

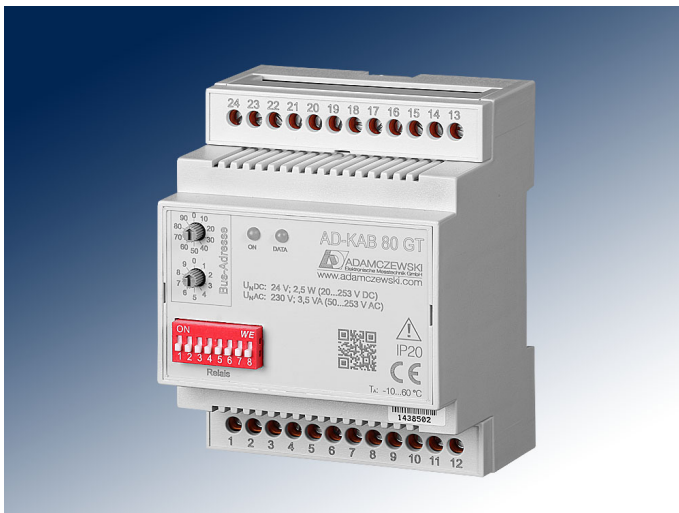
Description

With the RS485 relay modules AD-KAB 40 GT and AD-KAB 80 GT, 4 or 8 potential-free NO contacts can be controlled from a distance via RS485 bus. The used Modbus-RTU protocol on these devices on the RS485 bus is an open standard and therefore extremely flexible. The up to eight relays can be individually controlled via a separate Modbus register. The devices are equipped with two rotary coding switches, which can be used to set the bus address on the device. If the DIP switch is active (in manual operation) bus commands for the respective relay are ignored because the manual operation has priority. Due to the compact and efficient switching power supply, the devices can be operated in a wide supply voltage range.

Application

Remote control of loads such as valves or motors in building automation as well as in automation technology.

Attention: A mixed wiring of the relays of extra low voltage and grid voltage is only permitted to a limited extent. For example, care must be taken that relays with 24 V and 230 V signals are not adjacent.



Specific characteristics

- RS485-Bus
- Modbus-RTU protocol
- rotary coding switch for setting the bus address
- DIP switch for manual relay operation
- 4 or 8 potential free relays
- wide range power supply

Business data

Article number

AD-KAB 40 GT	RS485 Relaismodul mit 4 Relais
AD-KAB 80 GT	RS485 Relaismodul mit 8 Relais

Accessory

USB/RS485 converter	AD-VarioPass3
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Technical specifications

RS485-Bus

Software protocol	Modbus-RTU
Data format (default setting)	19200, e, 8, 1
Max. bus users	99
Bus termination	120 ohms both sides at the end
Max. length of bus	500 m (no spur lines)
Cable	twisted and shielded

Relay

Maximum switching load AC	250 V, 2 A
Maximum switching load DC	50 V, 2 A
Contact construction	closing contact
Switching operations mechanical	10000000
At 230V/2A AC, cos(phi)=1	600000
At 230V/2A AC, cos(phi)=0,4	200000
At 24V/1 A DC	200000

Supply

Voltage range AC	50 ... 253 V AC, 50/60 Hz
Nominal voltage AC	230 V AC
Voltage range DC	22 ... 253 V DC
Nominal voltage DC	24 V DC
Power consumption AC / DC	3,5 VA / 2,5 W

Transmission behaviour

Response time	max. 5 ms
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Housing

Dimensions (WxHxD)	71x90x58 mm
Type of protection	IP 20
Connection method	detachable terminal clamp
Terminals, wire cross section	2,5 mm ² flex wire / 4 mm ² one wire
Bolting torque terminals	0,5 Nm
Weight	~ 200 g
Manner of fastening	35 mm DIN rail 35mm

Environmental conditions

Ambient temperature	-10 ... 60 °C
Storage and transport	-10 ... 70 °C (no condensation)

EMC

Product family standard	EN 61326 ¹⁾
Emitted interference	EN 55011, CISPR11 Cl. B

Electrical safety requirements

Product family standard	EN 61010-1
Overvoltage category	II
Pollution degree	2

Galvanic isolation, test voltages

Power supply / RS485-Bus	3 kV, 50 Hz (1 min.)
Power supply / relay output	3 kV, 50 Hz (1 min.)
Relay output / RS485-Bus	3 kV, 50 Hz (1 min.)

