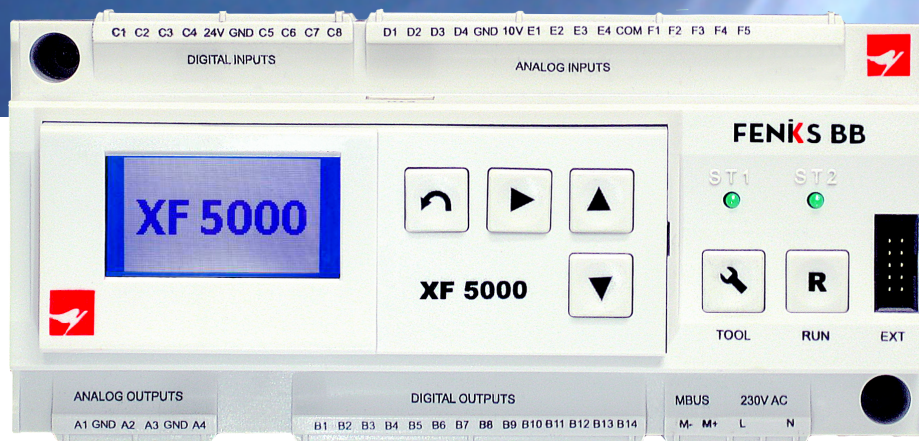


MICROPROCESSOR CONTROLLER

XF 5000



XF 5000 MICROPROCESSOR CONTROLLER was developed on the platform of the latest technologies in electronics and informatics, and based on our own knowledge and years of experience in the field of automated regulations. It is designed for automatization and management of thermo-technical, thermoenergetical and technological systems as a freely programmable logic controller.

XF 5000 comes with a programmed application for heating, cooling, ventilation and air-conditioning systems. User can also take advantage of the user-friendly software tool and develop a regulating program for specific needs and save it in controller's internal memory.

Controller can be used in its basic form or with additional modules, which increase the number and type of digital input/output signals, analogue inputs and outputs and available communication protocols.

Functional keyboard and graphic LCD screen enable an overview of the current measured values, input of set-point values and "manual" control of electric actuators. Information is organized on two sets of screens.

INPUT-OUTPUT CONNECTIONS:

- ▶ 4 analogue inputs (0/4–20 mA)
- ▶ 4 analogue inputs (0/2-10 V)
- ▶ 5 analogue inputs Pt 1000
- ▶ 8 digital inputs (24 V DC, optically isolated)
- ▶ 4 analogue outputs (0–10 V)
- ▶ 8 digital outputs (4 relay + 4 SSR)
- ▶ MBUS master communication port
- ▶ RS232/RS485 communication port
- ▶ RJ45 ETHERNET 10 BASE-T/100 Base-TX (TCP/IP) connection protocol
- ▶ USB communication port for „LOAD“ application
- ▶ EXT connector for connection with expansion modules

The first set consists of the INFO screens which show system information (measured and set values, input and output, statuses, alarms, etc.). INFO screen layout and contents can vary in accordance with the currently active application. During the compilation of user-created programs, the user himself creates corresponding INFO screens.

The second set consists of standard MENY screens where user can see and change set values, input and output status, date and time, communication parameters, currently active application, user interface language, etc.

Password protection (**user** - change of set values and manual control) prevent unauthorized access.

Set values are permanently stored in controller's internal memory.

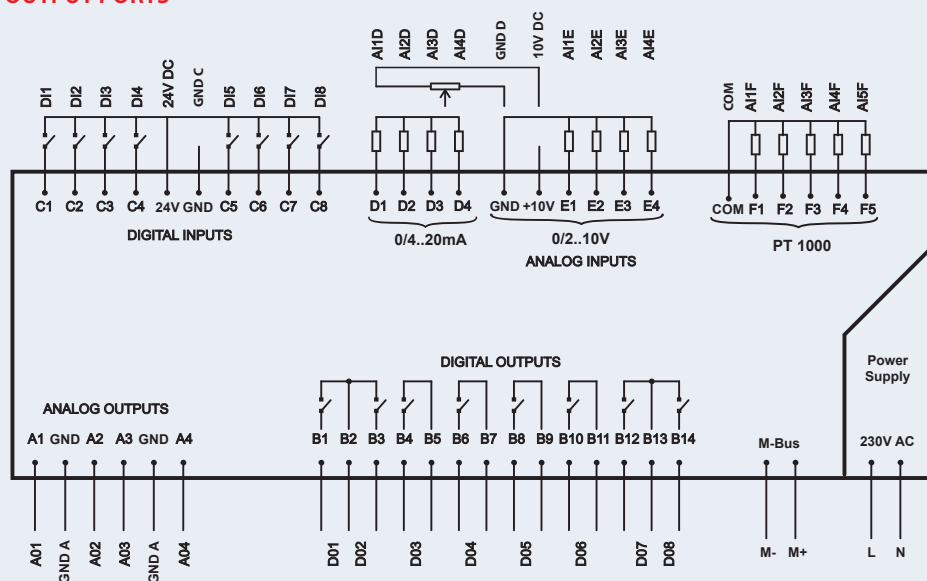
Time-dependent applications (heat reduction, closed time-interval and time-sequence applications, scheduled change of set values) are enabled by built-in real time clock.

