

Pioneering for You

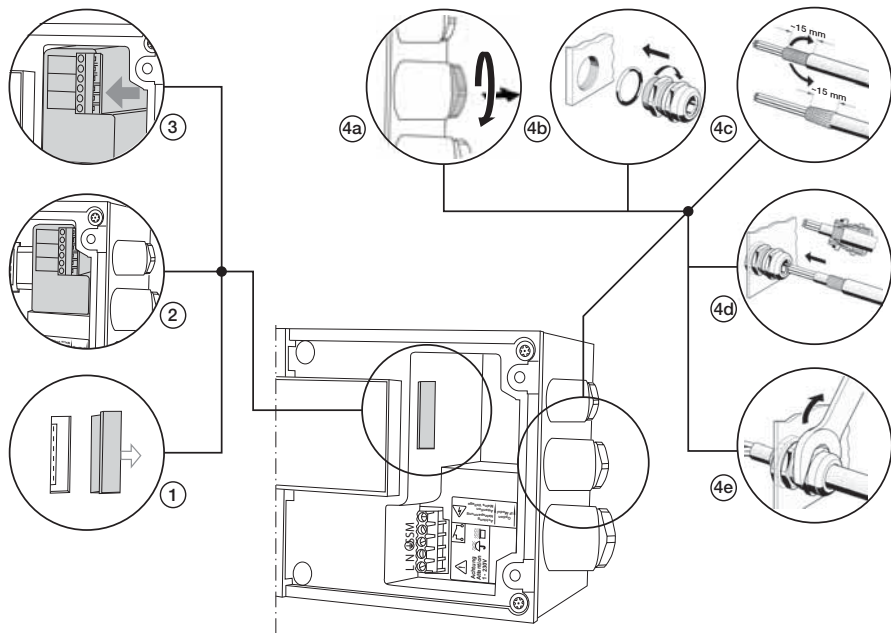
wilo

Wilo-IF-Module Stratos RS485



en Installation and operating instructions

Fig. 1:



| | | |
|-----------|---|----|
| de | Einbau- und Betriebsanleitung | 3 |
| en | Installation and operating instructions | 18 |
| fr | Notice de montage et de mise en service | 33 |
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1 General

1.1 About this document

The language of the original operating instructions is German. All other languages of these instructions are translations of the original operating instructions.

These installation and operating instructions are an integral part of the product. They must be kept readily available at the place where the product is installed. Strict adherence to these instructions is a precondition for the proper use and correct operation of the product.

These installation and operating instructions correspond to the relevant version of the product and the underlying safety standards valid at the time of going to print.

2 Safety

These operating instructions contain basic information which must be adhered to during installation and operation. For this reason, these operating instructions must, without fail, be read by the service technician and the responsible operator before installation and commissioning.

It is not only the general safety instructions listed under the main point "safety" that must be adhered to but also the special safety instructions with danger symbols included under the following main points.

2.1 Indication of instructions in the operating instructions

Symbols:



General danger symbol



Danger due to electrical voltage



Note

Signal words:

DANGER!

Acutely dangerous situation.

Non-observance results in death or the most serious of injuries.

WARNING!

The user can suffer (serious) injuries. 'Warning' implies that (serious) injury to persons is probable if this information is disregarded.

CAUTION!

There is a risk of damage to the product/unit. 'Caution' implies that damage to the product is likely if this information is disregarded.

NOTE: Useful information on handling the product. It draws attention to possible problems.

2.2 Personnel qualifications

The installation, maintenance and repair personnel must have the necessary qualifications for this work.

2.3 Danger in the event of non-observance of the safety instructions

Non-observance of the safety instructions can result in risk of injury to persons and damage to product/unit. Non-observance of the safety instructions can result in the loss of any claims to damages.

In detail, non-observance can, for example, result in the following risks:

- Failure of important product/unit functions
- Failure of required maintenance and repair procedures
- Danger to persons from electrical, mechanical and bacteriological influences
- Property damage

2.4 Safety instructions for the operator

The existing directives for accident prevention must be adhered to.

Danger from electrical current must be eliminated. Local directives or general directives [e.g. IEC, VDE etc.] and those of local power supply companies must be adhered to.

This device is not intended to be operated by persons (including children) with impaired physical, sensory or mental capacities or lack of experience and/or lack of knowledge, except in cases where they are supervised by a person responsible for their safety or where they receive instructions from such a person as to how the device is to be operated.

Children must be kept under supervision in order to ensure that they do not play with the device.