Protection circuits

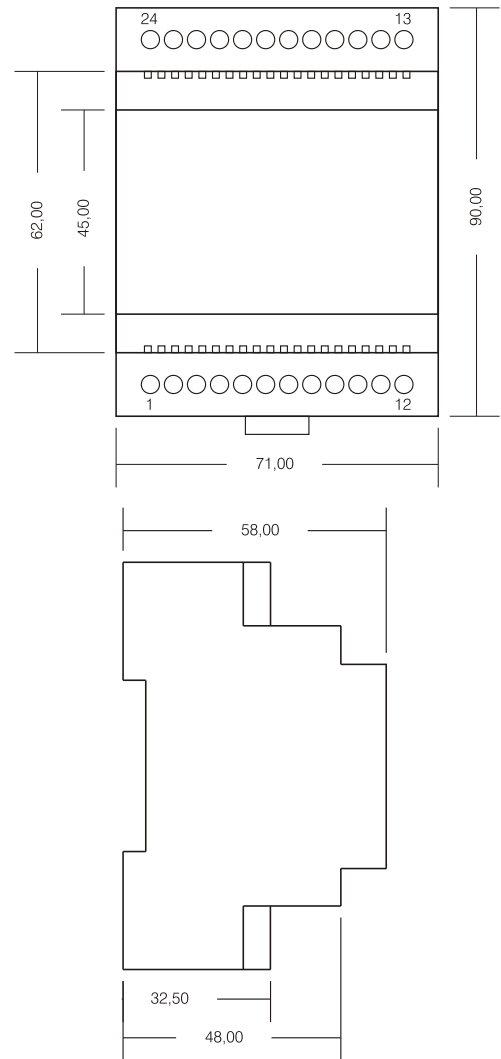
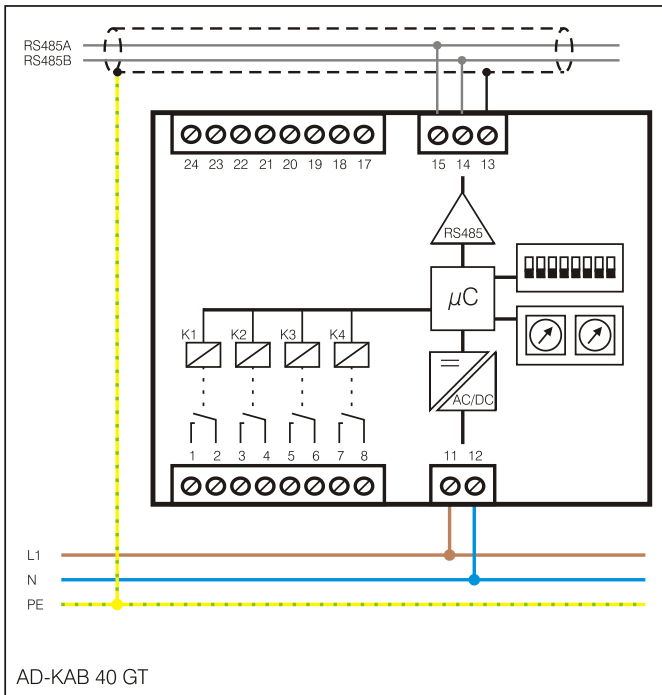
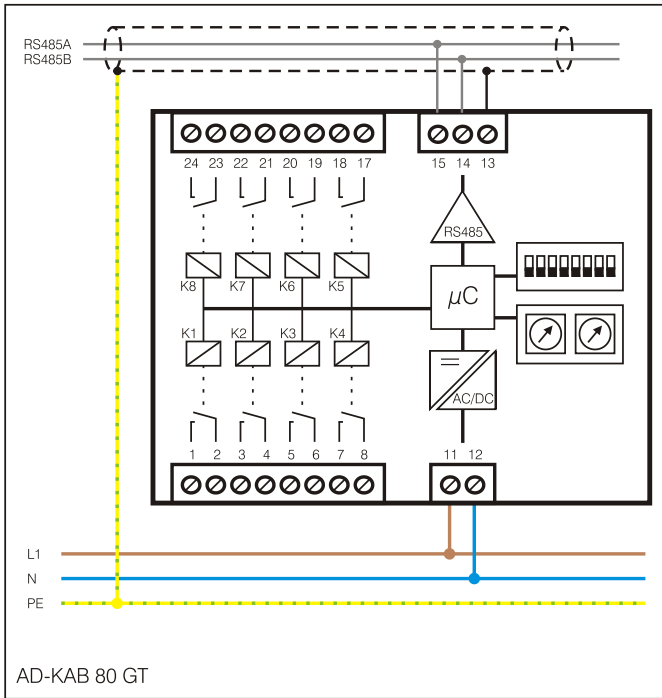
RS485-Bus	electrical surge protection
Power supply	electrical surge and reverse current protection

