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5.13 JETTER PASE/PCOM5

5.13.1 General Information

The operating terminals allow for a simple connection to every JETTER PASE-E, PASE-Mikro, Nano and Delta controller.

The operating terminal is connected to the RS232 or RS422 interface of the controller unit.

The software components of the system are fully adapted to the parameters and marginal conditions of the interface.

This offers the user the following advantages:

– Random read and write access to any data within the PLC. Data of existing PLC programs can be displayed and modified directly in the operating terminal. It is not necessary to adapt the PLC program in any respect since it is not required that communications data be stored in a specified address area or data type area.

– The operating terminal automatically polls the freely definable data areas for cyclic data.

– No configuration required within the PLC.

– The protocol is handled entirely by the operating system of the communications module. A PLC program is not required for the handling of the communication.

– The parameters of the interface SER1 are stored in the application description. Modifying of these parameters is possible in the setup mask or each other I/O mask of the terminal at any time.

– The programming system provides a maximum of support to the operator in programming the operating terminal. The definitions (abbreviations) used here are identical with the definitions used within the PLC program (e.g. M3 = flag 3).

5.13.2 Technical Description

The interfacing of the operating terminal to JETTER PASE-E, PASE-Mikro, Nano or Delta controllers is effected by means of the protocol PASE or PCOM5.

Both the PASE and the PCOM5 protocol permit access to one variable at a time only. To allow access to linear blocks of data, the communications driver of the operating terminal automatically segments block-oriented access procedures into separate accesses to the PLC.

The inputs of the PLC can be accessed via the protocol in the read-mode only.

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The data type 32-Bit-Real-Register (Register address 8960 to 9215) is only available with the JETTER PASE-E controller.

Access to alphanumeric text-variables is possible via the data type **T** (24-Bit-Text-Register) only. During such accesses, the terminal will not carry out any length information management or status information management, respectively. The text data are located in the 3-byte register in a flushed manner.

5.13.3 Protocol Parameters Jetter

The following parameters are set for the protocol **PASE/PASE-E**:

Baud rate:	300, 600, 1200, 2400, 4800, **9600**, 19200, 38400, 357000, 500000 Baud
Parity:	**none**, even, odd
Data bits:	5, 6, 7, **8**
Stop bits:	**1**, 1.5, 2
Handshake:	**no handshake**, hardware, software

The following parameters are set for the protocol **PCOM5 :**

Baud rate:	300, 600, 1200, 2400, 4800, **9600**, 19200, 38400, 357000, 500000 Baud
Parity:	none, **even**, odd
Data bits:	5, 6, 7, **8**
Stop bits:	**1**, 1.5, 2
Handshake:	**no handshake**, hardware, software

The default parameters are printed in **bold**.

5.13.3.1 Parameter Maximum Waiting Time for Response

This timer indicates the length of time that the operating terminal will wait for the response from the PLC.
Permitted values are in the range of 0 ms to 65535 ms.
The default value is 500 ms.

5.13.3.2 Parameter Delay Until Connection Setup

Specifies the period of time that the terminal allows to elapse after an unsuccessful attempt to establish the communication and before making another attempt.
Permitted values are in the range of 0 ms to 65535 ms.
The default value is 1000 ms.

5.13.3.3 Parameter Jetter CPU-Type

Depending on the configuration of the PLC a CPU-type must be selected for the protocol. The following CPU-types can be selected:

- PASE-Micro
- PASE-E
- Delta
- Nano

5.13.3.4 Parameter Protocol-Type

As protocol-type the entries PASE-E or PCOM5 can be selected.

5.13.4 Data Types

Type	Description	Access
E	Input	Bit
A	Output	Bit
M	Flag	Bit
R	24 Bit Signed Integer Register or 32 Bit Real Register	Word
T	24 Bit Text Register	Word

Table 5.13-1: Data types

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5.13.5 Address Input (Number of the Variable)

The upper limit of the address input is dependent on the respective PLC. Therefore, please consult the PLC manual. Listed below are explanations of the lower limits or of the differences between the various address ranges, respectively:

Input and Output

PASE-Mikro	E 1 to E 16	A 1 to A 16
PASE-E	E 101 to E 116	A 101 to A 116
	E 201 to E 216	A 201 to A 216
	etc. depending on the number of inputs and outputs	

Flag

M0 to M upper limit (depends on PLC)

Register

24-Bit-Signed-Integer-Register
R 0 to R 8959

24-Bit-Text-Register
T 0 to T 8959

32-Bit-IEEE-Floating-Point-Register (Only available with the PASE-E PLC)
R 8960 to R 9215

5.13.6 Additional Functions

Cyclic Poll Area

In addition to the random read and write access to PLC variables, a memory area comprising 12 bytes is specified in the application description as cyclic poll area.

This data area must be referenced to a **24-Bit-Integer-Register-Variable**. This variable represents the starting address of the data area. To avoid problems with the signs, the use of the 24-Bit-Integer-Registers is limited to the lower 2 bytes. When defining the size in the software, it is only necessary to specify the number of bytes actually used. The software will then increase this size by the number of bytes that are not used.

