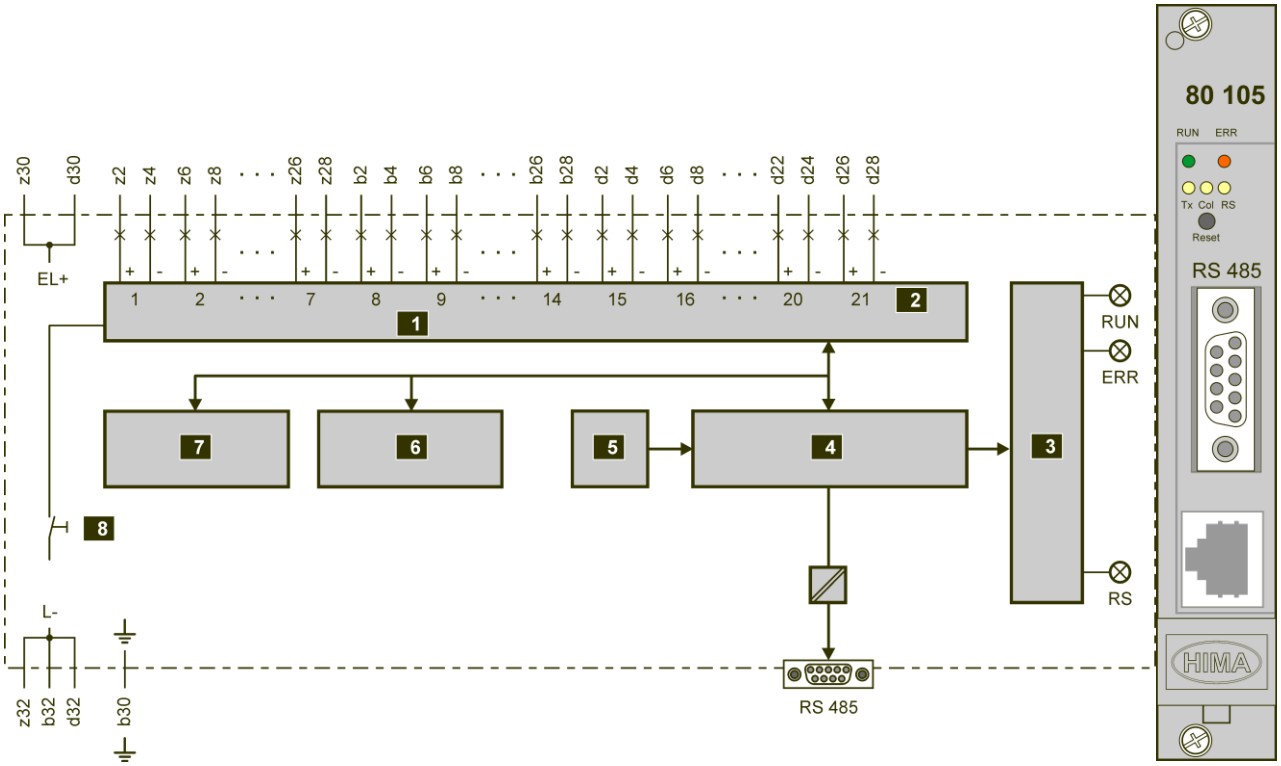
80 105: Modbus Communication Module

For data transfer from the Planar4 system via Modbus

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
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 Modbus, RJS485 interface. For further details, refer to the Planar4 modules and 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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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!

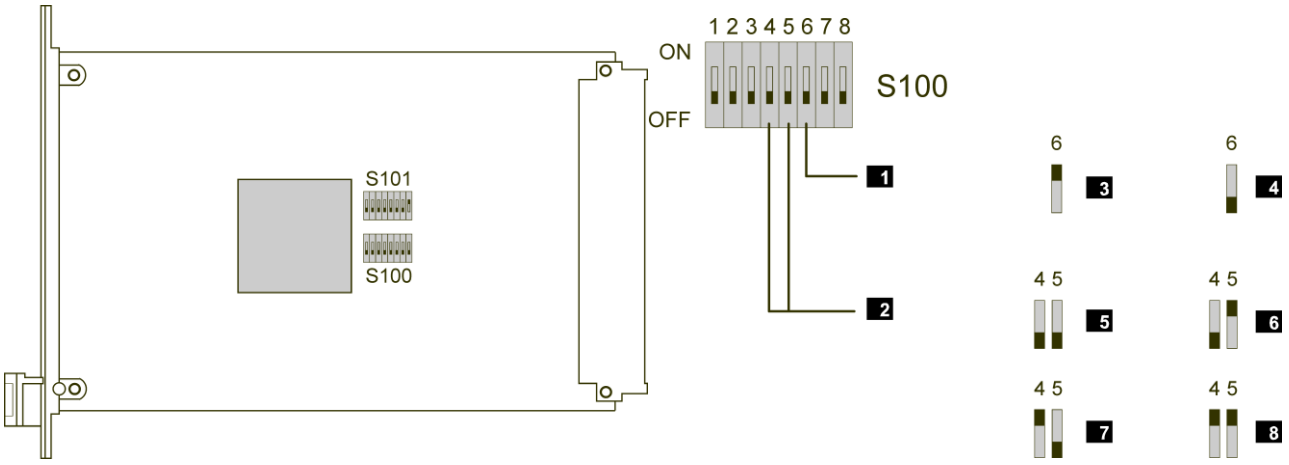
Processor	32-bit
Main memory	4…16 MB
Connectors	RS485 (half duplex), RJ-45 (not used)
Operating data	24 VDC / 300 mA
Space requirement	3 RU, 4 HP

