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POF– MPX (Plastic Optical Fiber – Multiplexer)

Operating Manual - Version V1.1, Date: 08.05.2007

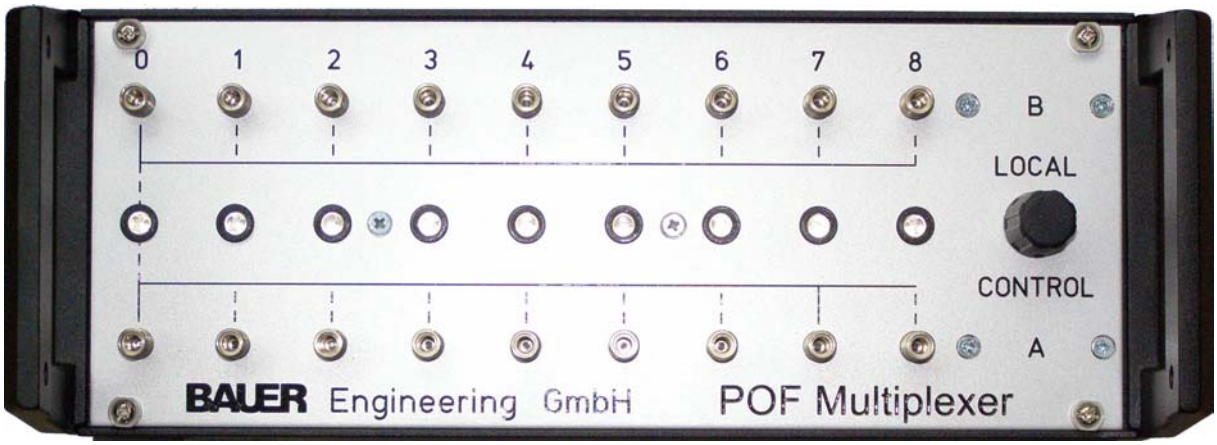


Figure 1: Multiplexer device 2 Channels (A, B) 8 Positions

Contents

0. Declaration of Conformity

CE

The manufacturer,

BAUER Engineering GmbH

Clermont-Ferrand-Allee 36

93049 Regensburg, Germany

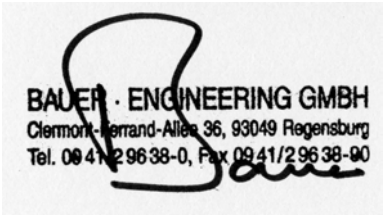
declares, that the device, as described in operating manual, conforms with European standards as follows:

EMC: EN55022 (1991), Group 1, Class B

EN50082-1 (1992) / IEC 801-4

The product herewith complies with the requirements of EMC Directive 89/336/EEC and CE markings have been affixed on the devices accordingly.

Autograph:



1. Safety

Attention!

All statements regarding safety of operation and technical data in this instruction manual will only apply when the unit is operated correctly.

2. Warranty

BAUER Engineering GmbH warrants material and production of the POF SCANNER for a period of 6 months starting with the date of shipment. During this warranty period **BAUER Engineering** will see to defaults by repair or by exchange if these are entitled to warranty.

For warranty repairs or service the unit must be sent back to **BAUER Engineering**. The customer will carry the shipping costs to **BAUER Engineering**, in case of warranty repairs **BAUER Engineering** will carry the shipping costs back to the customer.
If no warranty repair is applicable the customer also has to carry the costs for back shipment.
In case of shipment from outside EU duties, taxes etc. which should arise have to be carried by the customer.

BAUER Engineering warrants the hard- and software determined by **BAUER Engineering GmbH** for this unit to operate fault-free provided that they are handled according to our requirements. However, **BAUER Engineering** does not warrant a fault-free and uninterrupted operation of the unit, to soft- or firmware for special applications nor this operation manual to be error free.

BAUER Engineering is not liable for consequential damages.

2.1 Restriction of warranty

The afore mentioned warranty does not cover errors and defects being the result of improper treatment, software or interface not supplied by us, modifications stated by us or unauthorised maintenance.

Further claims will not be consented to and will not be acknowledged. **BAUER Engineering** does explicitly not warrant the usability or the economical use for certain cases of application**.**

BAUER Engineering reserves the right to change this operating manual or the technical data of the described unit at any time.

3. Introduction

This manual is provided as a help in operating the POF MULTIPLEXER (POF-MPX) device. The POF-MPX is a stand-alone instrument that makes it possible to switch the common port any of the other ports. Switching is done mechanically. This means that the light direction is not defined. The common port could be signed as input or output. The selected position could be controlled manually with control knob or remote per RS232 interface.

