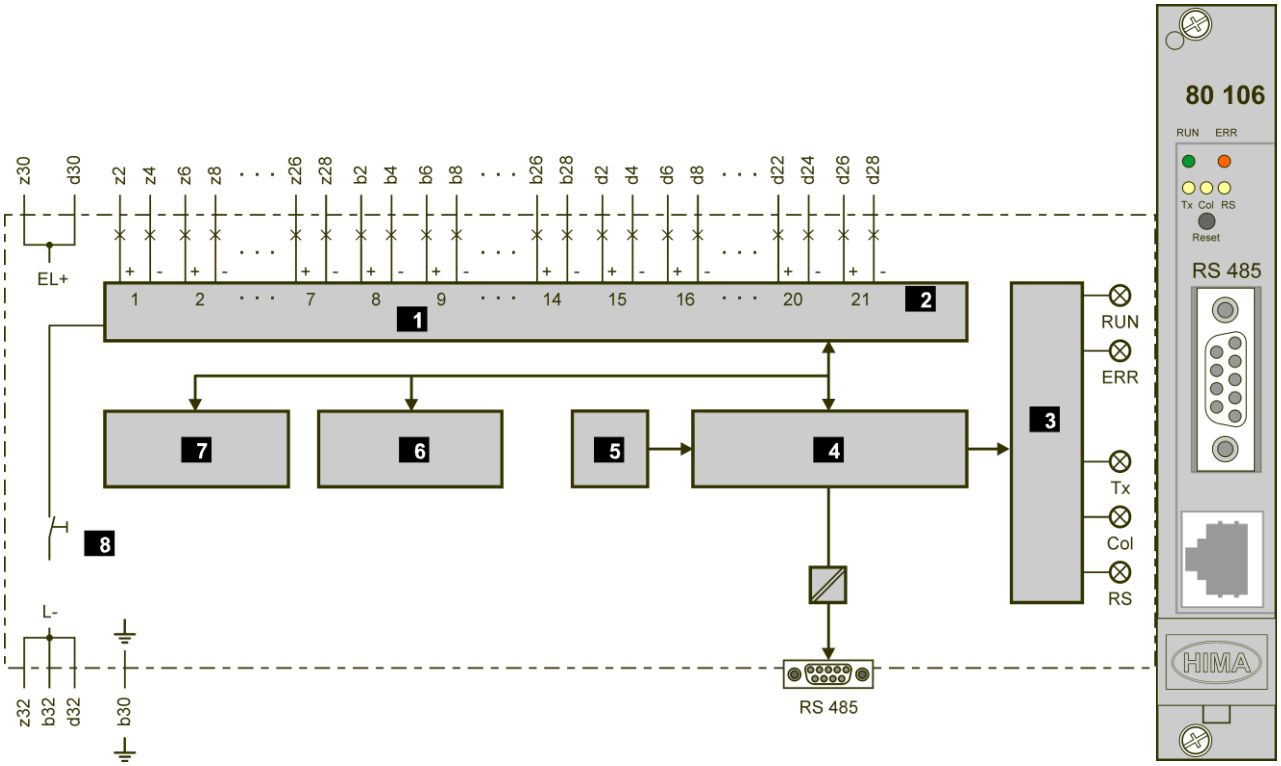
80 106: Communication Module

For data transmission from the Planar4 system via PROFIBUS DP

No safety function is performed by the communication module.

In terms of safety technology, the module features interference-free operation with the Planar4 system. This is achieved through specific decoupling measures on the interfaces.



1 Multiplexer
2 21 channels (internal communication)
3 Indicators
4 Processor
5 Pulse
6 Data memory
7 Program memory
8 Reset

Figure 1: Block Diagram

The communication module is used to transfer data from the modules of the Planar4 system to other systems.

Data are transferred via PROFIBUS DP, RJS485 interface. For further details, refer to the Planar4 safety and system manual (HI 804 003 E).

Up to 21 Planar4 modules can be connected to the communication module via the channels (z2-z4, z6-z8, …, d26-d28).