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

RUN	Module ready for operation or in faulty-free operating state
ERR	Module in error state
Tx	Not used
Col	Not used
RS	RS485 interface in operation

Switches for Settings

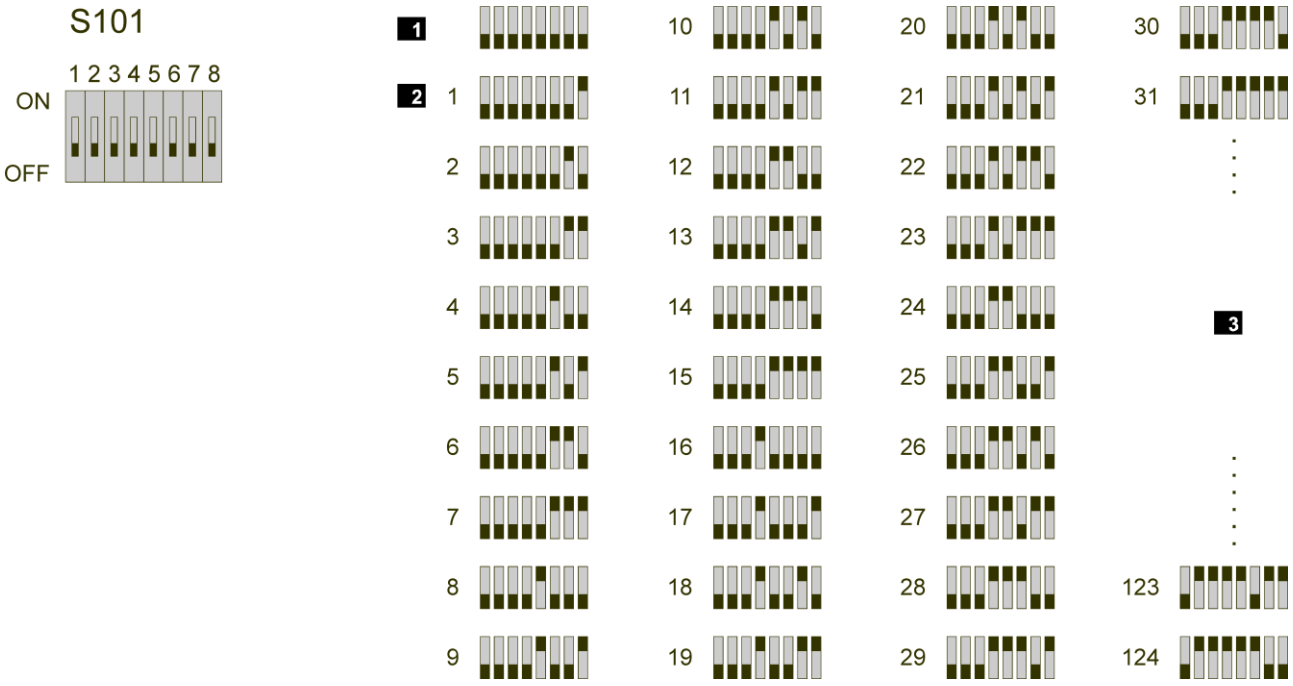


1 Switch 6 for communication
2 Switch 4 and 5 for configuring the baud rate
3 Modbus
4 Not allowed
5 9600 bit/s
6 19 200 bit/s
7 57 600 bit/s
8 Not allowed

Figure 2: Position of the Module Switches

Communication via Modbus

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



1 Not allowed

2 Slave number

3 The switch positions comply with the dual code

Figure 3: Modbus Slave Number Setting

The number of slaves on one bus segment is limited to 31. Using repeaters, the system can be extended to 4 bus segments. In doing so, the number of slaves is limited to a total of 124.

The standard setting for Modbus 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 1: 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.