Ratioplast
Electronics | OptoElectronics

| Data Sheet | **FO-Interface**
RS232 1Channel |

RS232 1Channel Half-Party-Line/Point to Point Link DCE

1   General _____

This device is a compact and robust modem for asynchronous data transmission in full-duplex mode. According to the used multimode fiber optic cable, data link length's up to 3000m are possible. Used in conjunction with RS232 Party-Line 1Channel modems it is possible to build a fiber optic RS232 bus system which is less interference prone.


Pic. 1   F-ST / MMF / RS232 *850nm Media Converter*

2   Features _____

- 1Channel RS232 - FO Transceiver
- Full-Duplex Data Transmission
- 120 kBit Data rate
- Protocol-transparent
- ´Power-Good´ LED
- ´Receive-Data´ LED
- 25-way Sub-D Connector **male**
- F-SMA, F-ST or standardized optical connectors
- Aluminium case (optional with rail mounting latching element)
- +5V or 9 .. 30V DC Power Supply

3   Block Diagram _____
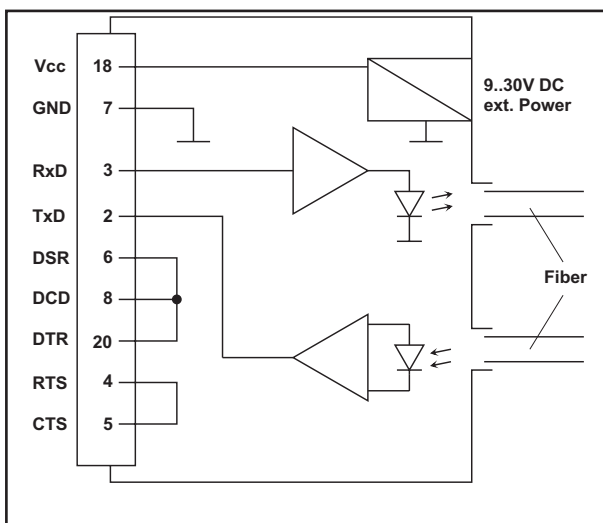
Pic. 2   *Schematic*

4 Ordering Information _____

Model	Part Number
660nm / F-SMA / POF	901RS2321K551
with latching element	901RS2321KR51
660nm / F-ST / POF	901RS2321K550
with latching element	901RS2321KR50
850nm / F-SMA / MMF	901RS2321K549
with latching element	901RS2321KR49
850nm / F-ST / MMF	901RS2321K548
with latching element	901RS2321KR48

▶

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5 CE-Conformation

The RS232 1Channel modem meets the basic requirements according to Article 4 and Appendix III of Directive 89/336/EWG:
Electromagnetic Interference (EMI).
The modem complies with the followings standards:

• EN 55022 or EN 50081-1
• EN 55024 or EN 50082-1

6 Operation

The RS232 1Channel Modem is a code transparent electro-optical transceiver. Incoming data at the electrical interface is converted into optical signals and transmitted by optical fiber. The optical receiver at the other side recovers the optical signal to the corresponding RS232 format.
The RS232-FO conversion takes place acc. to following scheme:

$U_{IN} \geq$ +3V = ´0´ $\Rightarrow$ opt. Out=On
$U_{IN} \leq$ -3V = ´1´ $\Rightarrow$ opt. Out=Off

For applications requiring an inverted optical signal, appropriate modems can be ordered (optional).

7 Power Supply

The modem can be powerd by two ways:

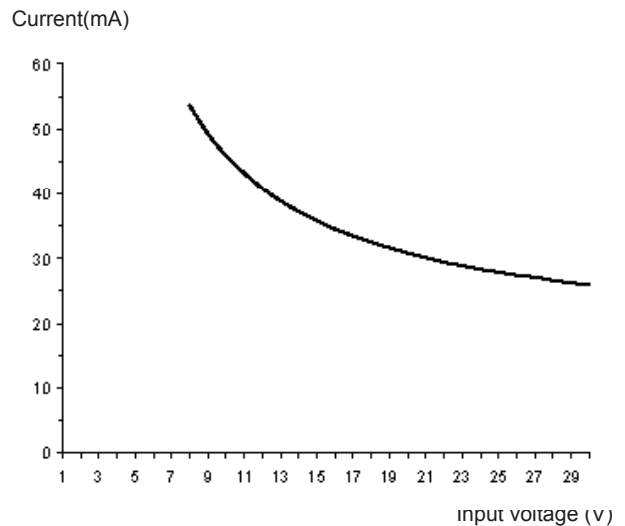**A) +5V DC ±5% at Pin 18 Sub-D**
The screw terminal must be unconnected.

B) +9V...+30V DC (unregulated) at screw terminal
A switching regulator generates the +5V power for the modem.
Pin 18 is a +5V output with max. 50mA current load.

Pic. 3 shows the current consumption subject to input power for case B).

Current(mA)

Input voltage (V)

Pic. 3   Current consumption

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8 Installation _____

- Place the modem at a suitable location
- Though the modem is hot pluggable, make sure that all equipment is off power to avoid electrical damage during installation
- Connect the modem to the TTY interface of your application
- Connect the FO cable with the Fiber-Optic Interface (see Pic.4)
- Check all connections for correct configuration
- Power up your system

Pic. 4   FO-Link

9 EIA-RS232 Standard_____

The full declaration of the RS232 Interface and the meaning of the signal names and symbols can be derived from the EIA RS232-C standard.
An agreed case is that RS232 devices are separated into two classes: DTE (Data Terminal Equipment exp. Computers) and DCE (Data Communication Equipment exp. Modems).
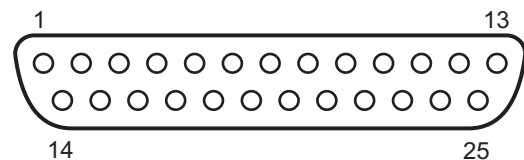The standard describes the 25-way Sub-D, however the 9-way Sub-D is now more used.