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English translation of the German original document: HI 804 026 D, 80 106 (1516)

HIMA recommends using a Planar4 subrack with backplane. This subrack already contains the required connections for internal communication. Any of the Planar4 modules can be inserted in slots 1…20. Slot 21 is reserved for a reset module or a communication module.

The error messages (ERR) on all the Planar4 modules (AS 10 and higher) of a subrack can be acknowledged using the reset key when the triggering error is no longer present.

The reset key does not trigger the reset of the controller!

Processor	32-bit
Main memory	4…16 MB
Connectors	RS485 (half duplex), RJ-45 (not used)
Operating data	24 VDC / 300 mA
Space requirement	3 RU, 4 HP

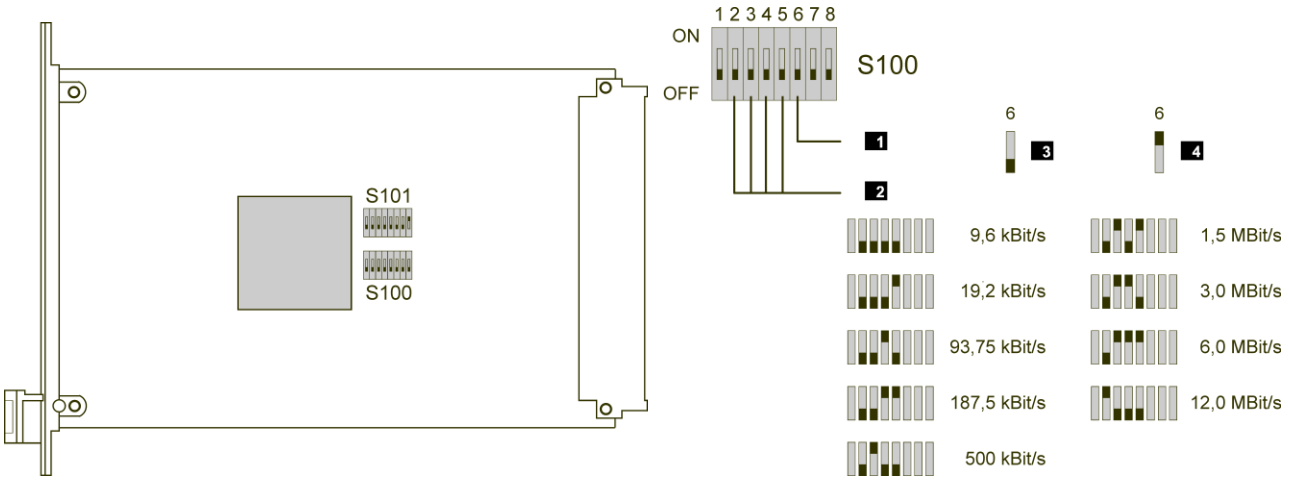
After switching on the supply voltage, a memory test is performed; during this test, the RUN and ERR LEDs blink synchronously. If RUN is lit and ERR is blinking, a communication error occurred between the Planar4 modules and the communication module.

LEDs During Operation

LED	LED	Mode of Operation
RUN = ON	ERR = OFF	Communication active
RUN = Blinking	ERR = Blinking	Booting of the communication module
RUN = OFF	ERR = ON	Error in the communication module
RUN = OFF	ERR = Blinking	Error in the communication module Uploading of errors **Do not remove the communication module!**
RS = OFF		No PROFIBUS DP slave activities on the bus
RS = blinking		The slave is waiting for being set up by the PROFIBUS DP master
RS = ON		Data is exchanged between slave and PROFIBUS DP master

