

## Front view

### Master module for process control of CO<sub>2</sub> refrigeration plants with two-stage pressure reduction





## Features

- High and medium pressure control
- Gas cooling fan control
- Additional control circuits for:
  - Load shedding
  - Desuperheater
  - Post-injection
  - Refrigerant monitoring
  - Heat recovery including heat quantity calculation and process evaluation
  - Pressure monitoring
- Connection of 2 or 3 field modules of the FKVxxx type required, depending on the selected scope of functions
- Integrated relay outputs
- Graphical display with backlighting and 8 operating keys
- CAN bus connection via patch cable and push-in terminals
- Fastening in the installation frame, or individual installation without frame
- Connection to the Wurm system through a Wurm CAN communication bus (C-BUS) and FRIGODATA XP
- High level of safety thanks to the galvanically isolated Wurm CAN field bus (F-BUS) used to connect the field modules

## Product information

### Writing conventions

Symbol	Meaning
 <b>CAUTION!</b>	Avoid the described hazard: otherwise <b>minor</b> or <b>medium</b> physical injury or damage to property will result.
 <b>WARNING!</b>	Avoid the described hazard: otherwise there is danger from <b>electric voltage</b> that could lead to death or <b>serious</b> physical injury.

### For your safety

For safe operation and to avoid personal injury and equipment damage through operating error, always read these instructions, become familiar with the device, and follow all safety instructions on the product and in this document, as well as the safety guidelines of Wurm GmbH & Co. KG Elektronische Systeme. Keep these instructions ready to hand for quick reference and pass them on with the device if the product is sold.

Wurm GmbH & Co. KG Elektronische Systeme accepts no liability in case of improper use or use for other than the intended purpose.

<b>Target group</b>	These instructions are intended for "service technicians".
<b>Intended use</b>	The HCO <sub>2</sub> is a master module for the process control of CO <sub>2</sub> refrigeration plants with two-level relief.



#### **WARNING!**

##### **Danger to life from electric shock and/or fire!**

- Switch off the power to the entire plant when installing, wiring or removing! Otherwise a mains voltage and/or external voltage may still be present even if the control voltage is switched off!
- The wiring of the device should be carried out only by a qualified electrician!
- Use only the correct tools for all work!
- Check all wiring after connection!
- Take note of the maximum loads on all connections!
- Never expose the device to moisture, for example due to condensation or cleaning agents!
- Take the device out of operation if it is faulty or damaged and is therefore compromising safe operation!
- Do not open the device!
- Do not repair the device yourself! If required, send it in for repair with an exact description of the fault!



#### **CAUTION!**

##### **Electromagnetic interference can cause faults!**

- Use only shielded data lines and place them far away from power lines!

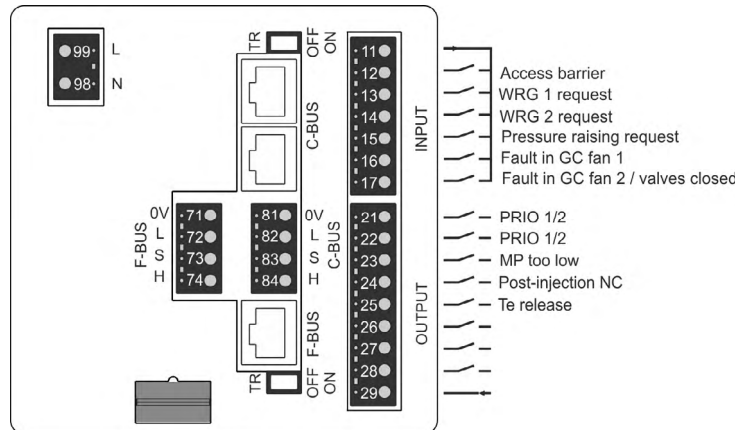
### Software revisions and validity of documentation

Software version		
V7.7.7	2018-01	Basis of documentation

Any software versions not listed are special solutions for individual projects and are not described in detail in this document. This document automatically ceases to be valid if a new technical description is issued.

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 You can find more information on our website at [www.wurm.de](http://www.wurm.de)

### Circuit diagram



### Installing



**WARNING! Danger to life from electric shock and/or fire!**

- Switch off the power to the entire plant before installing! Otherwise a mains voltage and/or external voltage may still be present even if the control voltage is switched off!



