Application

The MNK5 modem is designed for the operation on telecontrol lines together with different RTUs. However, it can also be connected to other data terminal equipment because it operates at the interfaces like a universal FSK-mode in the voice-band range (300- 3400 Hz) according to CCITT. The MNK5 modem allows the assignment of a four-wire line with communication channels in the CCITT raster for 50 to 2400 Bit/s.

- 1 channels 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 allow an easy testing of the VFT-channels as also of the data terminal equipment (DTE) interface signals.

Characteristics

There are two versions available:
- MNK5E: 48V DC Supply – Rail-mounted
- MNK5D: 24V DC Supply – Rack-mounted

The rubric MNK5E is an external modem version with rigid Aluminum housing and DIN rail mounting adaptor. MNK5E can be used for 48V supply voltage with voltages tolerance of ±20%. MNK5D can be mounted inside a 19" 6U subrack. Within a subrack the board occupies one 6hp slot and it supplies itself by the 24 V DC.

A central processor is responsible for modulation and demodulation, i.e. the conversion of the binary information into the voice band and vice versa.
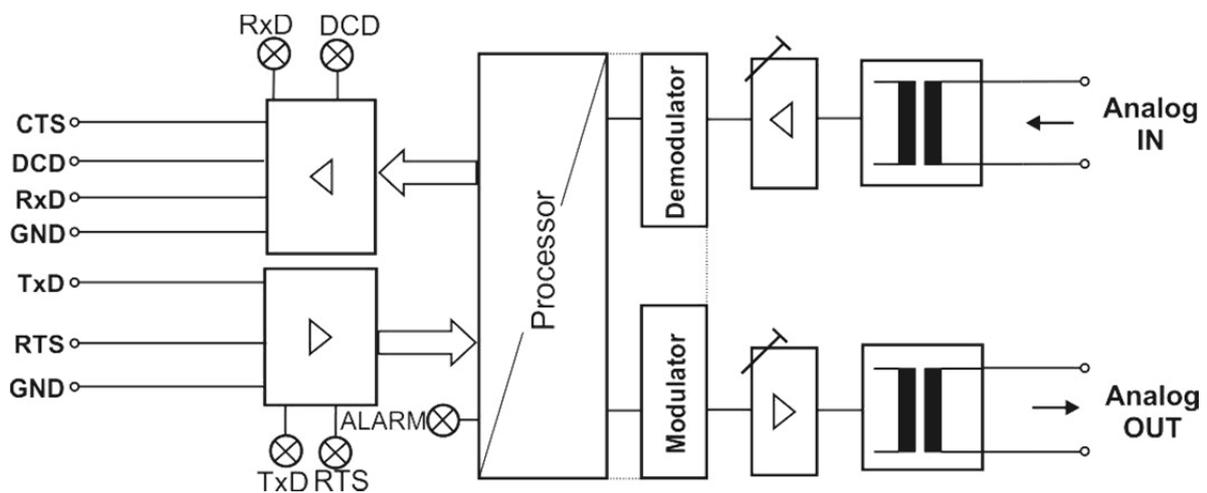

Figure 1. Block diagram of MNK5

The channel can be assigned in the CCITT raster. Transmitter and receiver can be configured to same baud rates.

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 delayed) and indicates by the ALARM red LED.

All essential settings like transmission gain, handshaking operation mode and baud rate are configured by switches.