2.5 Safety instructions for inspection and installation work

The operator must ensure that all inspection and installation work is carried out by authorised and qualified personnel, who are sufficiently informed from their own detailed study of the operating instructions.

Work on the product/unit should only be carried out when it has been brought to a standstill. It is mandatory that the procedure described in the installation and operating instructions for shutting down the product/unit be complied with.

2.6 Unauthorised modification and manufacture of spare parts

Modifications to the product are only permissible after consultation with the manufacturer. Original spare parts and accessories authorised by the manufacturer ensure safety. The use of other parts can nullify the liability from the results of their usage.

2.7 Improper use

The operating reliability of the supplied product is only guaranteed if the product/unit is used as intended in accordance with Section 4 of the operating instructions. The limit values must on no account fall under or exceed those specified in the catalogue/data sheet.

3 Transport and interim storage

Immediately check the IF-Module for any transit damage on arrival. If damage is found, the necessary procedure involving the forwarding agent must be taken within the specified period.



CAUTION! Danger of damage to the IF-Module!

Danger of damage due to incorrect handling during transportation and storage.

The unit must be protected from moisture, frost and mechanical damage during transport and interim storage.

4 Intended use

The Stratos IF-Modules are designed for external control and operating status signalling of pumps in the Wilo-Stratos series.

The IF-Modules are not designed for safe deactivation of the pump.



DANGER! Risk of injury and material damage!

Using the control inputs for safety functions can lead to serious damage and injury.

5 Product information

5.1 Type key

Example: IF-Module Stratos Modbus

| Stratos IF-Module | |
|-------------------|--|
| IF-Module | = Interface module |
| Stratos | = Suitable for these series |
| Modbus | Model/function identifier: Modbus = RS485 interface, Modbus RTU protocol BACnet = RS485 interface, BACnet MS/TP protocol |

5.2 Technical data

| General data | |
|---|--|
| Terminal cross-section | 1.5 mm ² finely stranded |
| Safety in accordance with EN 60950 | Up to mains voltage 230 V, configuration TN or TT |
| Interface in accordance with EIA/TIA 485-A | |
| Electric circuit | SELV, galvanically isolated |
| Load | 1/8 unit load |
| Input voltage | Max. 12 V (differential A-B) |
| Terminal resistance | 120 Ω (integrated, switchable) |
| Double pump interface (DP) | |
| Interface | Wilco-specific, sustained short circuit protection, cannot be twisted out of place |
| Voltage | Max. 10 V _{ss} |
| Frequency | Approx. 150 kHz |
| Cable length | Max. 3 m |

5.3 Scope of delivery

- IF-Module
- Metal EMC cable gland Pg 9 and Pg 7
- Installation and operating instructions

6 Description and function

6.1 Description of the IF-Modules

The Stratos IF-Modules expand the pump to include communication interfaces in accordance with the RS485 standard and protocols as indicated by the type key. The modules also provide the connections for the double pump interface.

6.2 Function

An exact function description is not included in these installation and operating instructions. An up-to-date description of the protocol can be obtained from www.wilo.de/automation.

7 Installation and electrical connection

Installation and electrical connection must be carried out in accordance with local regulations and only by qualified personnel.

Warning! Risk of personal injury!

The existing directives for accident prevention must be adhered to.

Warning! Risk of fatal electrical shock!

Danger from electrical current must be eliminated. Local directives or general directives [e.g. IEC, VDE etc.] and those of local power supply companies must be adhered to.



7.1 Installation

To ensure immunity in industrial environments (EN 61000-6-2) the data cables must be shielded cables and must be used with an EMC-compliant cable gland (included with the module). For optimal transmission, the data cable pair should be twisted and have surge impedance of 120 Ω .



Warning! Danger of electric shock!

The pump should be electrically isolated and secured against unauthorised switch-on before beginning installation of the IF-Module.

Installation steps in accordance with Fig. 1:

- Remove the lid of the pump's terminal box
 - Remove the cover (1)
 - Install the module (2)
 - Push the connection plug in all the way (3)
 - Remove the existing Pg 9 and Pg 7 screwed connections (4a)
 - Install the accompanying metal EMC cable glands (4b)
 - Double pump: install DP module in the slave pump and insert the accompanying cable here
 - Strip and prepare the shield and the core wires (4c)
 - Insert the cable(s) (4d)
 - Screw the cable gland(s) into place (4e)
- Electrical connection follows (see section below).

7.2 Electrical connection



Warning! Danger of electric shock!

