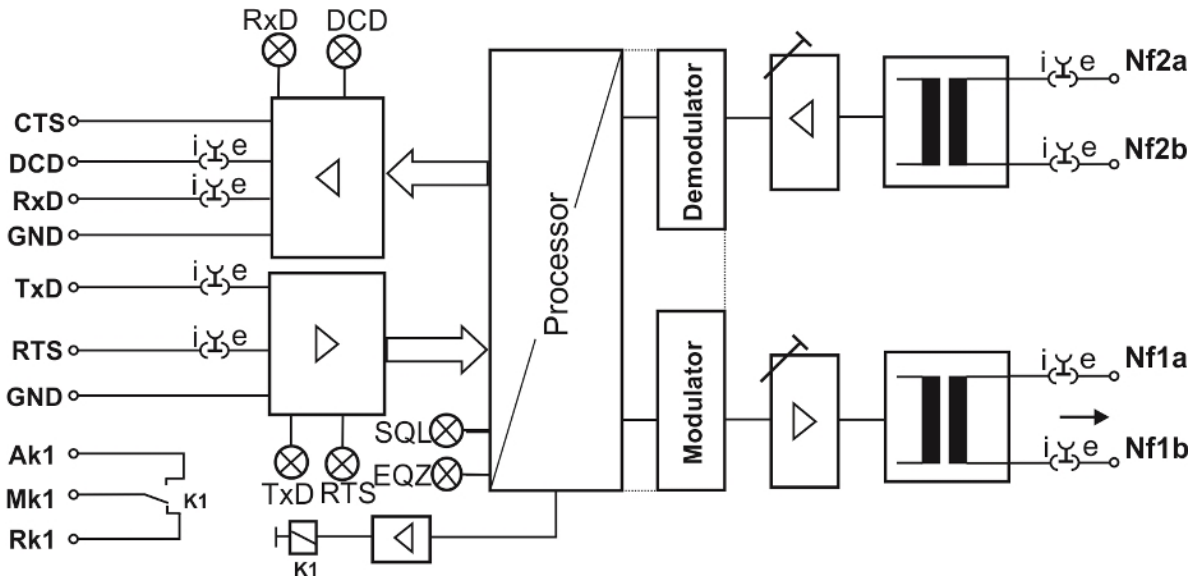

Figure 1. Block diagram of 23WT25

The channels can be assigned in the CCITT raster. Transmitter and receiver can be configured to same baud rates.
The 23WT25 modem can monitor the receiving signal for isochronous distortion and indicate by the “signal quality level (SQL)”-alarm a repeated (10x) limit exceeding (40% resp.50%).
The audio-frequency carrier is monitored and indicated respectively alarmed by the DCD signal.
The alarm relay of the modem responses at carrier drop-out (DCD direct or delayed), at SQL alarm, or at supply voltage failure.
All essential settings like channel, gain, line operation mode, transmission rate, etc. are configured by jumpers.
By the disconnect test sockets on the front plate the serial interface signals to the data terminal equipment (DTE) as also the VFT-lines can be measured or opened.
Additional VF-signal transformers have to be used for requested higher isolation voltages.

Technical Data

In addition to the RTU560 general data, the following applies:

General Data

Type of modulation	Frequency shift keying(FSK)
Type of communication	Point-to-point
Operation mode	Full Duplex via four-wire links
Channel assignment	According to CCITT raster

Serial interface to DTE

Signal definition	V.24 / V.28	
Signal lines	TxD	D1 / 103
	RxD	D2 / 104
	RTS	S2 / 105
	CTS	M2 / 106
	DCD	M5 / 109

Interface to transmission line

Input- / Output impedance	600 Ω non earthed
Transmission level at 600 Ω	0 … -12 dBm configurable by jumper, or continuous adjustment by pot. 0…-25 dBm
Receiver level range	0 … -18 dBm
Sensitivity	0 / -6 / -12 dB

Signal quality level monitor

Threshold	>40% for 600 and 1200 bps
SQL - LED	ON: > 10 errors with < 4 sec distance OFF: no errors for at least 5 sec.

DCD monitoring

DCD alarm at full duplex operation	Switches with carrier directly, operation mode configurable by jumper
DCD - LED	Switches with carrier directly

Alarm relay

Switching function	DCD alarm or SQL alarm and / or supply voltage failure
Alarm contact	60 V DC / 0.5 A / 30 W

Power Supply

Supply	5 V DC / 300 mA
	24 V DC / 60 mA

Mechanical Layout

Printed circuit board	3HE, Euro-card 160 x 100 mm
Front panel	2R, 1 slot 20 mm
Weight approx.	200 gr

Connection Type

Connector	Indirect, 48 pol.Type F DIN 41612

Environmental Conditions

Temperature	0 … 70 ºC
Relative humidity	5 … 95 % non condensing

Data format	Serial, binary, asynchronous	
CCITT Channel	600 Bd	V.23
Nominal Baud rate	600 bps	1200 bps
Mid-frequency	2760 Hz	1700 Hz
Frequency deviation	±240 Hz	±400 Hz

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Subject to alteration