

[19180]



Category: Automation Systems

Bus module interface

RS232/RS485/CAN

WILO pumps with CAN bus IF module (at the time of delivery)
 MODBUS RTU Master
 Grundfos bus

DIGICONTROL ems 4.SM03B



Application

The ems 4.SM03B interface module enables connection to various bus systems on the basis of the physical interface RS232 or RS485. In addition to the RS232/RS485 interface, the SM03B module contains another CAN bus interface for connecting external devices, e.g. WILO pumps having a CAN bus IF module.

At the time of delivery, this module contains precisely this connection, but it can be loaded with other firmware using WEBCADpro as and when required (e.g. MODBUS-RTU master). For the sake of compatibility, the SM03B module has the hardware identifier of an SM01B module for ease of identification. This permits the use of the SM03B module in programs already created using SM01B modules.

Technical features:

- 1 x RS-232 / RS-485 / CAN interface module
- Termination of the RS-485 / CAN lines possible via jumpers
- Connection of interfaces using plug-in screw terminals
- CAN system bus, bus plug-in connector
- Input supply voltage 24 V DC, $\pm 10\%$

Product code: EMS4.SM03B

Technical Specifications:

Bus module interface	WILO pumps with CAN bus IF module (at the time of delivery) MODBUS RTU Master / Slave Grundfos pumps with RS485 interface (GeniBus) (for further protocols refer to operator manual ems4)
Dimensions WxHxD	36 x 109.7 x 62.2 mm
Connection	Via plug-in screw terminals for wires up to 1.5 mm ²
EMC Emitted Interference	EN 61000-6-4, EN 50081, (EN55022)
EMC Noise Immunity	EN 61000-6-2, EN 50082, (EN55024)
EMC Burst	EN 61000-4-4
Housing	According to DIN 43880 for use in distribution boards
Weight	Approx. 100 gm
	-10...+70 °C
Storage temperature	
Power consumption	1 W - 4.4 W
Humidity	up to 85 % without condensation in accordance with VDE 0160, EN 50178, class 3K3
Mounting position	On a vertical surface (wall-mounting, terminals above and below)
Interfaces	1 x LIN, 1 x RS232 / RS485/ 2 x CAN
Protection class	IP 20
Supply voltage	24 V DC $\pm 10\%$
Status indications on the module	via dual colour LED

System bus CAN
 +5...+40°C
 Operating ambient temperature

Status indications

The LED's located at the top of the module are used in certain applications to display various pieces of status information:

Tx LED: Each telegram sent by the SM03B module to an external device switches the LED on briefly.
 Transmission direction SM03B -> external device

Rx LED: Each telegram received by the SM03B module switches the LED on briefly.
 Transmission direction External device -> SM03B

Error LED: In communication sessions where the bus status can be evaluated, the LED is switched on when at least one of the subscribers is faulty.

LED 4: It is used for various purposes; please refer to the detailed description of individual software versions of the SM03B module.

Connection

Terminal no. Description

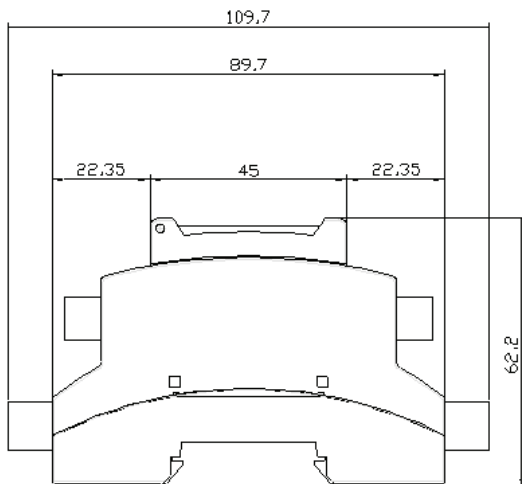
1 Not used
 2 Not used
 3 +24 V DC power supply
 4 GND power supply
 5 CAN1 H (external CAN bus)
 6 CAN1 L (external CAN bus)
 7 Not used
 8 Not used

Terminal no. Description

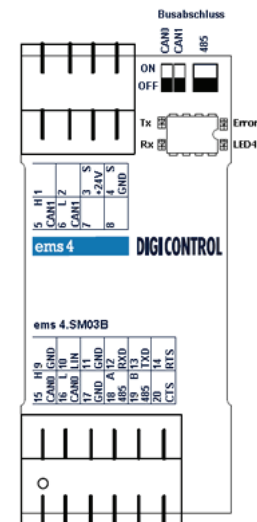
9 GND*
 10 LIN
 11 GND*
 12 RS-232 Rx D
 13 RS-232 Tx D
 14 RS-232 RTS
 15 CAN0 H (MultiLink)
 16 CAN0 L (MultiLink)
 17 GND*
 18 RS-485 – A
 19 RS-485 – B
 20 RS-232 – CTS

* connected internally

Dimensions



Position of the jumpers / DIP switches





ems 4 - Module Configuration

Every ems 4 module is assigned a unique module address number via the configuration tool, webCADpro.

The factory setting for the module address of all modules = 0.

There are two methods available to program the address of the ems 4 modules. The address can be programmed by using the

1. Service button of the ems 4 modules
2. Serial number (is programmed at the time of module manufacture)

Detailed description is provided in the Operator Manual.

ems 4 - Installation Instructions

- Please also follow the installation instructions given in the Operator Manual!
- Never remove the module or install it in a system when the power is switched on!
- Technical modifications are subject to change without notice

ems 4 - Module Version Identification

The respective name plate or label is placed on the right of the front side of the ems 4 modules with the serial number of the device. The serial number is programmed at the time of manufacturing the module. The serial number can be used, for example, to program the module address using the control unit (see Configuration Tool). Moreover, the serial number and software version can be read with the help of the webCADpro configuration tool (see MultiLink Manager).

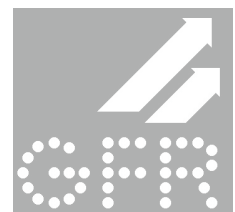
ems 4 - General Module Data

- Module widths (DIN rail mounting) in steps of 22.5 mm x n
- Standard sizes are 22.5 mm, 45.0 mm, 67.5 mm and 90.0 mm
- Separate interface voltage supply, 24 V DC, $\pm 10\%$, must be connected for every 10 modules
- Connection terminals are suitable for wires up to 2.5 mm²
- System bus CAN on a 5-pin bus plug-in bus connector
- CAN bus plug-in connector can be mounted on a DIN rail
- Bus terminal 1, 0 V DC system voltage
- Bus terminal 2, +24 V DC system voltage
- Bus terminal 3, LIN sub-bus
- Bus terminal 4, CAN H signal
- Bus terminal 5, CAN L signal
- Dual colour LED for status display
- 4- pin DIP switch for CAN transmission speed
- Maximum 62 bus modules can be connected to the system bus (CAN) without a repeater
- Text label on the side containing type information and connection diagram
- Front labels: White background, black / blue lettering
- The colour of the housing is light grey, similar to that of RAL 7035
- Additional space (15 mm x 9 mm) for a product tag on each module

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03.2010 / Rev.3