

**Operating Instructions
(Compact)**

Edition 09/2006

siflow fc070

DOCUMENTATION

SIEMENS

SIEMENS

English

SIFLOW FC070

Operating instructions (compact)

Edition 09/2006
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Safety Guidelines

This manual contains notices you have to observe in order to ensure your personal safety, as well as to prevent damage to property. The notices referring to your personal safety are highlighted in the manual by a safety alert symbol, notices referring only to property damage have no safety alert symbol. These notices are graded according to the degree of danger.

Qualified Personnel

Start-up and operation of the device/equipment/system in question must only be performed using this documentation. Commissioning and operation of a device/system may only be performed by **qualified personnel**. Qualified personnel as referred to in the safety guidelines in this documentation are those who are authorized to start up, earth and label units, systems and circuits in accordance with the relevant safety standards.

Prescribed Usage


Note the following:



Warning

The unit may be used only for the applications described in the catalog or the technical description, and only in combination with the equipment, components and devices of other manufacturers where recommended or permitted by Siemens. This product can only function correctly and safely if it is transported, stored, set up, and installed correctly, and operated and maintained as recommended.

Trademarks

All designations with the trademark symbol , are registered trademarks of Siemens AG. Other designations in this documentation may be trademarks whose use by third parties for their own purposes may infringe the rights of the owner.

Disclaimer of Liability

We have conscientiously checked the contents of this manual to ensure that they coincide with the hardware and software described. Since deviations cannot be precluded entirely, we cannot guarantee full agreement. The information given in this publication is reviewed at regular intervals and any corrections that might be necessary are made in the subsequent editions.

Purpose, scope of delivery, and description

Purpose

This documentation outlines the main installation and commissioning steps for the SIFLOW FC070 module.

You will find detailed information in the System Manual.

Scope of delivery

Included in delivery are:

- SIFLOW FC070 function module
- CD with hardware support package (HSP), function blocks and data blocks, GSD and EDD files, online help and user documentation
- P bus connector for SIMATIC bus
- Operating Instructions (compact)
- Supplementary material (end sleeves and shrink tubing for connection work)

Description

The SIFLOW FC070 is a function module (FM) that in combination with a SITRANS FC sensor can measure flow rates based on the Coriolis principle. It can be directly snapped onto the SIMATIC S7-300 or ET 200M backplane bus. Assembly and wiring of the 40 mm wide module is also greatly simplified by using rails with snap-on technology.

For the SIFLOW FC070, connection of the sensor unit, the serial MODBUS communications interfaces, the digital inputs/outputs and the power supply is implemented using a 40-pole terminal block.

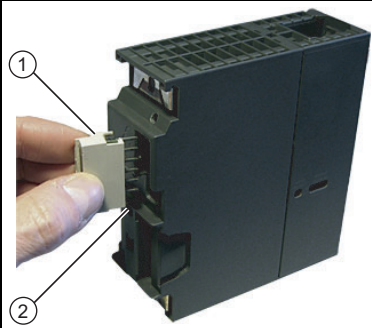
SIFLOW FC070 can also be used for operation with MODBUS communication. This can be stand-alone or parallel operation on MODBUS and SIMATIC, or operation on a third-party automation system. Operator control (parameterization and control) and monitoring (HMI) can be carried out using a SIMATIC PDM or MODBUS tool, or the third-party automation system.

Deployment options

- Centrally on S7-300
- Decentralized on S7 (via PROFIBUS DP in ET 200M)
- Decentralized on any PROFIBUS DP masters (in ET 200M)
- Stand-alone on a MODBUS master (via RTU interface)

SENSORPROM for data and settings

The sensor (not included in scope of delivery of SIFLOW FC070) is delivered with an associated SENSORPROM which has been preconfigured for the sensor used (with calibration data, etc.). This SENSORPROM contains sensor data and transmitter settings for the SIFLOW FC070 function module.

