

RTU513 Remote Terminal Unit DataSheet

Modem 513FSR0X

Application

The 513FSR0X modem is designed for the operation on telecontrol lines together with the PKS RTU513. It is a modem with 1200 and 600 Bps transmission speed. Therefore it can be used for the transmission via private networks.

There is two versions available:

513FSR01 R0001 5 V, 24V DC Supply

513FSR02 R0002 5 V DC Supply

The board operates on the frequency shift keying principle (FSK). four-wire operation mode is selectable by jumper.

All necessary configuration like transmit output level, receiver sensitivity, four wire operation are configurable by jumper.



The interface to the data terminal equipment (DTE) operates according to the RS 232-C standard and supplies the following signals:

- TxD Transmit data
- RxD Receive data
- RTS Request to send
- DCD Data carrier detected
- CTS Clear to send

Within a PKS RTU 513 subrack the board occupies one slot.

Characteristic

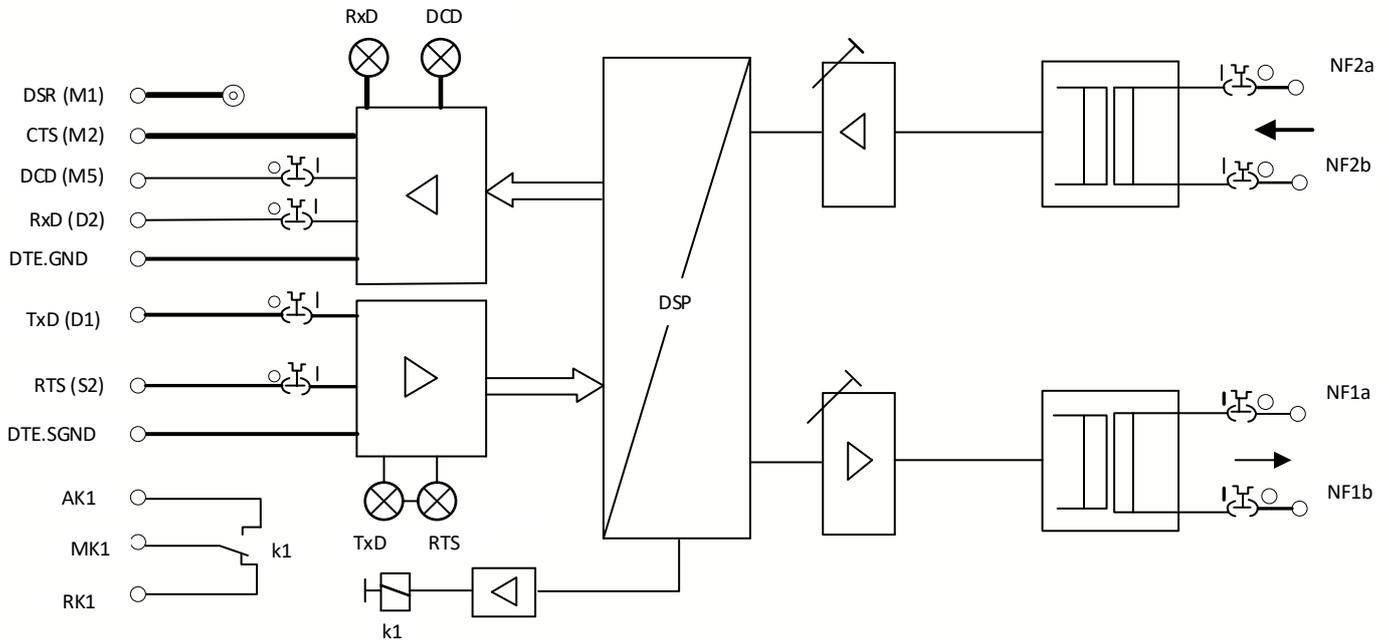


Figure 1: Schematic circuit diagram

Setting

The configuration of the 513FSR0X modem is done by the jumper rows X2 to X7.

Front Panel and Back plane connector

To use the Front Panel connector or the Back plane connector, the following settings must be made on the X7 connector.

	Using Front Panel	Using Back Plane																																																
Jumper X7	<table border="1"> <tr> <td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td> </tr> <tr> <td>■</td><td>■</td><td>■</td><td>■</td><td>■</td><td>■</td><td>■</td><td>■</td> </tr> <tr> <td>■</td><td>■</td><td>■</td><td>■</td><td>■</td><td>■</td><td>■</td><td>■</td> </tr> </table>	8	7	6	5	4	3	2	1	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	<table border="1"> <tr> <td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td> </tr> <tr> <td>■</td><td>■</td><td>■</td><td>■</td><td>■</td><td>■</td><td>■</td><td>■</td> </tr> <tr> <td>■</td><td>■</td><td>■</td><td>■</td><td>■</td><td>■</td><td>■</td><td>■</td> </tr> </table>	8	7	6	5	4	3	2	1	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
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Setting

Bit rate is set with 6 to 8 pins of jumper X2

X2-6 to X2-8	Speed (Bit/s)
<p style="text-align: center;">8 7 6</p>	600
<p style="text-align: center;">8 7 6</p>	1200