4. Function diagram

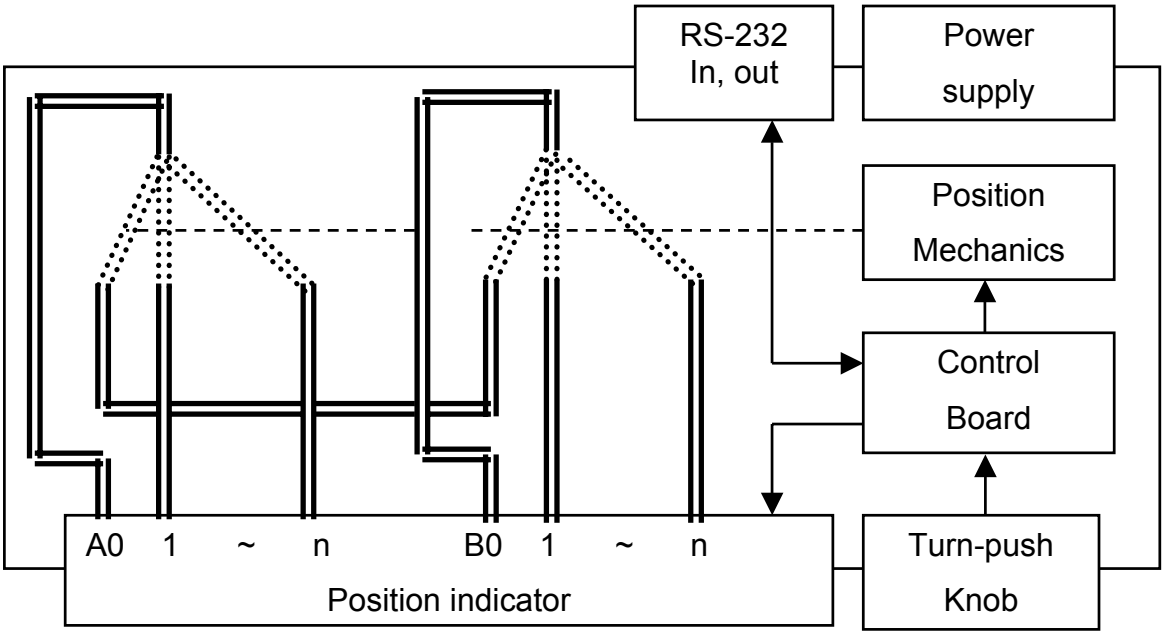


Figure 2: Function block diagram of optical multiplexer

The multiplexer is composed of a position mechanics, a position indicator, a turn-push knob, a control board and a power supply (Fig.2). The control knob makes it possible to select the position. The selection is performed by the rotation of the control knob. The actual selection indicated by a blinked LED bat the port switching isn't executed yet. To execute the selection please push the control knob. After little time the position mechanics switches the common port to the new position. When the new position is reached, the LED stops blinking. The previous position LED switched off. If you have beep function enabled, you hear a short beep. New position you can select remote by RS232, see next capture for details.

5. RS232 communication

5.1 RS232 chain concept

The standard RS232 connection allows to connect one device to the personal computer (PC) COM port, only. The next device needs an additional COM port.

The chain concept makes it possible to connect more devices to a single COM port of the PC (Fig.3).

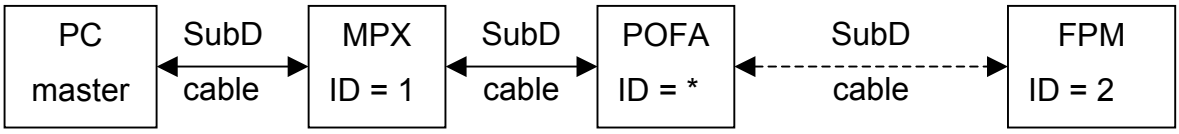


Figure 3: RS232 chain concept

Each device (Multiplexer, POFA, FPM, …) has its own identification address (ID) and two separated COM ports. All messages have recipient and transmitter addresses char. The two COM ports functions as a repeater, if the message has a different recipient ID.

5.2 Devices connection

Connection is realised with a 1:1 female : male SubD-9pin cable (see Fig.4).