Memory mapping of the word structured poll area.

Example: Cyclic data starting with register 100, with a size of 12 bytes having been defined

Register	High Byte	Mid Byte	Low Byte
100	Not Used	Write Coordination Byte	Reserved
101	Not Used	Message Channel High Byte	Message Channel Low Byte
102	Not Used	Function Keys LED 1 to 4	Function Keys LED 5 to 8
103	Not Used	Function Keys LED 9 to 12	Function Keys LED 13 to 16
104	Not Used	Function Keys LED 17 to 20	Function Keys LED 21 to 24
105	Not Used	Function Keys LED 25 to 28	Function Keys LED 29 to 32

Table 5.13-2: Word structured poll area

Parallel Message System

With the parallel message system, individual bits in the controller are assigned status messages.

This data area must be referenced to a **24-Bit-Integer-Register-Variable**. This variable represents the starting address of the data area. To avoid problems with the signs, the use of the 24-Bit-Integer-Registers is limited to the lower 2 bytes. When defining the size in the programming software, it is only necessary to specify the number of bytes actually used. The software will then increase this size by the number of bytes that are not used.

Memory Mapping of the Parallel Message System

Example: Status messages starting with register 200, with a size of 6 bytes having been defined

Register	High Byte	Mid Byte	Low Byte
200	Not Used	Message 9 to 16	Message 1 to 8
201	Not Used	Message 25 to 32	Message 17 to 24
202	Not Used	Message 41 to 48	Message 40 to 33

Table 5.13-3: Memory mapping of the status messages

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5.13.7 Physical Interfacing

Pin	Designation	Function
1	nc	not connected
2	RD	Receive Data
3	TD	Transmit Data
4	DTR	Data Terminal Ready
5	GND	Signal Ground
6	nc	not connected
7	RTS	Request To Send
8	CTS	Clear To Send
9	nc	not connected

Table 5.13-4: Pin assignment X2 RS232

Pin	Designation	Function
6	TD	Transmit Data
15	CTS	Clear To Send
17	RTS	Request To Send
18	RD	Receive Data
25	SGND	Signal Ground

Table 5.13-5: Pin assignment universal interface SER1 RS232

Pin	Designation	Function
1	Shield	Shielding
2	T(A)	Transmit Data, Channel A
3	R(A)	Receive Data, Channel A
4	RTS(A)	Request To Send, Channel A
5	CTS(A)	Clear To Send, Channel A
6	nc	not connected
7	nc	not connected
8	SG	Signal Ground
9	T(B)	Transmit Data, Channel B
10	R(B)	Receive Data, Channel B
11	RTS(B)	Request To Send, Channel B
12	CTS(B)	Clear To Send, Channel B
13	nc	not connected
14	nc	not connected
15	nc	not connected

Table 5.13-6: Pin assignment X2 RS485

Pin	Designation	Function
8	T(A)	Transmit Data, Channel A
9	T(B)	Transmit Data, Channel B
11	SGND	Signal Ground
22	R(A)	Receive Data, Channel A
23	R(B)	Receive Data, Channel B

Table 5.13-7: Pin assignment universal interface SER1 RS485

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5.13.7.1 Connecting Cable RS232 - Jetter PASE-E / PASE-Mikro

The following wiring diagram does not apply to terminals with universal interface.

TesiMod
Operating Terminal

Jetter
PASE-E/PASE-Mikro



D-Subminiature
Male Connector
9-pin

D-Subminiature
Male Connector
9-pin

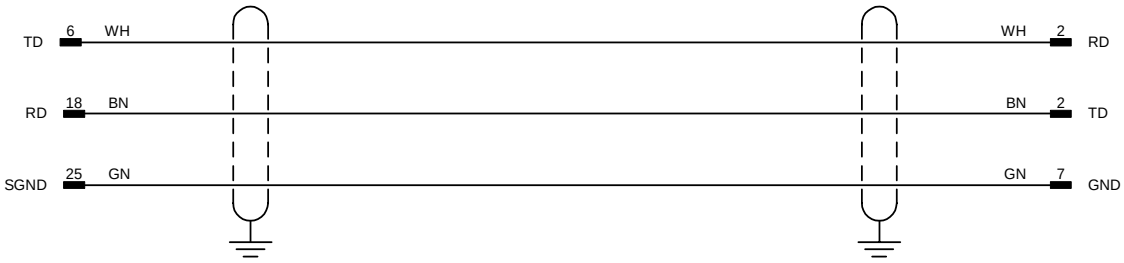
Each end of the shield is connected to the metallic enclosure.

5.13.7.2 Connecting Cable Universal Interface SER1 RS232 - Jetter PASE-E / PASE-Mikro

The following wiring diagram applies to terminals with universal interface only.

TesiMod
Operating Terminal

Jetter
PASE-E, PASE-Mikro



D-Subminiature
Male Connector
25-pin

D-Subminiature
Male Connector
9-pin

Each end of the shield is connected to the metallic enclosure.