Installation of SENSORPROM	
<p>Plug the SENSORPROM ① into the slot ② on the rear side of the module. Insert the SENSORPROM into the slot until it is flush with the rear side of the module.</p> <p>Note: The SENSORPROM is designed such that it cannot be inserted wrongly into the slot.</p>	 A photograph of a hand inserting a small, light-colored rectangular SENSORPROM into a slot on the rear side of a dark grey electronic module. The slot is labeled with a circled '2'. The SENSORPROM is labeled with a circled '1'. The module has a grid of pins on top and a vertical seam on the right side.

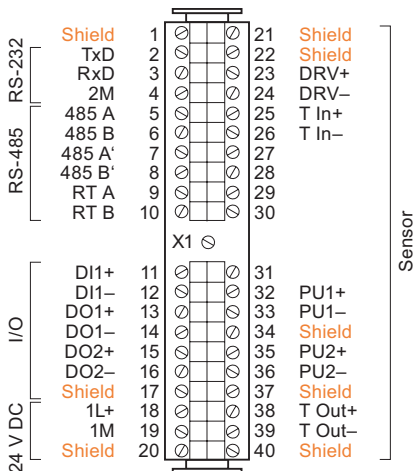
Connection

The connection elements

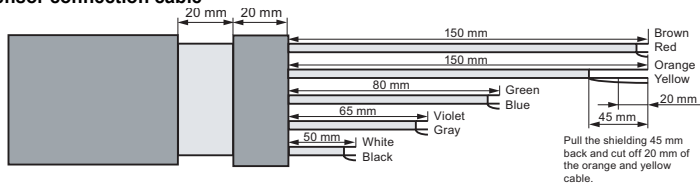
All signals for the SIFLOW FC070 function module are connected to a 40-pole terminal block.

- Power supply
- Digital input and output
- Serial interface
- Analog input and output

Assignment of terminal block



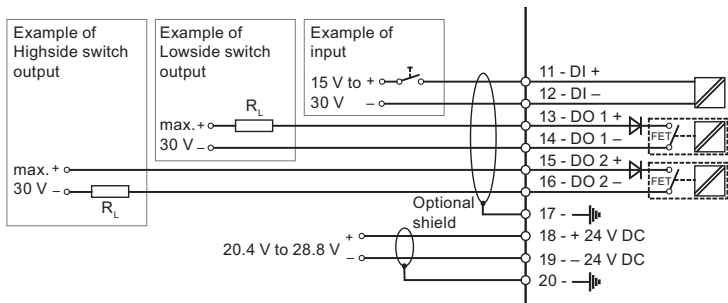
Sensor connection cable



Terminal block	Sensor connection cable	
Pin	Color	Meaning
21, 22, 34, 37, 40	–	Shield (earth)
23	brown	Driver+
24	red	Driver–
25	orange	Temp. input+
26	yellow	Temp. input–
32	green	Sensor 1+
33	blue	Sensor 1–
35	violet	Sensor 2+
36	gray	Sensor 2–
38	white	Temp. output+
39	black	Temp. output–

Digital I/Os and power supply

Connection of digital input, digital outputs and power supply of the SIFLOW FC070



MODBUS address setting

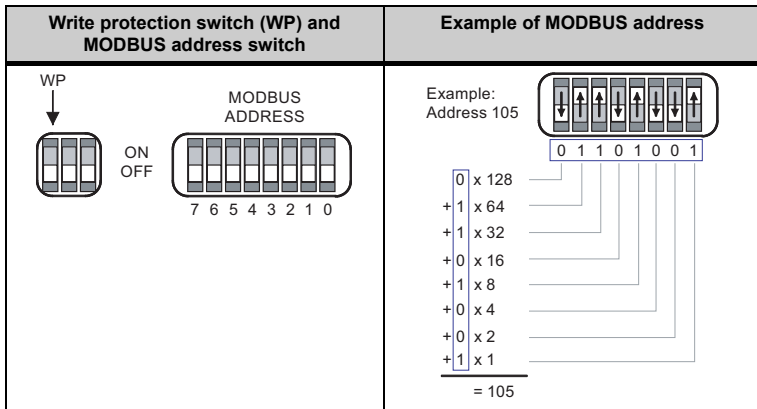
In the case of communication over the MODBUS with a stand-alone configuration or a link to a third-party automation system, the parameters, process data, service data and commands on the MODBUS can be individually addressed by the MODBUS master. For this purpose, the associated MODBUS address must be set for the function module.