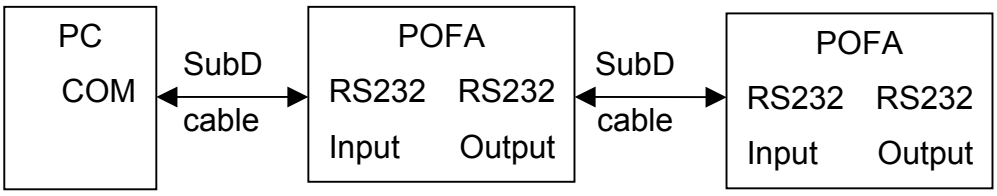


Figure 4: POFA connection

5.3 RS232 settings

Baud rate:	9600
Stop bit:	1
Data bits:	8
Parity:	no
Handshake:	no
Cable:	1:1

For the communication the Hyperterminal program could be used, which is integrated in the Windows operation system. See the correct port setting on figure 5 and the ASCII settings on figure 6.

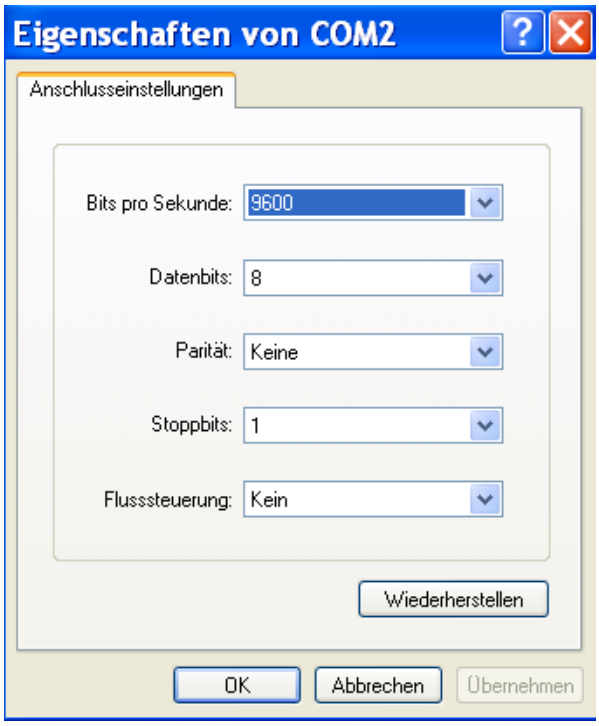


Figure 5: Port configuration

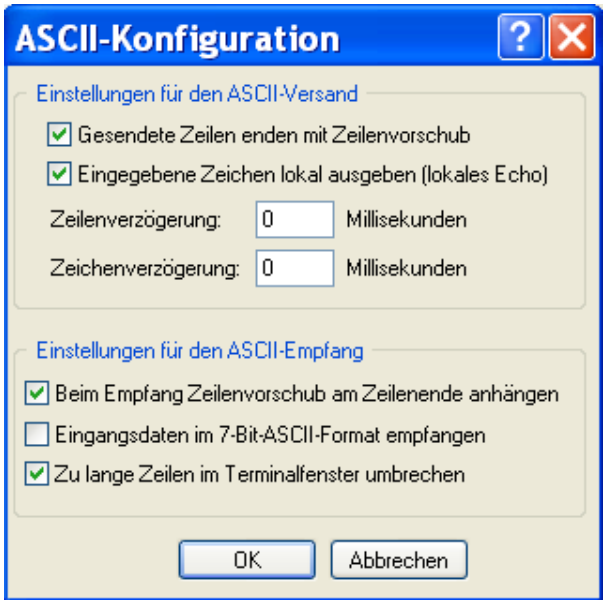


Figure 6: ASCII configuration

5.4 RS232 command structure

Recipient ID char	Sender ID char	Command Char	Parameter Char	Operator char	Data string	End of message char
‘1’	‘P’	‘c’ ~ ’RST’	‘b’	‘:’, ’?’, ’=’	‘1’	CR

Recipient ID char = ‘1’: this char indicates the message for multiplexer
(please don’t change it)

Sender ID char = ‘P’: this char indicates who sends the message
(for example ‘P’ = PC**)**

Command char: the command char identifies the command (Command summary)

Parameter char: the parameter char identifies the parameter of the command char

Operator: the operator indicates whether the selected value

- has to be written (’:’, followed by data)
- has to be read (’?’, without data)
- is an answer on a read command (’=’, with data)

Data: this field is filled with a data string formatted according to the command

End of message: CR is carriage return (=13 dec = 0D hex)

The minimal delay between two sender messages is 50 ms!