DCE = Sub-D female
DTE = Sub-D male

Example 1: Pinout 9-way Sub-D

Pin	Name	DCE	DTE
1	DCD	Output	Input
2	RxD	Output	Input
3	TxD	Input	Output
4	DTR	Input	Output
5	GND	Ground	Ground
6	DSR	Output	Input
7	RTS	Input	Output
8	CTS	Output	Input
9	RI	Output	Input

Example 2: Pinout 25-way Sub-D

Pin	Name	DCE	DTE
1	CG	Earth	Earth
2	TxD	Input	Output
3	RxD	Output	Input
4	RTS	Input	Output
5	CTS	Output	Input
6	DSR	Output	Input
7	GND	Ground	Ground
8	DCD	Output	Input
12	DCD2	Output	Input
13	CTS2	Output	Input
14	TXD2	Input	Output
15	TxC	Output	Input
16	RxD2	Output	Input
17	RxC	Output	Input
19	RTS2	Input	Output
20	DTR	Input	Output
22	RI	Output	Input
23	DRS	I/O	I/O
24	TxC	Input	Output
25	BUSY	Output	Input

10 Sub-D Pin Out_____

PIN Nr.	Name	Funktion
2	TxD	Data OUT
3	RxD	Data IN
4	RTS	shorted to CTS
5	CTS	shorted to RTS
6	DSR	shorted to DCD, DTR
7	GND	Ground
8	DCD	shorted to DSR, DTR
18	Vcc	+5V DC Input/Output
20	DTR	shorted to DSR, DCD

! Non declared pin are without function and should be left open. !

## RS232 1Channel Half-Party-Line/Point to Point Link DCE

11 Maximum Ratings_____

Power supply +V _____ +35V DC
Power supply 5V DC _____ +5.5V DC
Storage temperature _____ -55..+125°C
Operating temperature _____ -40..+85°C

Stresses beyond those listed under ´Maximum Ratings´ may cause permanent damage to the modem. These are stress ratings only, and functional operation of the modem at these conditions is not implied. Exposure to maximum rating conditions for extended periods may affect the modem reliability.

12 Technical Data _____

Data rate:	**0 .. 120 kBit/s**
Bit distortion:	**± 200ns**
max. opt. P_{OUT}:	**100µW / 200/230µm**
	27µW / 50/125µm
	60µW / 62.5/125µm
	700µW /980/1000µm
min. opt. P_{IN}:	**approx. 2µW**
Wavelength:	**660nm or 850nm**
opt. Interface:	**F-ST or F-SMA**
max. Link length:	**3000m GI-fiber**
	2000m HCS-fiber
	70m PO-fiber
Data format el.:	**RS232-C / V24**
el. Interface:	**25-way Sub-D male**
Power supply:	**+5V DC ±5% via Sub-D**
	or 9 .. 30V DC via
	screw terminal
Current cons.:	**70mA (±10%) / 5V**
LED Indicators:	**green = Vcc**
	yellow = RxD (rec. Data)
Case:	**Aluminium extruded**
Dimension:	**app. 72x55x20mm (LxWxH)**
Protection class:	**IP40**
Weight:	**approx. 100g**
Temperature range:	**-40 .. +80°C**

13 Drawing _____

20.5

72.0 (F-ST)

66.0 (F-SMA)

54.5
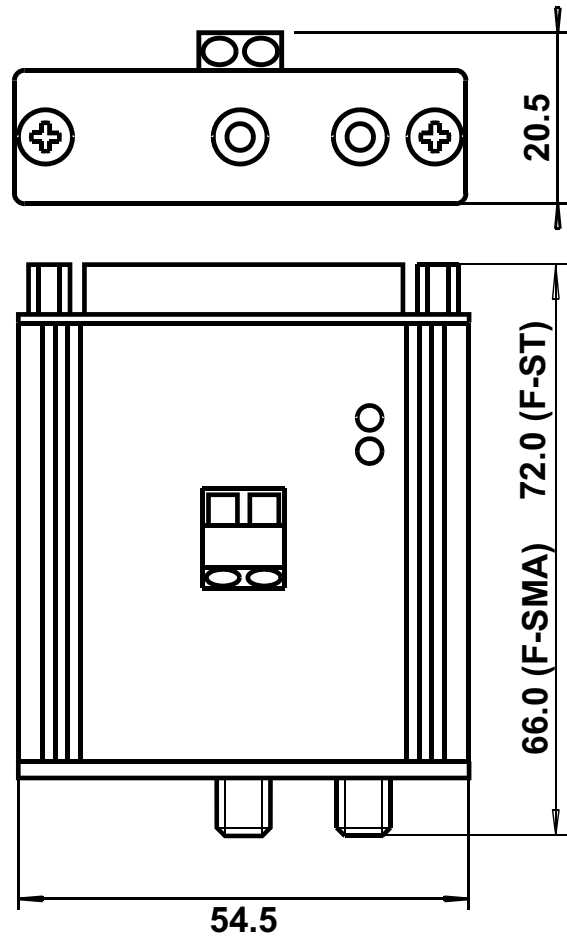
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