Frequency is set with 2 to 5 pins of jumper X2

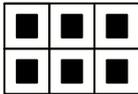
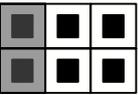
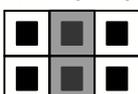
Channel	Jumper X2-1 to X2-5	600 B/s	1200 B/s
		$F_c \pm 210$ Hz	$F_c \pm 400$ Hz
1	<p style="text-align: center;">5 4 3 2 1</p>	1320	1700
2	<p style="text-align: center;">5 4 3 2 1</p>	2760	

Setting

The modem has two predefined receiver sensitivity level:

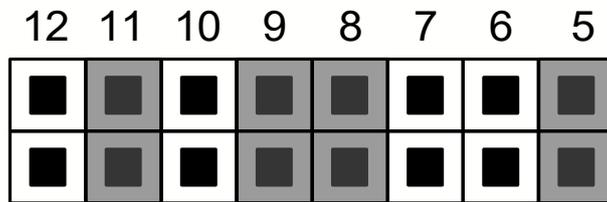
	X6-14 Open	X6-14 Set
Transmitter Level	-6 dBm	0 dBm

The modem has four predefined out-put level:

Jumper X6-15 to X6-17	Gain [dB]
17 16 15 	6
17 16 15 	10
17 16 15 	14
17 16 15 	26

Setting

Settings for the line interface for four-wire connection:



Jumper X10,X13,X14																	
17	16	15	14	13	12	11	10	9	8	7	6	5	X10				
							■										Transmitter not terminated
							■	■									600 Ω transmitter termination
17	16	15	14	13	12	11	10	9	8	7	6	5	X13				
				■													Receiver not terminated
				■	■												600 Ω receiver termination
17	16	15	14	13	12	11	10	9	8	7	6	5	X14				
			■														No raising of transmitter level
			■	■													+6 dB raising of transmitter

Setting

Jumper X4-1 to X4-5 are used to invert the logical level of interface signals.

X4-1 to X4-5	Signal State
 <p>1</p>	Normal
 <p>1</p>	Inverted

X4 Jumper Pins	Signal
X4-1	CTS
X4-2	DCD
X4-3	RXD
X4-4	RTS
X4-5	TXD

Setting

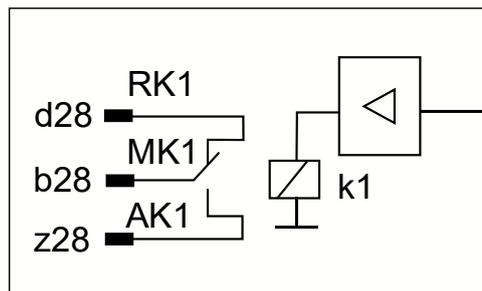
The four LED's at the front plate show the actual signal state of interface:

LED	Meaning
ST	No carrier (DCD) for more than approx. 5 seconds
TxD	Transmit data
RxD	Receive data
RTS	Request to send
DCD	Data carrier detected

DCD alarm (carrier monitoring)

The DCD signal indicates that a carrier signal has been detected at the input. When the carrier signal is not detected at the input, the error LED turns on after a 2-second delay and activates the Alarm relay.

The connection of the relay bases is as follows.