MBUS master communication with external MBUS power supply module enables direct connection with max. 4 devices equipped with MBUS slave port (heat meters, circulating pumps and similar "smart" devices).

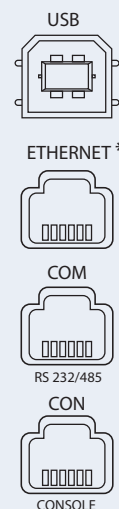
XF 5000 can be connected to the supervisory control and data acquisition systems (SCADA) using one of the available communication interfaces (RS232, RS485 or Ethernet). Built-in standard communication protocol (MODBUS RTU) enable the controller to be integrated into any of the major SCADA systems and full compatibility with the standard software development tools.

XF 5000 is also ready for use with Feniks BB SCADA system CENUS-5000.

INPUT-OUTPUT PORTS



COMMUNICATION PORTS



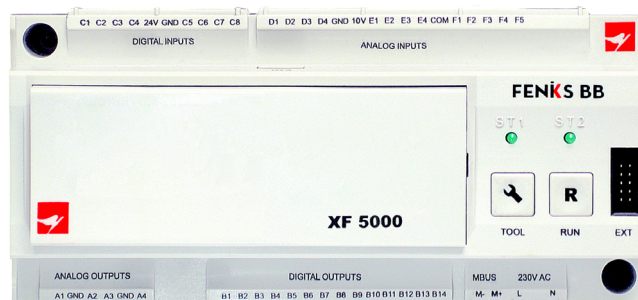
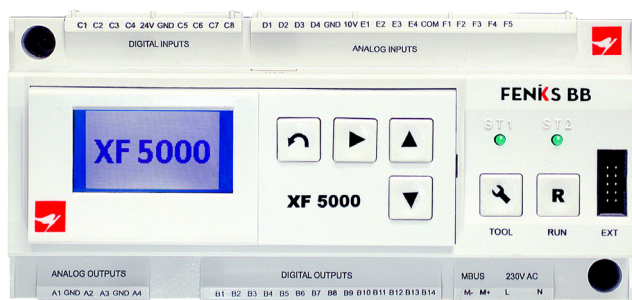
* Optional

CONSOLE (KEYBOARD AND DISPLAY) Settings can be accessed by the use of the console with LCD screen and a 4-key keyboard. Navigation through built-in MENY and INFO screens is intuitive and adjusted to users of all skill levels. Console can be integrated or used as independent remote module (XF-OP1) with cable connection to the controller.

Display is backlit LCD screen, with 6 lines of text and graphic resolution of 128 x 64 pixels.

PRE-PROGRAMMED APPLICATIONS. XF 5000 comes with a programmed application for different HVAC&R systems:

- ▶ heat substations in direct and indirect district heating systems
- ▶ sanitary hot water preparation, with water, electric or combined heaters
- ▶ ventilation and air-conditioning chambers



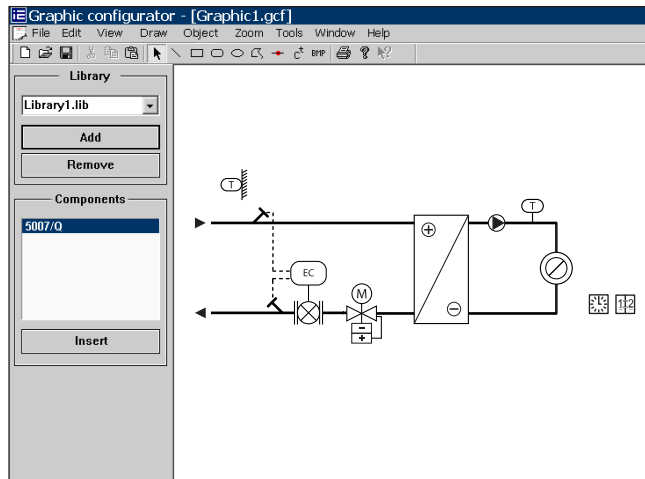
ADDITIONAL MODULES. Additional modules increase the number of the input/output signals and available communication ports.