5.5 Command summary

Description	Cmd Char	Parameter	Operator char	Data (Range)
Configuration	'c'	b = enable beep c = power check	'?', '=', ':'	<0=off; 1=on>
Echo	'e'	None	':'	<0;1>
Serial Num.	'n'	None	'?', '='	<POF034????>
Port position	'p'	None	'?', '=', ':'	<0; 8>
Status	's'	a = Automatic response[1] t = Tell	'?', '=', ':' '?', '='	0 = OFF 1 = ON 'BUSY', 'OK' or <00;255>[2]
Port statistic[3]	't'	None	'?', '='	
Temperature	'T'	None = actual l = last n = minimum x = maximum	?, =	<10.00; 50.0> °C
Identify	'IDN'	None	'?', '='	Firmware str.
Reset[4]	'RST'	None	none	None

Remarks

1. If a = 1 and position reached, the status message 'OK' is sent automatically.
2. If Error occurs, the error stack (see Error Table) is popped and sent.
3. Statistic = position switch counter.
4. Hardware reset, device is reset after approx. 1 second.

5.6 Examples of commands

Configuration

Get the configuration of beep (beep if selection is reached).

Set syntax	1 P c b ? CR
Response	P 1 c b = 0 CR

Enable beep (beep if selection is reached).

Set syntax	1 P c b : 1 CR
Response	No response

Disable beep (don't beep if selection is reached).

Get syntax	1 P c b : 0 CR
Response	No response

Get the configuration of power check (default is on).

Set syntax	1 P c c ? CR
Response	P 1 c c = 1 CR

Disable power check function.

Get syntax	1 P c c : 0 CR
Response	No response

Enable power check function.

Set syntax	1 P c c : 1 CR
Response	No response

Serial Number

Get the serial number of scanner.

Set syntax	1 P n ? CR
Response	P 1 n = POF??????? CR

Position

Set the position.

Get syntax	1 P p : 1 CR
Response	No response

Get the position.

Get syntax	1 P p ? CR
Response	P 1 p = 1 CR

Status

Get status.

Get syntax	1 P s t ? CR
Response	P 1 s t = BUSY CR

Set automatic status, if the position is reached.

Set syntax	1 P s a : 1 CR
Response	No response

Response if the position is reached.

Response	P 1 s t = OK CR

Statistic

Get the port switch statistic.

Set syntax	1 P t ? CR
Response	P 1 t = 1 0 CR

Temperature

Get the actual temperature.

Set syntax	1 P T ? CR
Response	P 1 T= 29.00°C CR

Get the saved last (in last operating) actual temperature.

Set syntax	1 P T I ? CR
Response	P 1 T I = 29.50°C CR

Get the minimal temperature.

Set syntax	1 P T n ? CR
Response	P 1 T n = 28.00°C CR

Get the maximal temperature.

Set syntax	1 P T x ? CR
Response	P 1 T x = 30.00°C CR

Identify

Device identify (firmware version).

Set syntax	1 P IDN ? CR
Response	P 1 IDN = MPX V1.1 08.05.07 CR

Reset

Reset the scanner.

Set syntax	1 P RST CR
Response	No response

6. Specification

- Port positions: customer specified (maximal 8)
- Channels: customer specified (maximal 2)
- Attenuation: 4.0 ±1.0 dB
- Optical isolation: > 60 dB (= 1:1000000)
- Switch time: < 1 second
- Interface: RS-232 (9600 bps, 8 data, 1 stop, no parity)

Specification are subject to change without notice.

7. Calibration

Position recalibration is recommended after **1 year** or after **200 000 position switchings** by **BAUER Engineering** GmbH.

8. Technical data

- Integrated fiber: 1 mm, index=step, NA=0,5 or customers
  Toray PFDU-CD 1001-23ABD
- Fiber connectors: FSMA or ST
- Control: Local: rotate/push knob
  Remote: RS-232
- RS-232 input: SubD 9 pin female
- RS-232 output: SubD 9 pin male
- Power supply: 85 - 260 Vac / 1A, 50 / 60 Hz
- Room temperature: 15 – 35 °C
- Case: 19/2“, 2HU (HU = High Units)
- Dimension: Width x Length x Height = 235 x 370 x 135 mm
- Weight: 3.2 kg

9. Trouble shooting

Trouble shooting	Problem	Solution
Device doesn't answer.	ID Address (receiver ID char)	MPX device = '1', please check the setting in Product protocol
	Cable	1:1, female : male
LED switch off	Low power supply or power supply noise	Disable the Power check function
Not described trouble shooting.		Please contact the manufacturer **BAUER Engineering**