Setting

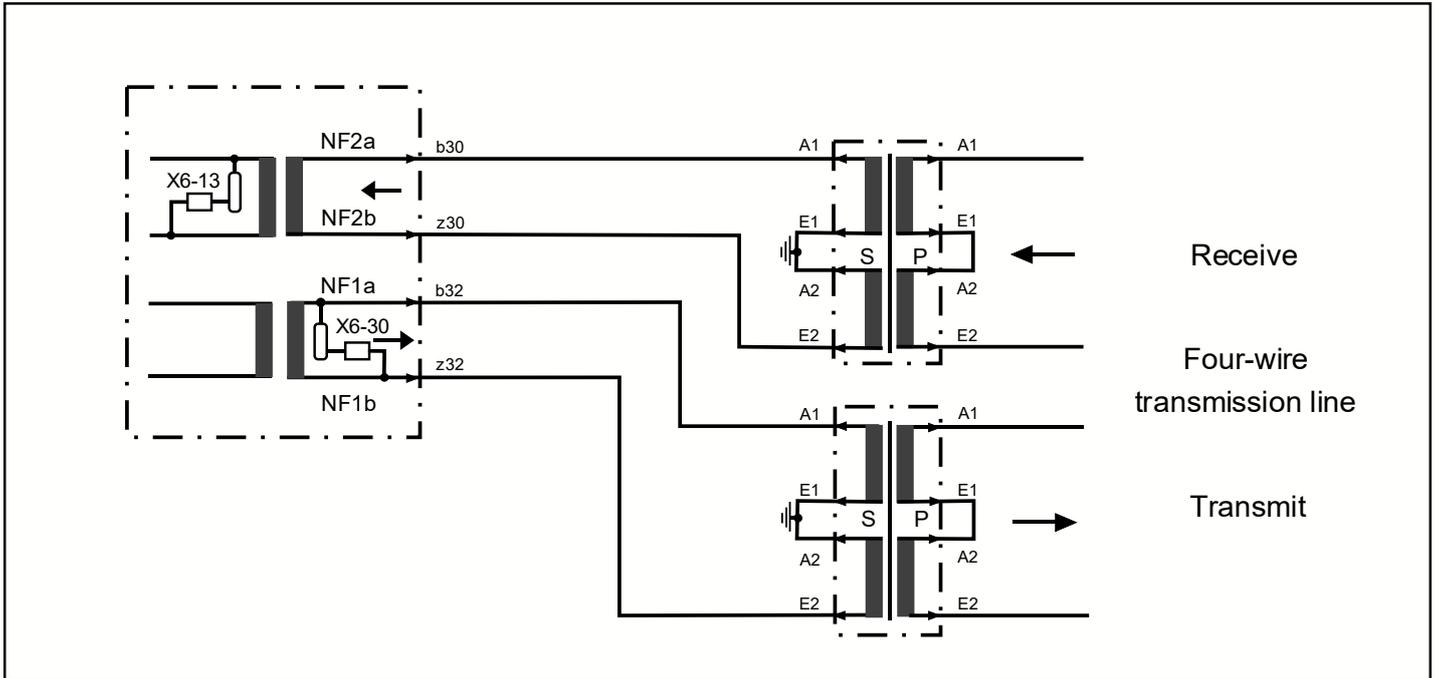
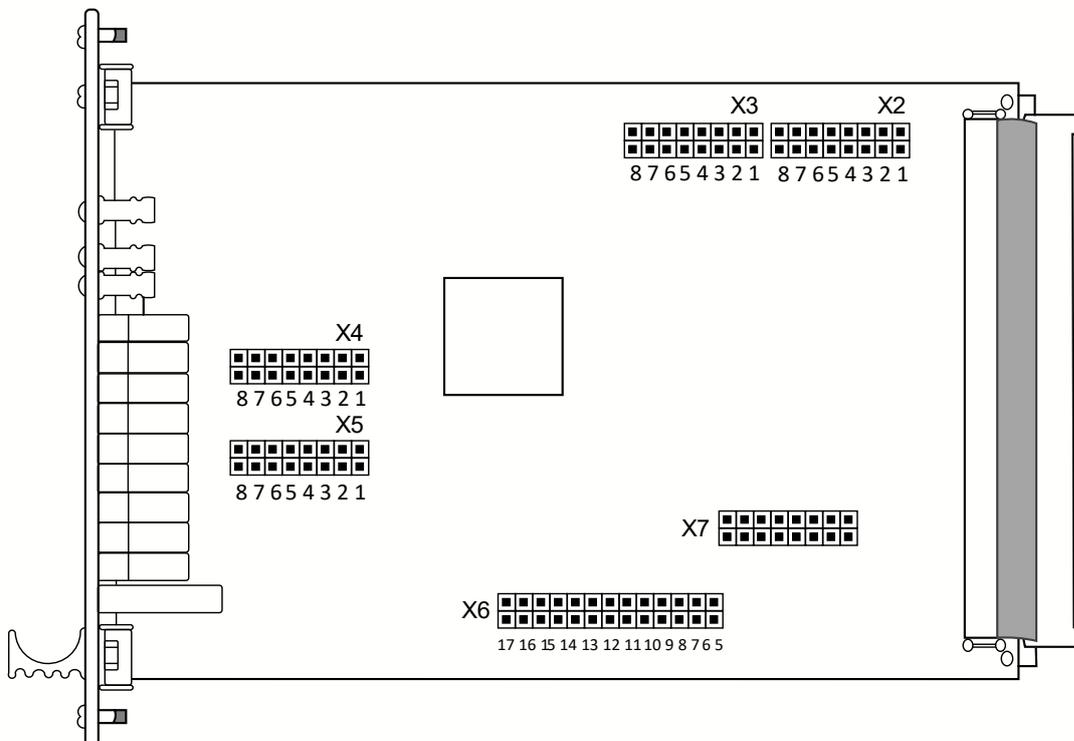


Figure 2: Four-wire mode



Characteristic

Pin assignment in the subrack:

WMS12	SMS12		Signal identification		
			Identification	Meaning	
1			z32	NF1b	Low frequency (LF) transmission output
2		b32		NF1a	Low frequency (LF) transmission output
3	d32				
4			z30	NF2b	Low frequency (LF) transmission input
5		b30		NF2a	Low frequency (LF) transmission input
6	d30				
7			z28	AK1	Alarm contact (NO)
8		b28		MK1	Alarm contact (CO)
9	d28			RK1	Alarm contact (NC)
10			z26	DSR (M1)	Data set ready (RS232-C)
11		b26		RxD (D1)	Received data (RS232-C)
12	d26			TxD (D2)	Transmitted data (RS232-C)
13			z24	DCD (M5)	Data carrier detected (RS232-C)
14		b24		DCE GND	Common return DCE (RxD, DCD)
15	d24			RTS (S2)	Request to send (RS232-C)
16			z22		
17					
18		b22		CTS (M2)	Clear to send (RS232-C)
19	d22			DTE GND	Common return DTE (TxD, RTS)

