SIEMENS

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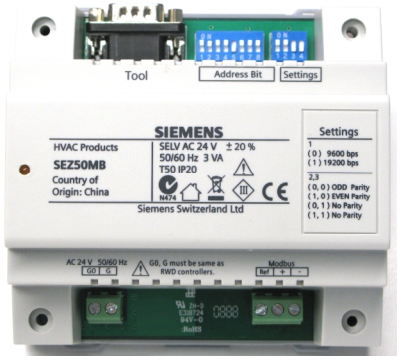
Operating Instructions SEZ50MB

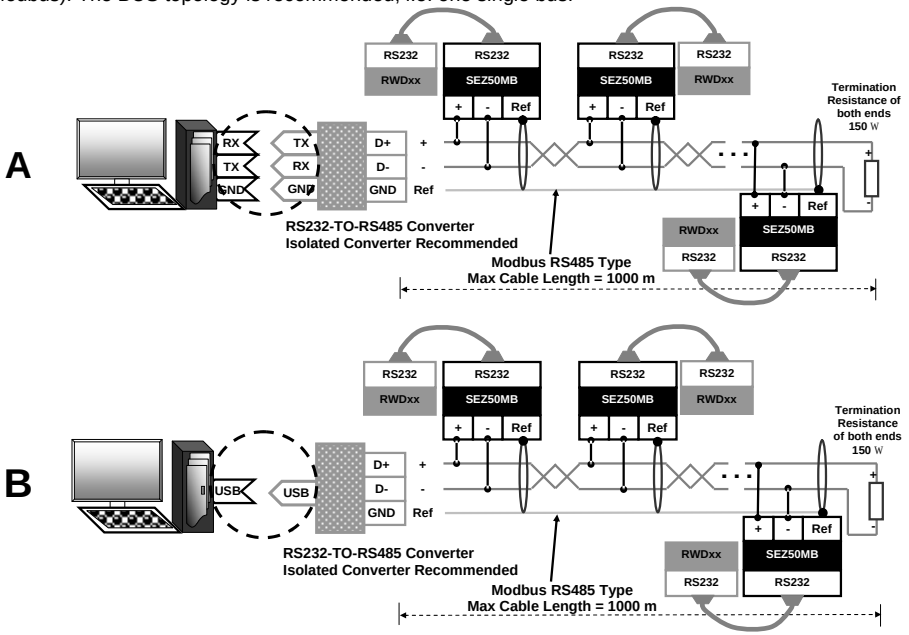
Product Overview:

The SEZ50MB unit is a RS485 type Modbus communication interface (RTU mode only). It connects with RWD controllers via RS232 interface for remote monitoring functions. SEZ50MB Modbus communication can be developed by users according to Modbus Application Protocol Specification V1.1b (www.Modbus.org), or users can use Siemens Modbus SW tool as the SEZ50MB Modbus interface.



Modbus Connection

The SEZ50MB Modbus Interface Unit enables remote monitoring on RWD devices on the same network (Modbus). The BUS topology is recommended, i.e. one single bus.



Power Supply Interface

G & G0 terminals are for AC 24 V SELV power supply (LED indicates power on).

Modbus RS485 Interface

+, - Differential Signals
Ref Differential COMMON

RS232 Interface to RWD Device (DB9 Connector)

A 1.5 meters long RS232 cable is provided together with SEZ50MB and the RS232 cable is one-to-one type (the same pin numbers are connected at both ends of this cable). The DB9 male socket of the RS232 cable will be connected to RWD device while the female plug will be connected to SEZ50MB.

Pin No.	Descriptions	Functions
1	Not Used	Not Used
2	RXD	Receive Input
3	TXD	Transmit Output
4	Voltage Output 1	DC +12 V
5	Reference Ground RS232	0 V
6	Not Used	Not Used
7	Voltage Output 2	DC -12 V
8	Not Used	Not Used
9	Not Used	Not Used

Device Address Bit

The SEZ50MB device address can be set via an 8-way DIP switch and the valid addresses are 1 to 247.

DIP switch Position à	1	2	3	4	5	6	7	8
Address No.	**Bit7**	**Bit6**	**Bit5**	**Bit4**	**Bit3**	**Bit2**	**Bit1**	**Bit0**
Broadcast Address (= 0)	0	0	0	0	0	0	0	0
User Addresses (= 1 to 247)	0	0	0	0	0	0	0	1
	1	1	1	1	0	1	1	1
Reserved Address (= 248 to 255)	1	1	1	1	1	0	0	0
	1	1	1	1	1	1	1	1

Device Setting

The communication settings such as baud rate, parity and stop bits can be set via a 4-way DIP switch.