	Max. no. of modules	Number and type of signals
Digital inputs module (XDI 4.1)	3	8 (24 V DC, optically isolated)
Analogue inputs module (XAI 4.1)	1	5 (Pt 1000) + 4 (NTC)
Analogue inputs module (XAI 4.2)	1	5 (Pt 1000), 4 (0/4-20mA)
Analogue inputs module (XAI 4.3)	1	5 (Pt 1000), 4 (0/2-10V)
Digital outputs module (XDO 4.1)	1	8 (relay)

The modules have a cable for connecting with the previous module or controller.

Each of the built-in programs includes controlling a large number of related thermotechnical applications. For example, program designed for heat substations control can be used in the following variants:

- ▶ with or without primary water flow limit function
- ▶ limitation return temperature
- ▶ application of daily and weekly reduction programs schedule
- ▶ heating pump control in accordance with various criteria
- ▶ regulation of up to four heating circuits
- ▶ Data Logger



CONFIGURATION SOFTWARE. Software programming tools (XF 5000 - TOOL) can be installed on the standard PC configuration without any additional demands. User-friendly graphic editor enables user to design applications by dragging and dropping software objects, linking them and setting their parameters.

Software objects, available to the user while designing applications for the controller, are divided into the following libraries:

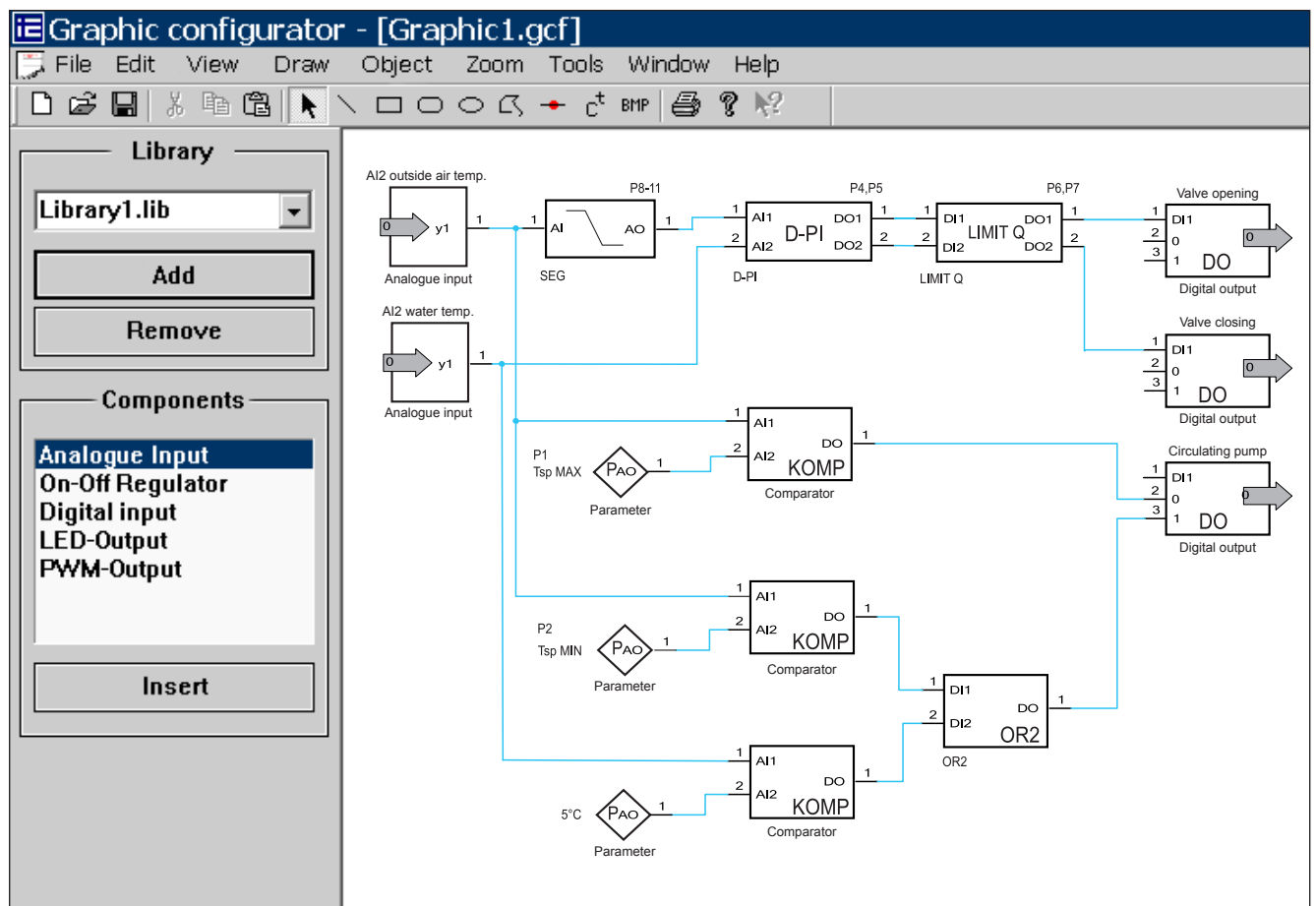
- ▶ input-output objects
- ▶ numeric objects
- ▶ logic objects
- ▶ time objects
- ▶ control objects