Table 1: LEDs During Operation

Switches for Settings



Position of the module switches

1 Switch 6 for communication

2 Switch 2…5 for Configuring the Baud Rate (OS V1.12 and Higher)

3 Setting for PROFIBUS

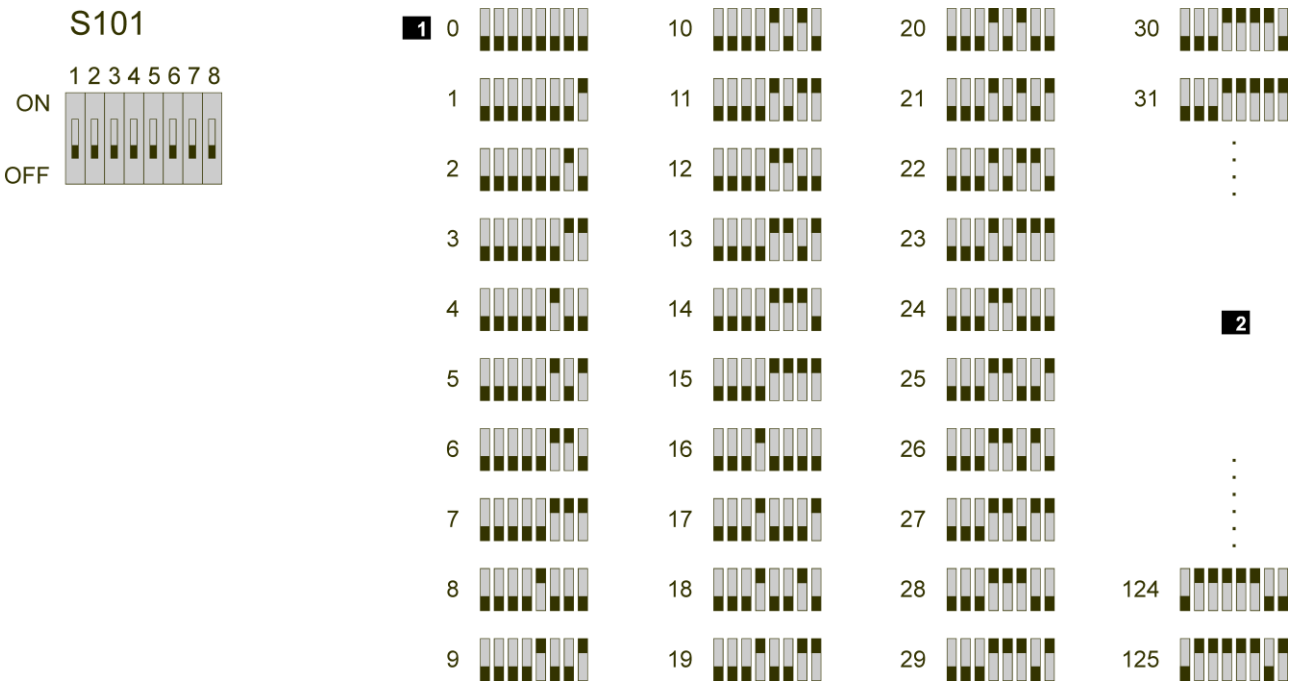
4 Not allowed

Figure 2: Position of the Module Switches

Modules with operating system versions up to and including V1.11 operate with automatic detection of the baud rate.

Communication via PROFIBUS DP

The communication modules are connected to a bus system via the RS485 interface. Each module is a PROFIBUS slave with its own slave number. The slave number is configured using switches located on the module.



1 Slave number

2 The switch positions comply with the dual code

Figure 3: PROFIBUS Slave Number Setting

The number of PROFIBUS stations on one bus segment is limited to 32. The number of slaves on one bus segment is limited to 31. Using repeaters, the system can be extended to 4 bus segments.

The standard setting for PROFIBUS data transfer is preset on the module: 1 stop bit, even parity bit. This setting cannot be changed.

Pin Assignment of the RS485 Interface

Pin	RS485	Signal	Function
1	-	Shield	Shielding, protective ground
2	-	RP	5 V, decoupled with diodes
3	A/A'	RxD/TxD-A	Receive/send data A
4	-	CNTR-A	Control signal A
5	C/C'	DGND	Data reference potential
6	-	VP	5 V, supply voltage positive pole
7	-		Not used
8	B/B'	RxD / TxD-B	Receive/send data B
9	-	CNTR-B	Control signal B

Table 2: Pin Assignment of the RS485 Interface

i If the communication module is used outside the Planar4 subrack with backplane, ensure during wiring that the communication lines between the Planar4 modules and the communication module are twisted in pairs and additionally shielded, if possible. The lines must be connected with proper polarity and may not exceed a length of 1 m. One end of the shielding must be connected to ground.