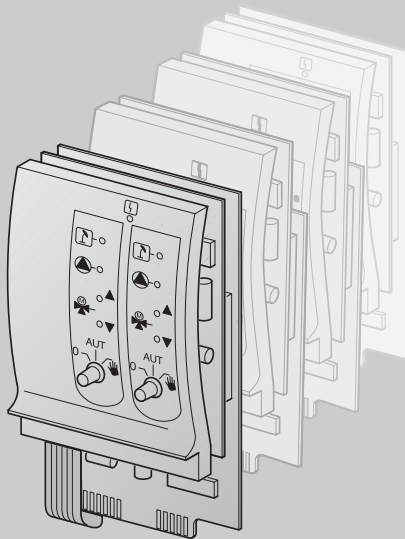


# Installation Instructions

Modules for  
Logamatic 4000  
control panels



7 747 012 082-01.1RS

**FM441**  
**FM442**  
**FM443**

**FM445**  
**FM447**  
**FM448**

**FM456**  
**FM457**  
**FM458**

For heating  
contractors

Please read carefully  
prior to installation.

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# 1 Introduction

These installation instructions explain the installation of the FM4xx function modules in the Logamatic 4000 control panel series.



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## USER NOTE

In general, you can also use these installation instructions for the installation of other modules since the procedures are similar.

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## 1.1 Definition of the various modules

Definitions
CM = Controller module
FM = Function module
NM = Power supply module
ZM = Central or additional module

*Tab. 1 Definition of modules*

## 1.2 Modules and their identification (names)

	Identifi- cation	Name
<b>Controller module</b>	CM431	Controller module
<b>Power supply module</b>	NM482	Power supply module
<b>Central module</b>	ZM422	Burner control + 1 heating zone + 1 DHW circuit
	ZM424	Boiler control + 2 heating zones + 1 DHW circuit
	ZM432	Burner + boiler circuit functions
	ZM434	Burner + boiler circuit functions + 0 – 10 % burner control
	ZM425	Display module
<b>Function module</b>	FM441	1 heating zone + 1 DHW consumer
	FM442	2 heating zones
	FM443	Solar circuit
	FM445	LAP/LSP (charging system)
	FM447	Strategy
	FM448	Centralized alarm message
	FM456	KSE 2 (cascade – 2 wall-mounted boilers) with EMS
	FM457	KSE 4 (cascade – 4 wall-mounted boilers) with EMS
	FM458	Strategy + EMS

Tab. 2 Identification (names) of modules

## 2 Safety

### 2.1 About this manual

This chapter contains general safety instructions that must be observed when installing the FM4xx function modules in the Logamatic 4000 control panels.

Also closely observe additional safety instructions in other chapters of these installation instructions. Read the safety instructions carefully before starting the installation.

If the safety instructions are not observed, serious or even fatal personal injury and damage to property and the environment may be caused.

### 2.2 Intended use

You can install the FM4xx function modules in the Logamatic 4000 control panels.

### 2.3 Standards, regulations and directives



**USER NOTE**

Observe all regulations and standards applicable to installation and operation of the system in your country.



**USER NOTE**

All electrical components must be approved for the USA and Canada!



This product has been tested and certified and meets applicable standards for the US and Canadian markets.

### 2.4 Key to symbols

Two levels of danger are identified and signified by the following terms:



**WARNING!**

**RISK OF LIFE**

Identifies possible dangers emanating from a product that might cause serious injury or death if appropriate care is not taken.



**CAUTION!**

**RISK OF INJURY/  
SYSTEM DAMAGE**

Indicates a potentially dangerous situation that could cause minor or moderately serious injuries or damage to property.

**USER NOTE**

Tip for optimum use of equipment and adjustment as well as useful information.

**2.5 Please observe these notes**

The FM4xx function modules have been designed and manufactured in accordance with currently recognized standards and safety requirements.

However, damage resulting from improper installation cannot be completely prevented.

Read these installation instructions carefully before installing the FM4xx function modules.

**WARNING!****RISK OF FATAL INJURY**

due to electric shock!

- The installation, electrical wiring, commissioning, electrical connection, as well as maintenance and repairs must only be carried out by a trained contractor who adheres to all current technical regulations and requirements.
- The local regulations must be observed.

The following safety instructions must be observed during installation of the function modules.

