Application

The MNK6 modem is designed for the operation on telecontrol lines. It can also be connected to different data terminal equipments (RTU) because it operates at the interfaces like a universal FSK-modem in the voice-band range (300- 3400 Hz) according to CCITT. The MNK6 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 (LEDs) indicate the most important operation states.

Characteristics

Each 19" subrack contains 18 MNK6 modems with a height of 3U. Every subrack is equipped with an AC/DC or DC/DC power supply to provide proper voltages for modems.

Within a standard 19" subrack the board occupies one 4-hp (2R) slot. The power supply card occupies the first 12-hp slot from the left side. The power supply can be delivered in two different rubrics (versions) for two different supply voltages. Within its standard power supply module, it supplies itself by the 220 V AC (R0001). The rubric R0002 will be used if only 48 V DC are available.

A central processor including a modulator and a demodulator section is responsible for the conversion of the binary information into the voice band and vice versa.
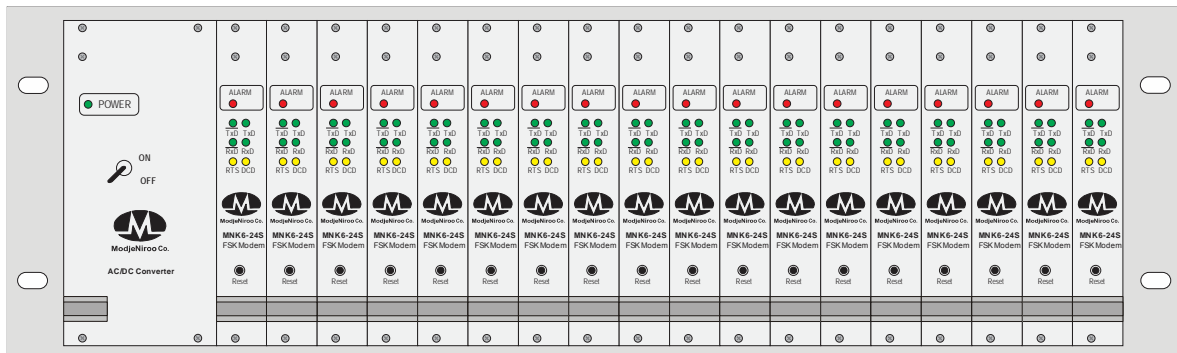

Figure 1. 3U subrack with 18 modems and one power supply unit
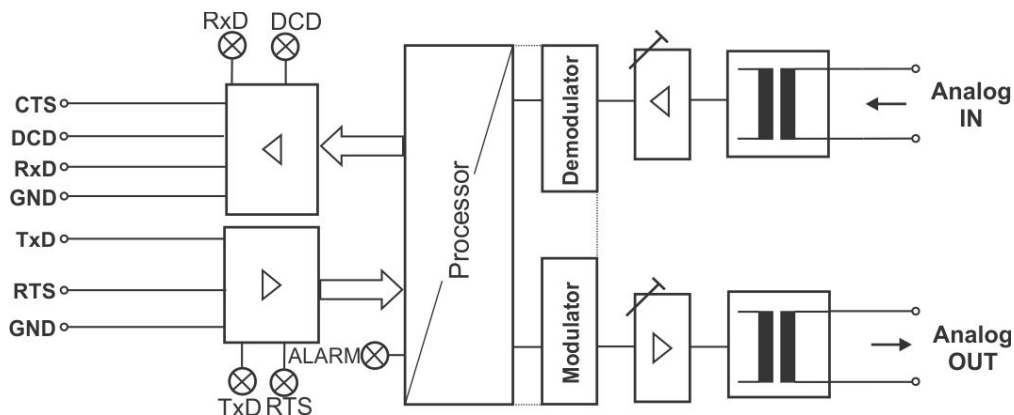

Figure 2. Block diagram of MNK6

The channels 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.

All essential settings like channel, gain, line operation mode, transmission rate, etc. are configured by jumpers.

Additional VF-signal transformers have to be used for requested higher isolation voltages.

Technical Data

In addition to a standard CCITT FSK modem 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,
Receiver level range	0 … -20 dBm
Sensitivity	0 / -6 / -12 dB

Signal quality level monitor

Threshold	Receive signal level below -30 dBm
ALARM - 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

Power Supply

Supply (each unit)	5 V DC / 300 mA
	24 V DC / 60 mA
Supply (total- 18 units)	48 V DC / 0.5 A 220 V AC / 140 mA

Mechanical Layout

Printed circuit board	3HE, Euro-card 160 x 100 mm
Front panel	2R, 1 slot 20 mm
Weight approx.	170 gr

Connection Type

Connector	Data: DB9 Female
	Analog: RJ11

Environmental Conditions

Temperature	0 … 40 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