Graphic editor is intuitive, user-friendly and time efficient. All software object connections are verified during the design process.

Graphic editor is also used for INFO screens creation, assigning the names of the signals displayed on the MENY screens, defining the set-point ranges etc.

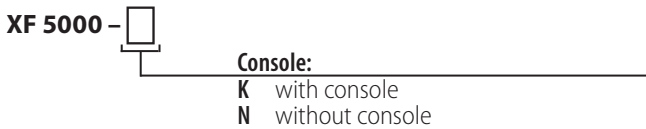
User designed applications are stored on the PC's hard drive and transferred to the controller via USB interface. After this, application can be activated.

Software programming tool is delivered with thorough user manual for controller programming.



ORDERING DATA

Microprocessor controller XF 5000:



Example: XF 5000-K stands for XF 5000 controller with console.

Optional:

Operator panel:

XF – OP1 panel with keyboard and LCD screen

M-BUS power supply

Additional modules:

XDI 4.1 digital inputs module

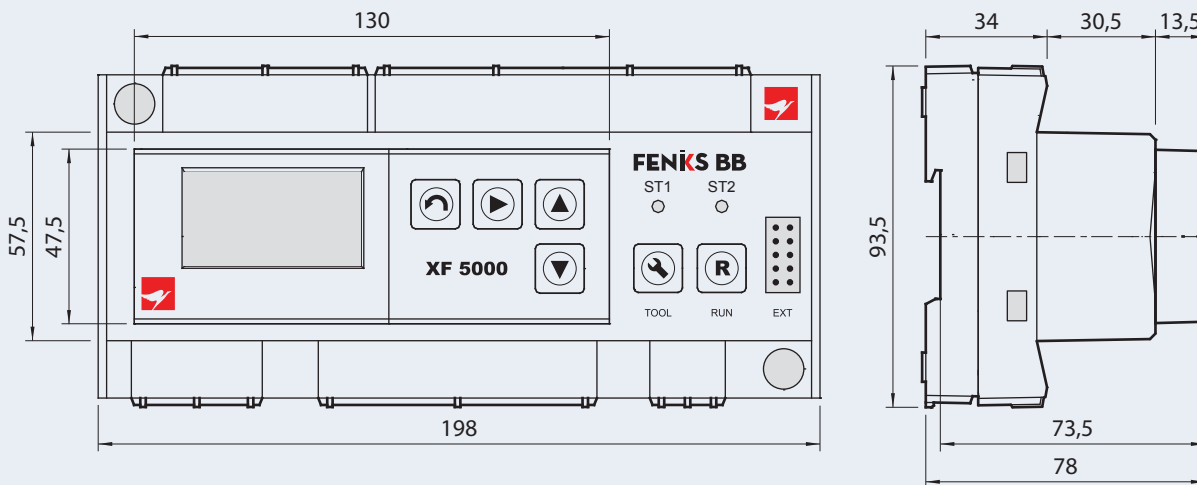
XAI 4.1, 4.2, 4.3 analogue inputs module

XDO 4.1 digital outputs module

Software tools:

XF 5000 – TOOL

DESIGN AND INSTALLATION



Controller can be snap-mounted on DIN rail (35 mm) or screwed directly to a mounting plate using two holes on the case.

TECHNICAL DATA

Power supply	230V AC / 50Hz	EMC standard	SRPS EN 61000-6-2 : 2008 SRPS EN 61000-6-3 : 2008 SRPS EN 61000-6-4 : 2008
Power consumption	max 15W	Working temperature	0 – 50 °C
Output load	max 0.5A / 250V	Working humidity	max 75%
Display	graphical 128 × 64 pixels	Weight	0,5 kg
Protection class	IP 40	Installation	DIN rail 35 mm



The unit contains electric and electronic components and must not be disposed of with domestic waste. Lithium battery, printed circuit boards and housing must be disposed of separately.

The local and actual regulations must be observed.



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Feniks BB has implemented and maintains quality and environment management systems in accordance with international standards ISO 9001:2008 and ISO 14001:2005