DIP switch Position	Function Settings	ON (1) or OFF (0)	
1	Baud Rate Selection	**ON**	**19200bps (Default)**
		OFF	9600bps
2, 3	Parity & Stop Bits	OFF OFF	ODD Parity, 1 Stop Bit
		ON OFF	**Even Parity, 1 Stop Bit (Default)**
		OFF ON	None Parity, 2 Stop Bits
		ON ON	None Parity, 2 Stop Bits
4	Reserved	ON	No Function
		OFF	**No Function (Default)**

Before turning on the power supply of SEZ50MB, please do the followings:

- Check all required connections on the RWD device;
- Configure RWD device to a desired application manually or via RWD SW tool and check if the standalone operation of this RWD is working properly (refer to RWD datasheet for more details);
- Set the 8-way DIP switch for SEZ50MB device address. If more than one SEZ50MBs are used within the same Modbus network, different device addresses should be used for every SEZ50MB;
- Set the 4-way DIP switch for SEZ50MB communication settings, and the same communication settings should be applied to all SEZ50MBs connected to the same network;
- Connect the RS232 cable between RWD device and SEZ50MB;
- Connect PC RS232 port with a RS232-TO-RS485 converter or connect USB port with a USB-TO-RS485 converter (converter with electrical isolation is highly preferred);
- Connect the RS485 side of the converter with the Modbus interface (+, -, Ref) of SEZ50MB – If multiple SEZ50MBs are used on the same Modbus network, it is recommended to use a single BUS type topology and to terminate the Modbus network with a termination resistor of 150 Ω for the best performance.

SEZ50MB Modbus Specifications

The **Device Addresses** for SEZ50MBs are from 1 to 247 while the valid **Function Codes** are as follows:

Function Code (Hex)	Data Length	Functions	RWD Parameter Addressable Ranges
0x01	1	Read R/W Flag (Coil)	0xxxx e.g. 00001, 00003
0x05	1	Write R/W Flag (Coil)	
0x02	1	Read R-only Flag (Discrete Input)	1xxxx e.g. 10004
0x03	2	Read R/W Register (Holding Register)	4xxxx e.g. 40109, 40111
0x10	2	Write R/W Register	
0x04	2	Read R-only Register (Input Register)	3xxxx e.g. 30001, 30007

Examples of using different function codes

Using Function Code 0x01 to read RWD32S parameter (ADDR = 00001) called "**bFrostEnable**" with Modbus ADDR = 0000:

	SEZ50MB Device Address	Function Code	Modbus Address		Data Length		CRC16 Check	
Send	F7	01	00	00	00	01	E9	5C

	SEZ50MB Device Address	Function Code	Byte Count	Status	CRC16 Check	
Respond	F7	01	01	01 (bFrostEnable = Enable)	A3	C0

Using Function Code 0x02 to read RWD68 parameter (ADDR = 10005) called "**Q1_output**" with Modbus ADDR = 0004:

	SEZ50MB Device Address	Function Code	Modbus Address		Data Length		CRC16 Check	
Send	F7	02	00	04	00	01	EC	9D

	SEZ50MB Device Address	Function Code	Byte Count	Status	CRC16 Check	
Respond	F7	02	01	00 (Q1_output = Off)	92	00

Using Function Code 0x03 to read RWD68 parameter (ADDR = 40117, 40118) called "**SP3day**" with Modbus ADDR = 0116, 0117:

	SEZ50MB Device Address	Function Code	Modbus Address		Data Length		CRC16 Check	
Send	F7	03	00	74	00	02	90	87

	SEZ50MB Device Address	Function Code	Byte Count	Status (IEEE 754 format)	CRC16 Check	
Respond	F7	03	04	41 E0 00 00 (SP3 day setpoint 28 °C)	79	F6

Using Function Code 0x04 to read RWD68 parameter (ADDR = 30055, 30056) called "**RWDAPP**" with Modbus ADDR = 0054, 0055:

	SEZ50MB Device Address	Function Code	Modbus Address		Data Length		CRC16 Check	
Send	F7	04	00	36	00	02	85	53

	SEZ50MB Device Address	Function Code	Byte Count	Status (IEEE 754 format)	CRC16 Check	
Respond	F7	04	04	42 48 00 00 (Application No. is 50)	92	00

Using Function Code 0x05 to write RWD32S parameter (ADDR = 00001) called "**bFrostEnable**" with Modbus ADDR = 0000:

	SEZ50MB Device Address	Function Code	Modbus Address		Value		CRC16 Check	
Send	F7	05	00	00	FF	00	98	AC

	SEZ50MB Device Address	Function Code	Modbus Address		Value		CRC16 Check	
Respond	F7	05	00	00	FF	00	98	AC

Note: Only two possibilities for Value above - writing a "0" using Value = 00 00
or writing a "1" using Value = FF 00.

Using Function Code 0x10 to write RWD68 parameter (ADDR = 40117, 40118) called "**SP3day**" with Modbus ADDR = 0116, 0117:

	SEZ50MB Device Address	Function Code	Modbus Address		Data Length		Byte Count
Send	F7	10	00	74	00	02	To below

Data Length	Byte Count	Status (IEEE 754 format)	CRC16 Check	
From Above	04	41 E8 00 00 (SP3 day setpoint 29 °C)	7C	FB

	SEZ50MB Device Address	Function Code	Modbus Address		Data Length		CRC16 Check	
Respond	F7	10	00	74	00	02	15	44

Note: This operating instruction provides information about the setup and the overall Modbus requirements. For RWD parameters, IO signal status and their corresponding Modbus addresses, please refer to the SEZ50MB User Manual CB1P3099en for more information.