¹⁾ During checking, slight signal deviations are possible.

RS485-Relay Module

Block and wiring diagram

Dimensions



RS485-Relay Module

Modbus communication

data rate: 19200 Baud (Bits/s)	parity: even	data bits: 8	stop bits: 1
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The bus address is set at the front-mounted rotary coding switches. Address 0 is not allowed for bus operation. However, at this zero position the device can always be reached via the standard data format (19200, e, 8.1). Position 0 thus represents a service position, which can be used with incorrect parameterization.

The AD-KAB 40/80 GT supports two Modbus functions. These are the functions **"Read Holding Registers" (0x03)** and **"Write Multiple Registers" (0x10)**. The function **"Read Holding Registers"** data can be read from the device and data is written with **"Write Multiple Registers"**. The individual register width is 16 bits.

Please refer to the Modbus specification for a detailed description of the Modbus communication. This is freely available online, but can also be obtained from the Adamczewski homepage.

The following Modbus data are accessible via the RS485 bus:

Each relay can be read or written (0 or 1) via its assigned register (DOUT_RELAIS_x). But it is also possible to manipulate or read out all relays with the register DOUT_RELAIS_COMPLETE. For AD-KAB 80 GT corresponds bit 0 of the word to relay 1 and bit 7 to the relay 8. With the AD-KAB 40 GT corresponding to relay 4.

start address	register number	name	unit	data type	read	write
relay control:						
40501	1	DOUT_RELAY_1		3	1	1
40502	1	DOUT_RELAY_2		3	1	1
40503	1	DOUT_RELAY_3		3	1	1
40504	1	DOUT_RELAY_4		3	1	1
40505	1	DOUT_RELAY_5		3	1	1
40506	1	DOUT_RELAY_6		3	1	1
40507	1	DOUT_RELAY_7		3	1	1
40508	1	DOUT_RELAY_8		3	1	1
40601	1	DOUT_RELAY_COMPLETE		3	1	1

list-parameters:

start address	register number	name	unit	data type	read	write
41001	1	LIST_RS485_BAUDRATE		3	1	1
41002	1	LIST_RS485_PARITY		3	1	1
41003	1	LIST_RS485_STOPBIT		3	1	1

legend of the data types:

U08: 1	S08: 2	U16: 3	S16: 4	U32: 5	S32: 6	float: 7
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coding of the list parameters (list index:value):

parameter	0	1	2	3	4	5	6	7	8	9
baudrate	0:2400	1:4800	2:9600	3:14k4	4:19k2	5:28k8	6:38k4	7:57k6	8:76k8	9:115k2
stop bit	0:1	1:2								
parity	0:even	1:odd	2:none							