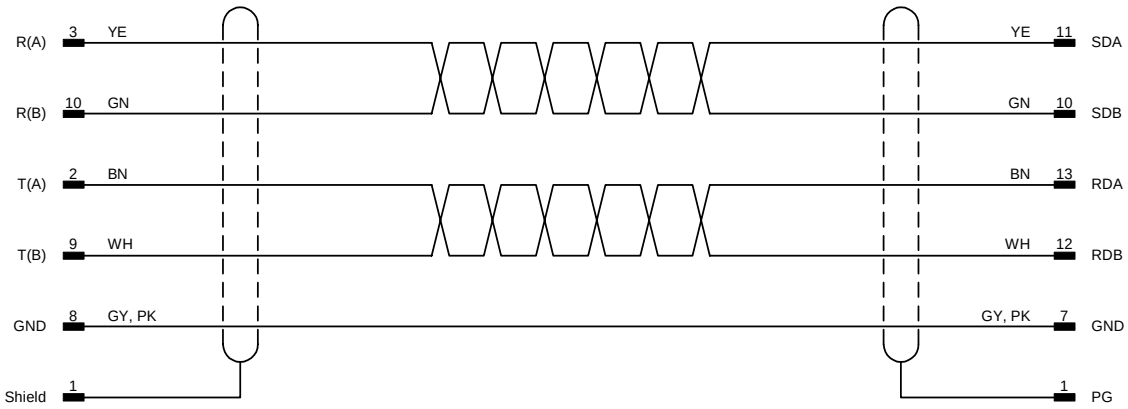
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5.13.7.3 Connecting Cable RS422 - Jetter Nano / Delta

The following wiring diagram does not apply to terminals with universal interface.

TesiMod
Operating Terminal

Jetter Nano / Delta
PCOM5



D-Subminiature
Male Connector
15-pin

D-Subminiature
Male Connector
15-pin

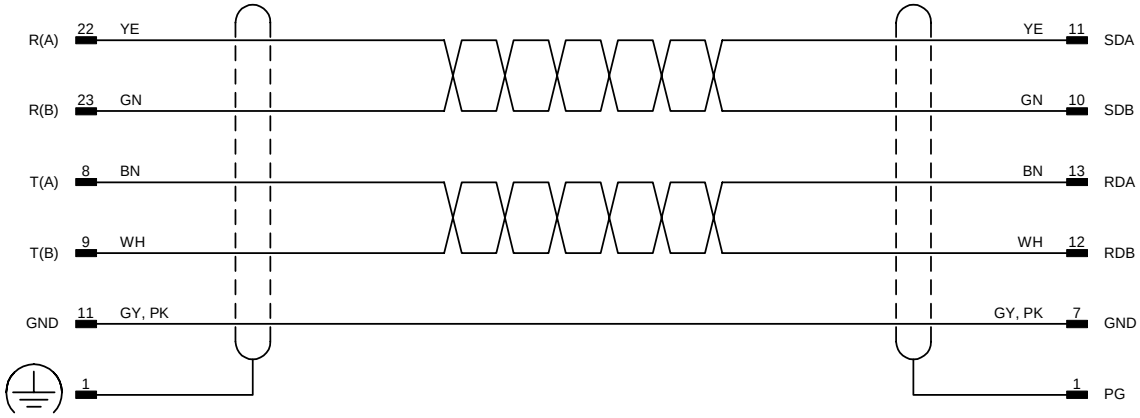
Each end of the shield is connected to the metallic enclosure.
Each end of the shield / metallic enclosure is connected to Pin 1.

5.13.7.4 Connecting Cable Universal Interface SER1 RS422 - Jetter Nano / Delta

The following wiring diagram applies to terminals with universal interface only.

TesiMod
Operating Terminal

Jetter Nano / Delta
PCOM5



D-Subminiature
Male Connector
25-pin

D-Subminiature
Male Connector
15-pin

Each end of the shield is connected to the metallic enclosure.
Each end of the shield / metallic enclosure is connected to Pin 1.

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5.13.8 Error Messages

Code	1	E_SLAVE_NOT_READY	Slave not ready or defective cable
	2	E_PROTOKOL	Characters received do not conform with protocol
	3	E_FRAME	Character frame error
	10	E_NO_DEFINE	No cyclic data defined
	16	E_OVERRUN	Receive buffer overrun
	40	E_SYS_ADDRESS	Incorrect system variable
	50	E_WRITE_TO_INPUT	Write access to inputs not permissible
	51	E_NO_REAL_TYPE	Real-registers are not permissible with PASE-Mikro

PCOM5-specific error messages

Code	52	E_NOT_STX	No STX (0xDA) at beginning of telegram
	53	E_STATUS_PARA	Invalid parameter in telegram (status bit 1)
	54	E_STATUS_COMAND	Invalid command in telegram (status bit 2)
	55	E_STATUS_TIMEOUT	Timeout (status bit 3)
	56	E_STATUS_ERROR	General error in status (status bit 4)
	57	E_RECV_ERROR	Error on receiving the telegram (status bit 6)