**WARNING!****RISK OF FATAL INJURY**

due to electric shock!

- Make sure that all electrical work is carried out by a trained contractor.
- Before opening the control panel: isolate all poles of the power supply and secure against accidental reconnection.

**WARNING!****RISK OF FATAL INJURY**

due to electric shock!

The risk of voltage transfers between the line voltage (120 V) and the low voltage wiring through accidental loosening of the wires at the terminals must be prevented.

- Therefore secure individual cables together in bundles (e.g. with cable ties) or strip off only a minimum of the outer insulation.

**CAUTION!****DEVICE DAMAGE**

through electrostatic discharge (ESD).

- Before unpacking the modules touch a radiator or a grounded metal water pipe to discharge any electrostatic charge in your body.

**USER NOTE**

Ensure that a circuit breaker is available to disconnect all poles from the mains power supply. If there is no circuit breaker, you will need to install one.

**USER NOTE**

Only use original Buderus spare parts. Damage as a result of the use of spare parts not supplied by Buderus are excluded from the Buderus warranty.

## 2.6 Disposal

- Electronic components do not belong in household waste. Dispose of defunct modules correctly through an authorized disposal site.



## 3 Module installation for Logamatic 43xx controls

This section describes the installation of the FM4xx function modules in the Logamatic 43xx control panels.



### USER NOTE

- Check whether the delivery is complete. If it is not, please contact your dealer.

### 3.1 Possible module installations for Logamatic 43xx controls

	Identification	43xx				
		4311	4312	4321	4322	4323
Modules	CM431	O	O	O	O	O
	NM482	O	O	O	O	O
	ZM432	O	O	–	–	–
	ZM433	–	–	–	–	O
	ZM434	X	X	O	O	–
	FM441	X	X	X	X	X
	FM442	X	X	X	X	X
	FM443	X	X	X	X	X
	FM445	X	X	X	X	X
	FM447	X	–	X	X	–
	FM448	X	X	X	X	X
	FM456	–	–	–	–	X
	FM457	–	–	–	–	X
	FM458	X	X	X	X	X
ZM426	X	X	X	X	–	

Tab. 3 Basic equipment of controls and optional extras

O = basic equipment

X = additional equipment

– = combination/installation not possible

**USER NOTE**

The FM441 and FM445 modules must never be installed together in the same control panel.

If a FM441 module is already integrated into the control panel, you must remove it before installing an FM445.

If you install both modules (FM441 and FM445), this will cause an error message on the display of the MEC2.

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**USER NOTE**

The installation position of the modules can be freely selected. The only exception to this is the FM445.

You can install the FM445 module, depending on the number of modules used, in slot 3 or 4 (→ Fig. 1, [3] and [4], page 11).

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**USER NOTE**

The FM447 and FM448 modules must never be installed together in the same control panel.

If you install both modules (FM447 and FM448), this will cause an error message on the display of the MEC2.

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**USER NOTE**

The FM448 and FM458 modules must never be installed together in the same control panel.

If you install both modules (FM448 and FM458), this will cause an error message on the display of the MEC2.

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**USER NOTE**

The FM456/FM457 and FM458 modules must never be installed together in the same control panel.

If you install both modules (FM456/FM457 and FM458), this will cause an error message on the display of the MEC2.

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## 3.2 Arrangement of modules in the control panel

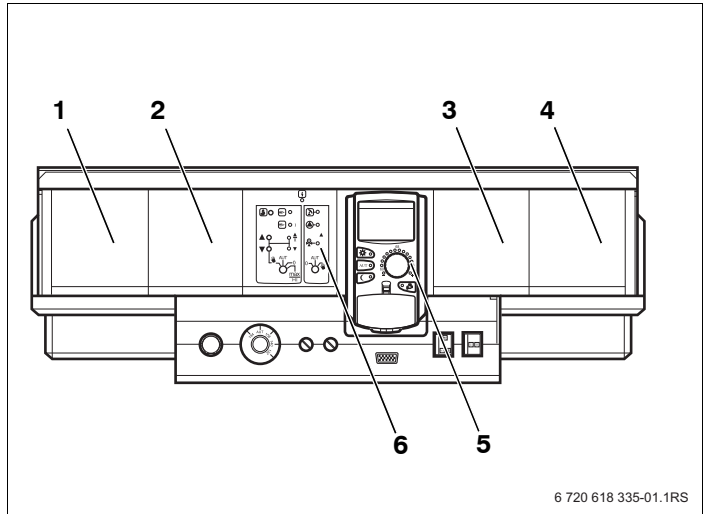


Fig. 1 Layout of slots

- 1 Slot 1 for additional module
- 2 Slot 2 for additional module
- 3 Slot 3 for additional module
- 4 Slot 4 for additional module
- 5 Slot B behind MEC2 remote control
- 6 Slot A for central module ZM432 or ZM434 (standard equipment)