Technical Data

The following data is applicable:

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	
		DB25 F	DB9 F
Signal lines on X2 (DB25 or DB9 female)	TXD	pin #2	pin #3
	RXD	pin #3	pin #2
	RTS	pin #4	pin #7
	CTS	pin #5	pin #8
	GND	pin #7	pin #5
	DCD	pin #8	pin #1

Interface to transmission line

Input- / Output impedance on X1	600 Ω non-earthed
Transmission level at 600 Ω	0 … -12 dBm configurable by switches
Receiver level range	0 … -18 dBm
Nominal receive level	-6 dBm

Signal quality level monitor

Threshold	>40% for 600 and 1200 bps
ALARM - LED	ON: DCD drop-out with 5 sec. delay 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, Normally Open
Alarm contact on X4	60 V DC / 0.5 A / 30 W

Power Supply

Supply input on X3	48V DC ±20%, 100mA max

Mechanical Layout

Housing	Anodized Aluminum box
Mounting	DIN rail adaptor
Dimensions	107 x 94 x 59 mm
Weight approx.	330 gr

Connection Type

X1 connector	Terminal block 4-pin – Screw type
X2 connector	DB25 female
X3 connector	Terminal block 2-pin – Screw type
X4 connector	Terminal block 2-pin – Screw type

Switch Setting

BaudRate	ON: 1200 bps OFF: 600 bps
RX/TX Pol *	ON: Reverse OFF: Normal
RTS ON **	ON: Always ON OFF: Normal
TX Level Adj.	0, -3, -6, -9, -12dBm only one switch should be ON

* RXD and TXD polarity assignment according to Mark and Space frequencies.

** It means RTS signal is always on, irrelevant to RTS signal input. When no handshaking is used, it should be ON.

Environmental Conditions

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

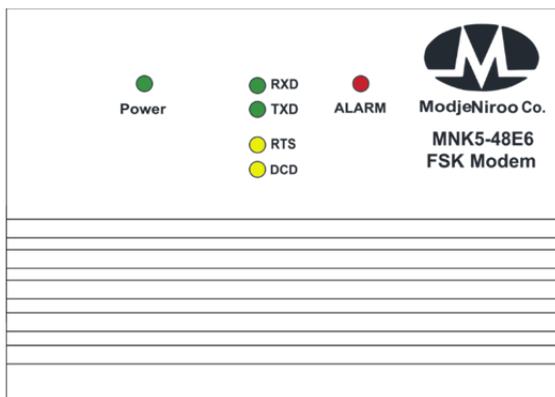| Data format	Serial, binary, asynchronous	
CCITT Channel	600 Bd	V.23
Nominal Baud rate	600 bps	1200 bps
Mid-frequency	2760 Hz	1700 Hz
Frequency deviation	±240 Hz	±400 Hz

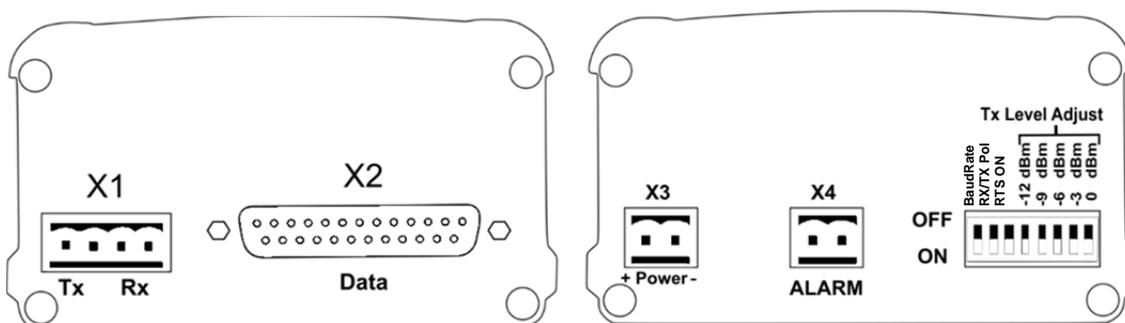**Figure 2. Front panel view of MNK5**

Figure 3. Side views of MNK5

Figure 4. X2 pin numbering (DB25 or DB9 Female)

Modje Niroo Co.

No. 9, Abbaspour Building, Brezil Ave., Vanak
Sq., Tehran, IRAN
Phone   +98 – 21 – 8819 2990
Fax: +98 – 21 – 8887 8776

 www.modjeniroo.com

Subject to alteration