Electrical connection must be carried out by an electrician authorised by the local electricity supply company and in accordance with the applicable local regulations [e.g. VDE regulations].

- Carry out installation as described in the previous section
- Carry out electrical installation of the pump as specified in the relevant installation and operating instructions
- Check the technical specifications of the electric circuits being connected to ensure they are compatible with the electrical specifications of the IF-Module.

Terminal numbering as shown in Fig. 1, (3) from bottom to top:

| Terminal No. | Terminal | Wire* |
|--------------|----------|------------|
| 1 | A(-) | |
| 2 | B(+) | |
| 3 | A(-) | White (WH) |
| 4 | B(+) | Blue (BU) |
| 5 | DP | Red (RD) |
| 6 | DP | Black (BK) |

* Connecting cable to the DP module (double pump only)

- Connect the incoming BUS line A/B to terminals 1/2
- Connect the outgoing BUS line A/B to terminals 3/4 (single pump only)
- Connect the DP wires to the partner pump (double pump only, with the cable included with the IF-Module Stratos DP)
- Connect the A/B wires to terminal 3/4 (double pump only, with the cable included with the IF-Module Stratos DP)
- Connect the outgoing BUS line A/B to terminals 1/2 in the partner pump (double pump only)
- Set BUS terminating resistors, if there is no outgoing line
- Check the terminal box seal for any visible damage
- Close the terminal box lid with the screws provided so that the seal is tight all around
- Carry out commissioning /functional test in accordance with the following main section

8 Commissioning / functional test

- The following sections describe testing the functioning of the inputs/outputs. It is recommended to test together with the connected system. The pump's installation and operating instructions are needed for some settings.

8.1 General settings

- Set the bus address in the pump menu
- Set the baud rate with parameter A in accordance with the following table:

| Parameter A | Baud rate |
|-------------|-----------|
| 0 | 300 |
| 1 | 600 |
| 2 | 1200 |
| 3 | 2400 |
| 4 | 4800 |
| 5 | 9600 |
| 6 | 19200 |
| 7 | 38400 |
| 8 | 57600 |
| 9 | 115200 |

Additional baud rates may be defined in the relevant protocol description.

8.2 Modbus IF-Module

Set the data format with parameter C in accordance with the following table:

| Parameter C | Parity* | Data bits | Stop bits |
|-------------|---------|-----------|-----------|
| 3 | N | 8 | 2 |
| 6 | S | 8 | 1 |
| 10 | O | 8 | 1 |

* N – no parity, E – even parity, O – odd parity

All other settings are reserved for expansions (see also the protocol description).

8.3 BACnet IF-Module

The BACnet instance number is set with the parameters C, E and F.

This requires conversion into a hexadecimal value¹⁾ (indicated in the following by an 'h' suffix).

The instance number is divided between the three parameters (example 4660):

- Convert the instance number into a hexadecimal value (1234h)
- Expand the result to 6 digits by adding zeros on the left (001234h)
 - C contains the two digits on the right (34h)
 - E contains the two digits in the middle (12h)
 - F contains the two digits on the left (00h)

1) For example with the calc.exe program in the scientific view

- Convert the individual parameters into a decimal value
 - C contains the two digits on the right (52)
 - E contains the two digits in the middle (18)
 - F contains the two digits on the left (00)Enter each parameter via the pump's menu

8.4 DP interface

Set dual pump operation in accordance with the pump's installation and operating instructions: function is as described.

9 Maintenance

The modules described in these instructions are maintenance-free.

10 Faults, causes and remedies

Have repairs done by qualified skilled personnel only!

Warning! Danger of electric shock!



Any danger from electrical current should be ruled out.

- The pump should be electrically isolated and secured against unauthorised switch-on prior to any repair work.
- Damage to the mains connection cables should always be rectified by a qualified electrician only.



Warning! Risk of scalding!

At high fluid temperatures and system pressures, allow the pump to cool down first and then depressurise the system.

| Faults | Causes | Remedy |
|--|---|---|
| Communication with external control is disrupted | Wrong communication parameter Damaged wiring | Check, and adjust if necessary (see Commissioning) Check whether other bus nodes are affected in order to limit malfunctions; check wiring |
| Dual pump function does not work | Wiring damaged Incorrect menu setting | Check wiring Set pumps in accordance with manual |

If the operating fault cannot be remedied, please consult a specialist technician or the nearest Wilo after-sales service point or representative.

11 Spare parts

Spare parts may be ordered via a local specialist retailer and/or Wilo customer service.

To avoid queries and incorrect orders, all data on the name plate should be submitted with each order.



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