### USER NOTE

Slot A (→ Fig. 1, [6]) is always occupied by one of the central modules ZM432 or ZM434; slot B (→ Fig. 1, [5]) is always occupied by the controller module CM431 and the MEC2 remote control.

Generally you can install the additional modules in any free slot (1 – 4). Make sure that the power supply leads from module to module. For a sensible logical numbering of the heating zones, insert the modules in order from left to right (slots 1 – 4).

### Example

Heating zone assignment for two heating zone modules (FM442) and one heating zone and DHW module (FM441):

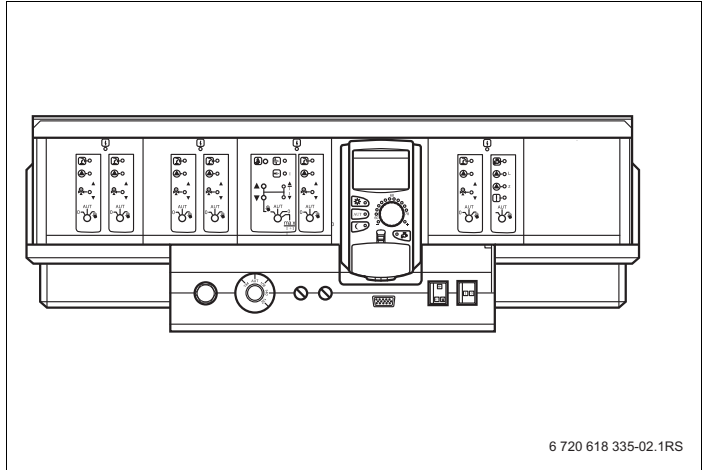


Fig. 2 Example of the layout of function modules

Slot 1 FM442	Slot 2 FM442	Slot 3 FM441
Heating zone 1	Heating zone 3	Heating zone 5
Heating zone 2	Heating zone 4	DHW circuit

For installation of the FM458 module, you may need the connecting cable included with the module in order to supply adjacent modules of the FM458 with mains power.

### 3.3 Installation

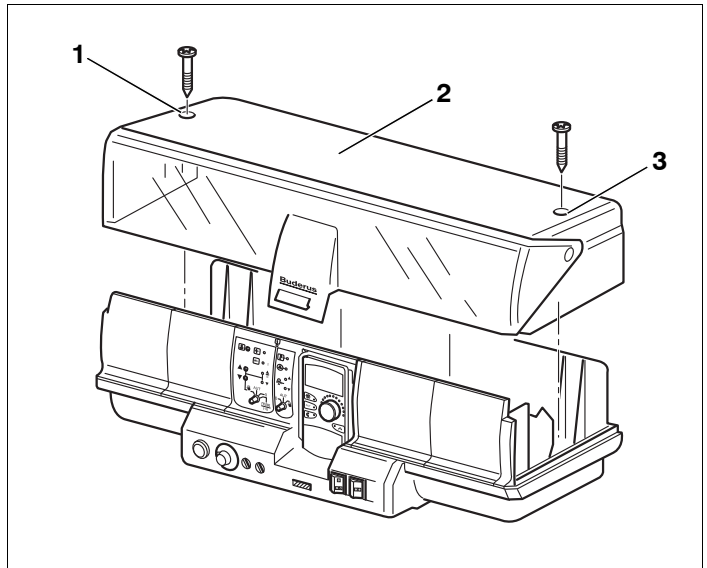


Fig. 3 Removing covers



**WARNING!**

#### RISK OF LIFE

due to electrical current when the control panel is open.

- Before opening the control panel:  
isolate all poles of the power supply and secure against accidental reconnection.
- Loosen both screws (→ Fig. 3, [1] und [3]) on the top side of the appliance.
- Remove terminal cover (→ Fig. 3, [2]).