MODBUS address switch

The 8-bit DIP switch is located on the side of the SIFLOW FC070 function module housing. The possible address range is 1 to 247. The DIP switch is preset to 0 at the factory. This means that the address can be configured in the software, but preset to address 1.

Write protection switch

Next to the MODBUS address switch, the write protection switch is present in a further cutout. Using this write protection switch, you cannot prevent firmware updates from being transferred unintentionally to the function module. Write protection is active if the status is "ON".



Commissioning

The SIFLOW FC070 can be integrated into the SIMATIC S7-300/400 environment (centralized or decentralized via Profibus) or operated as a stand-alone device. Usually it is integrated into the SIMATIC environment. In this case, SIFLOW FC070 is configured using the SIMATIC user program and the function blocks on the CD. It is also possible to configure SIFLOW FC070 over the MODBUS-RTU interface using SIMATIC PDM.

You will find detailed information on commissioning in the System Manual.

LED status display

Arrangement of status LEDs		Position	Color	Label	Function during operation
		①	red	SF	System fault
		②	green	RUN	Power/Run
		③	green	FLO	Flow indication
		④	red	SE	Sensor error
		⑤	red	PE	Process fault
		⑥	yellow	COM	Communication
		⑦	yellow	DI1	Input 1
		⑧	yellow	DO1	Output 1
		⑨	yellow	DO2	Output 2
		⑩	yellow	WP	WRP (write protection activated)
		⑪	yellow	SIM	Simulation mode

Technical specifications

Voltage supply	
Voltage	24 V DC, directly from the front, operation is also possible without SIMATIC bus connection
Tolerance	20.4 V DC to 28.8 V DC
Power consumption	Max. 6 W
Fuse	Fuse T1 A, 125 V – cannot be replaced by user
Digital outputs (2 x)	
Function	Frequency, pulse, or batch
Frequency	0 to 12 kHz, 50% mark-to-space ratio
Circuit	Passive, can be used as highside or lowside switch
Voltage	3 to 30 V DC
Current	0 to 30 mA, short-circuit-proof, protected against polarity reversal
Digital input	
Functionality	Batch control/totalizer control (reset of totalizers)/zero point setting/specification or "freezing" a frequency at the digital outputs.
Voltage	15 to 30 V DC
Current	2 to 15 mA
Electromagnetic compatibility (EMC)	Emitted interference DIN EN 55011:2003 Group 1, Class A (industrial environment)
	Noise immunity DIN EN 61000-4-x
Namur	According to recommendation NE21
Certificates	CE, cULus

Service & Support addresses

Technical Support

You can reach the technical support team for all A&D projects at:

- Via the Support Request web form
<http://www.siemens.de/automation/support-request>
- Telephone: +49 (0) 180 5050 222
- Fax: +49 (0) 180 5050 223

For further information about our technical support, refer to the Internet at

<http://www.siemens.de/automation/service>

Up-to-date manuals can be obtained under the following Internet addresses:

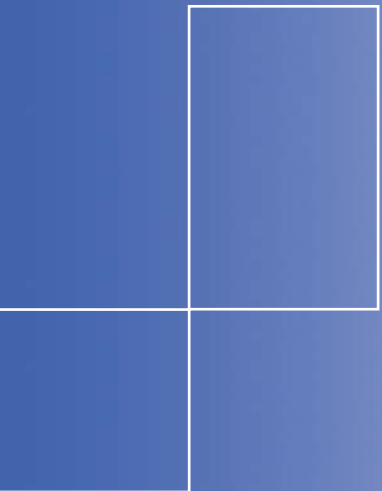
<http://support.automation.siemens.com/WW/view/de/23781606/133300>
(German)

<http://support.automation.siemens.com/WW/view/en/23781606/133300>
(English)

<http://support.automation.siemens.com/WW/view/fr/23781606/133300>
(French)

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(Italian)

<http://support.automation.siemens.com/WW/view/es/23781606/133300>
(Spanish)



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