Installation in the MGR

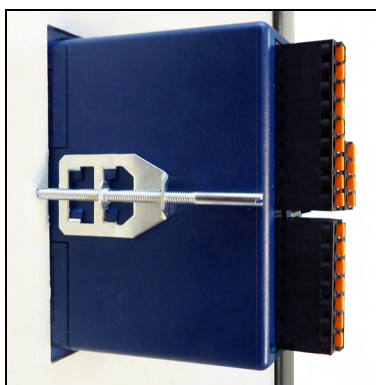
#### Installation in the installation frame MGR131/141 and MGR231/241

Push the device in the installation frame to the stop until it locks between the spring clips.



#### Note!

- Please note the product information for the installation frame MGR131/141 and MGR231/241.

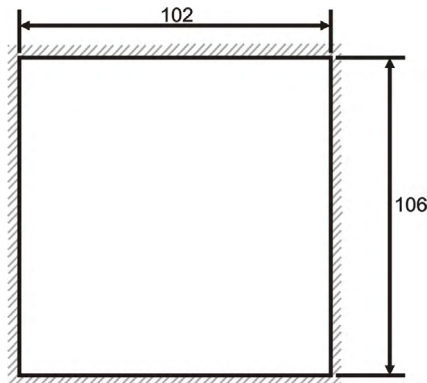


Installation with ZEM

#### Individual installation with screw clamps of the ZEM type

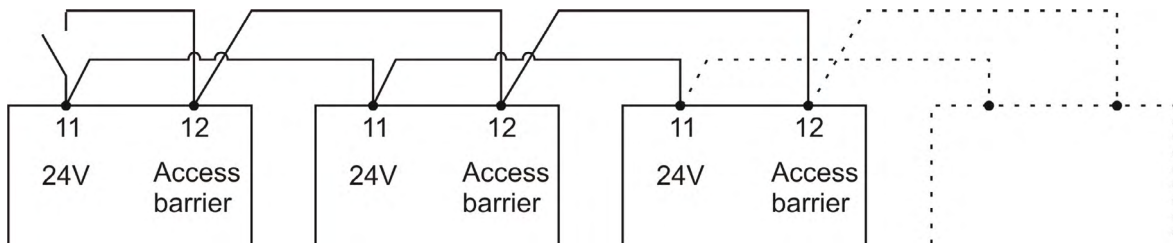
Insert the device up to the stop in a section of a switching cabinet door. Then fix the device with screw clamps of the ZEM type to the switching cabinet door.

## Product information



Installation section for individual installation

### Wiring and connection of several master modules



### Technical data

<b>Power supply</b>	230V~, +10% / -15%, 50Hz, max. 13VA	
<b>Display</b>	Graphical display with backlighting 4 x yellow LED, menu selection 1 x red LED, flashing in case of fault 1 x yellow LED, for operating status of C-BUS 1 x yellow LED, for operating status of F-BUS	
<b>Communication C-BUS</b>	3-wire CAN bus interface, shielded, galvanically isolated, 2.5mm <sup>2</sup> push-in terminals / RJ45 socket and switchable terminating resistor for communication with system devices	
<b>Communication F-BUS</b>	3-wire CAN bus interface, shielded, galvanically isolated, 2.5mm <sup>2</sup> push-in terminals / RJ45 socket and switchable terminating resistor for communication with field modules	
<b>Digital inputs</b>	6 x 24V=, self-powered, approx. 5mA per input, push-in terminals 2.5mm <sup>2</sup>	
<b>Digital outputs</b>	8 x normally open contact with joint supply, 1A, rated insulation 230V~, push-in terminals 2.5mm <sup>2</sup>	
<b>Dimensions</b>	(WxHxD) 109 x 109 x 92mm	
<b>Housing</b>	Plastic, foil	
<b>Fastening</b>	In MGR installation frame, individual installation with ZEM	
<b>Ambient temperature</b>	Operation: 0...+55°C, storage: -25...+70°C	
<b>Weight</b>	About 650g	
<b>CE conformity</b>	<ul style="list-style-type: none"> <li>- 2014/30/EU (EMC Directive)</li> <li>- 2014/35/EU (Low Voltage Directive)</li> </ul>	<b>CE</b>
<b>EAC conformity</b>	<ul style="list-style-type: none"> <li>- TR CU 004/2011</li> <li>- TR CU 020/2011</li> </ul>	<b>EAC</b>
	RoHS II	
<b>Valid from</b>	Version 7.7.7	