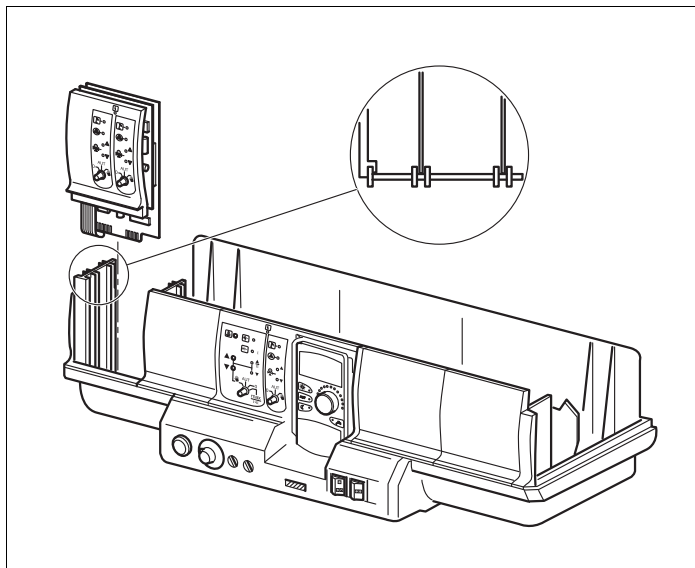


Fig. 4 Module installation and removal

#### To install a new module

- Remove blank from slot 1 (→ Fig. 4) in the control panel.
- Connection cables for sensors and pumps must be laid before installation of the module and provided with terminals (for more detailed information, please see the technical documentation for the Logamatic 43xx control panels).



**WARNING!**

#### RISK OF LIFE

due to metallic jumpers!

- When stripping insulation or cutting the cables, make sure that no pieces of cable fall into the electrical or electronic parts.
- Insert the new module by pressing it down from above onto the sensor strip in the free slot (→ Fig. 4) until it snaps in audibly.

### When removing and replacing a module

- Loosen all the connectors of the module in question and fix in park position (for more detailed information, please see the installation instructions for the Logamatic 43xx control panels).
- Remove module from the control panel.
- Insert the new module by pressing it down from above onto the sensor strip in the free slot (→ Fig. 4, page 14) until it snaps in audibly.

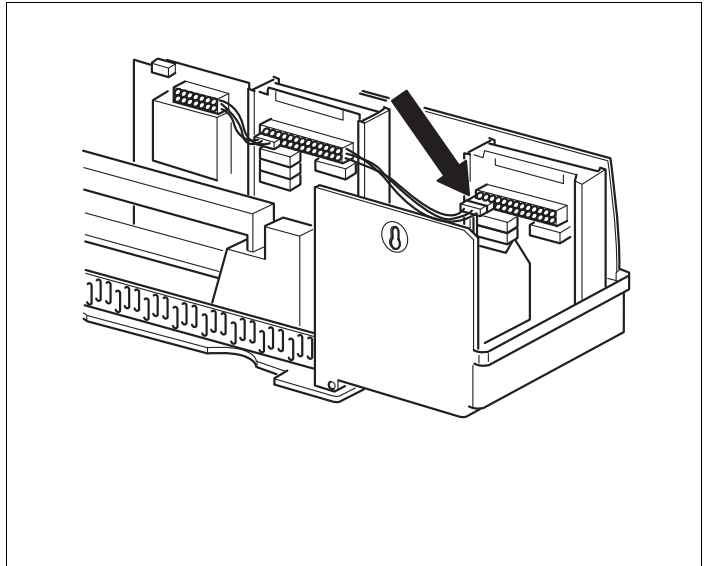


Fig. 5 Providing the 12 V power supply

- Plug sensor cables and pump connections into the places provided on the module.
- Plug the 12 V module plug onto the position on the plug bar (for module connection in slot 1, → Fig. 5).



#### USER NOTE

The connector clips are locked to prevent disconnection.

- When removing the terminals push the locking plate upwards.

- Position terminal cover and fasten with the screws.
- Test the function of the modules.

For more detailed information, see the operating or service instructions for the Logamatic 43xx control panels.



#### USER NOTE

If no 120 V power supply for the module or its 120 V components is installed (e.g. plugs not connected), the components in question (e.g. pumps) will not be powered.

This malfunction **cannot** be detected at the affected module, because the LED and the control functions operate independently of this power supply.

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