

Front view

Master module for process control of R744 refrigeration plants



Features

- Simple start-up through parameter setting of the plants with presets from the expert database
- Connection of 12 field modules
- High and medium pressure control
- Gas cooler control
- Control and monitoring of 2 compressors (parallel compressors)
- Control of 3 fluid ejectors and 7 gas ejectors
- 7-step sequence for heat recovery (HR)
- Calculation of the amount of heat recovered by means of HR
- Optional heat generation via heat pump evaporator
- Air conditioning operation via thermosiphon, high compressive stress or external MT cold location
- Start-up mode for initial installation and control circuit blocking in service operation
- Additional control circuits for collector fill level monitoring, LT pressure level desuperheating, post-injection, oil return
- Integrated relay outputs
- CAN bus connection by patch cable and push-in terminals
- Wurm G4 operating concept
- Innovative user interface with Sticky Keys
- Graphical display with backlighting, plain text, 6 operating keys, and 1 Info key
- Context-sensitive Help with links to Wurm paperless info App
- Direct navigation by Quicklink
- 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
 CAUTION!	Avoid the described hazard: otherwise minor or medium physical injury or damage to property will result.
 WARNING!	Avoid the described hazard: otherwise there is danger from electric voltage that could lead to death or serious 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.

Target group	These instructions are intended for service technicians.
Intended use	The HCO ₂ is a master module for process control of R744 refrigeration plants.



WARNING!

Danger to life from electric shock and/or fire!

- Switch off the power to the entire system 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!

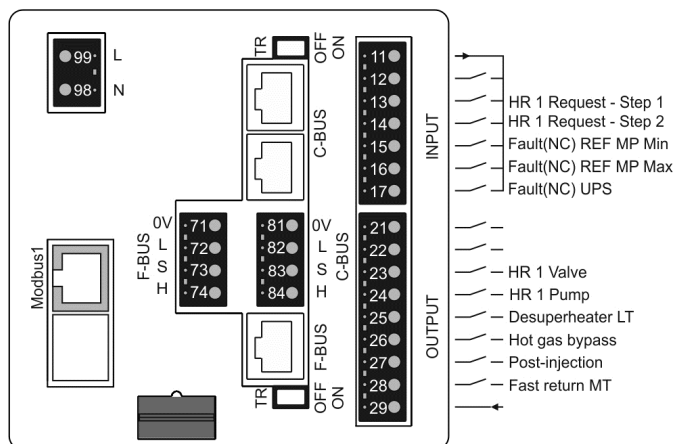
Software revisions and validity of documentation

Revision	Version	Date	Functional upgrade	Page
R1.0.5	V8.1.0	2017-11	Basis of documentation	

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

Manufacturer: Wurm GmbH & Co. KG Elektronische Systeme, Morsbachtalstraße 30, D-42857 Remscheid
For further information, see our website at www.wurm.de

Circuit diagram



Installing



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

- Switch off the power to the entire system when 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

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



Note!

- Please observe the product information for the MGR131/141 installation frame.

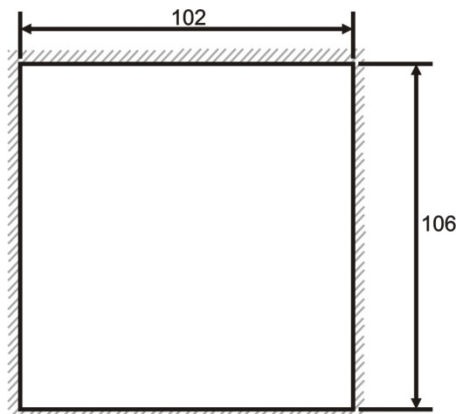


Installation with ZEM

Individual installation with screw clamps of the ZEM type

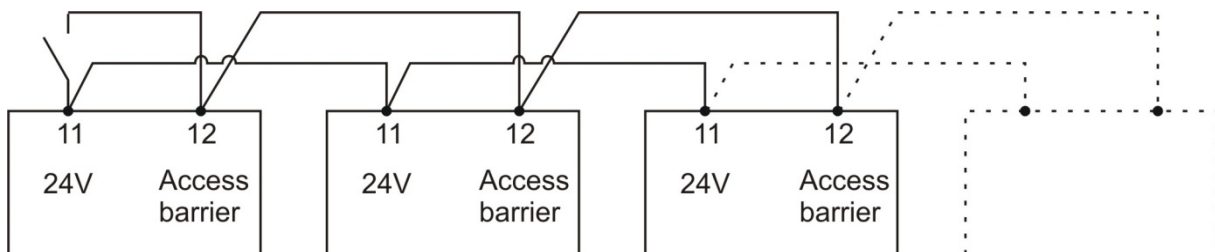
Insert the device up to the stop in a section of a switching cabinet door. Then fix the device with screw clamps of the ZEM type to the switching cabinet door.

Product information



Installation section for individual installation

Wiring and connection of several master modules



Technical data

Power supply	230V~, +10% / -15%, 50Hz, max. 13VA
Displays	Graphical display with backlighting 1 x red LED flashing in case of fault 1 x green LED for parameter adjustment 1 x yellow LED for operating status of C-BUS 1 x yellow LED for operating status of F-BUS
Communication C-BUS	3-wire CAN bus interface, shielded, galvanically isolated, push-in terminals 2.5mm ² / RJ45 socket and switchable terminating resistor for communication with system devices
Communication F-BUS	3-wire CAN bus interface, shielded, galvanically isolated, push-in terminals 2.5mm ² / RJ45 socket and switchable terminating resistor for communication with field modules
Communication Modbus	3-wire Modbus RTU, galvanically isolated, RJ45 socket
Digital inputs	6 x 24V=, self-powered, approx. 5mA per input, push-in terminals 2.5mm ²
Digital outputs	8 x normally open contact with common supply, 1A, rated voltage 230V~, push-in terminals 2.5mm ²
Dimensions	(WxHxD) 109 x 109 x 92mm
Housing	Plastic, foil
Fastening	In MGR installation frame, individual installation with ZEM
Ambient temperature	Operation: 0...+55°C, storage: -25...+70°C
Weight	About 650g
CE conformity	EU conformity as defined in – 2014/30/EU (EMC Directive) – 2014/35/EU (Low Voltage Directive)
	RoHS II
Valid from	R1.0.5 / V8.1.0