

## Front View

### Universal input and output module



### Features of universal input and output module (Wurm CAN communication bus (C-BUS))

- The functions of the inputs and outputs depend on the respective application!
- 8 operation or fault messages and control commands at 230V~
- 4 relay switching outputs at 230V~
- Integrated power supply for CAN bus and relay
- No parameters to be set on the device
- Setting of the module number by user-friendly coding switch
- Connection to the Wurm system via a C-BUS and FRIGODATA XP

### Features of defrost module (Wurm CAN field bus (F-BUS) of HKS-G3/G4)

- One defrost module per F-BUS is possible
- Forced cooling for cold location groups (hot gas and cool gas defrosting)
- By suppressing the cooling command of all cold locations of a defrost group, additional safety functions can be implemented for the associated compound
- The digital outputs (K1...K3) are set if a cold location within a defrost group is defrosting
- Integrated power supply for CAN bus and relay
- Connection to master module by F-BUS

## Product information

### Writing conventions

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

### For your safety

For safe operation and to avoid personal injury and equipment damage through operational error, always read these instructions, become familiar with the device, and implement all of the safety instructions on the product and in these instructions 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 when 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 technician" personnel.                                            |
| <b>Intended purpose</b> | The FIO-PAT is a universal input and output module for 8 operating or fault messages and for control commands. |



#### **WARNING!**

##### **Danger of death 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! Always remove both power plugs (230V~ and N)!
- 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!
- Ensure 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!**

##### **Faults are caused by electromagnetic interference!**

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

## Software revisions and validity of documentation

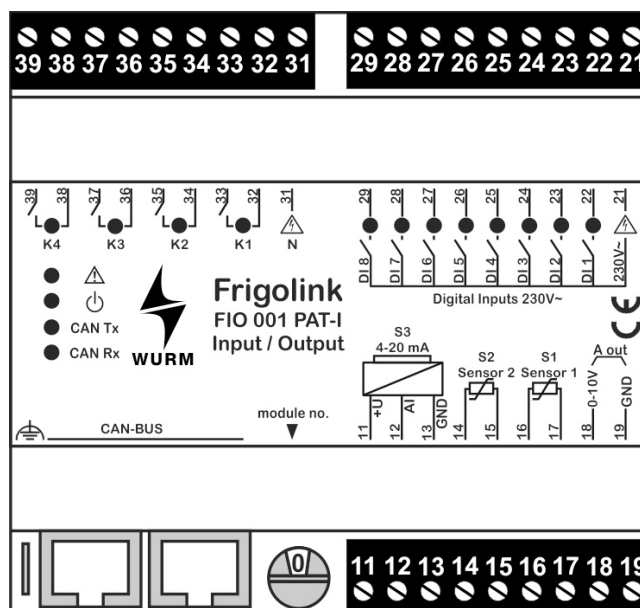
| Software version | Functional upgrade | Page                   |
|------------------|--------------------|------------------------|
| V3.30            | 2017-04            | Basis of documentation |

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.

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For further information, see our website at [www.wurm.de](http://www.wurm.de)

### Circuit diagram



#### Notes!

- The CAN bus shield must be connected at only one (!) CAN bus end by means of the 6.3mm connecting lug with PE.
- Further information on the CAN bus can be found in the FRIGOLINK bus system manual.

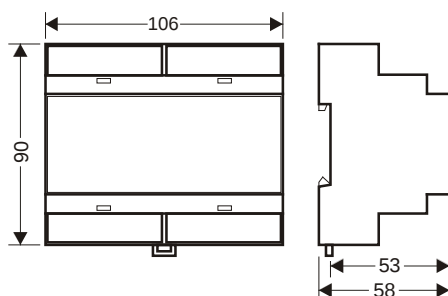
### Installing



#### WARNING!

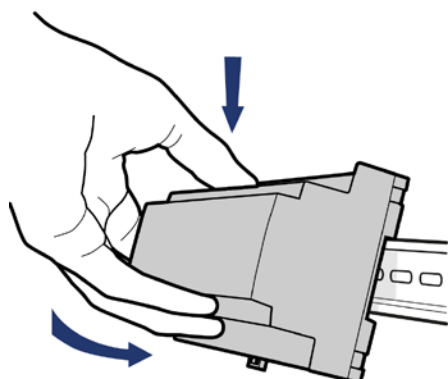
##### Danger of death from electric shock and/or fire!

- 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! Always remove both power plugs (230V~ and N)!



The device has been designed for top-hat rail installation. The housing is a standard size and is also suitable for installation in fuse boxes, distribution switch boxes or electric boxes of refrigeration units.

The devices can be assembled side-by-side without clearance.



Place the upper guide edge of the device on the top-hat rail.

Press the device gently downward until it engages with the fastening safety catch on the top-hat rail.

## Product information

### Technical data

|                                 |                                                                                                                                                                                                                            |
|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Power supply</b>             | 230V~, +10% / -15%, approx. 7VA                                                                                                                                                                                            |
| <b>Displays</b>                 | 1 x red LED, flashing in case of fault<br>1 x green LED, operating voltage<br>2 x green LED, CAN bus data traffic (CAN Tx, CAN Rx)<br>8 x yellow LED, for signal at the input<br>4 x green LED, for controlling the relays |
| <b>Communication CAN bus</b>    | 2 x RJ45 socket for CAN bus connection,<br>with integrated power supply, galvanically isolated                                                                                                                             |
| <b>Digital inputs</b>           | 8 x 230V~, galvanically isolated by optocoupler                                                                                                                                                                            |
| <b>Temperature sensor</b>       | 2 x TRK277 (external temperature, cold zone temperature)                                                                                                                                                                   |
| <b>Analogue input</b>           | 4...20mA, output voltage 18V=, max. 22mA (humidity sensor)                                                                                                                                                                 |
| <b>Output relay</b>             | 4 x normally open contact 230V~, 4(2)A                                                                                                                                                                                     |
| <b>Analogue output</b>          | Not used (1 x 0...10V=, non-isolated, max load 10mA)                                                                                                                                                                       |
| <b>Connection cross section</b> | 2.5mm <sup>2</sup>                                                                                                                                                                                                         |
| <b>Dimensions</b>               | (WxHxD) 106 x 90 x 58mm (DIN 43880)                                                                                                                                                                                        |
| <b>Fastening</b>                | Top-hat rail TH 35-15 or TH 35-7,5 (DIN EN 60715)                                                                                                                                                                          |
| <b>Ambient temperature</b>      | Operation: 0...+55°C, storage: -25...+70°C                                                                                                                                                                                 |
| <b>Weight</b>                   | Approx. 450g                                                                                                                                                                                                               |
| <b>CE conformity</b>            | EU conformity according to<br>– 2014/30/EU (EMC Directive)<br>– 2014/35/EU (Low Voltage Directive)                                                                                                                         |
|                                 | RoHS II                                                                                                                                                                                                                    |
| <b>Valid from</b>               | Version 3.30                                                                                                                                                                                                               |



#### Note!

- Please observe the detailed descriptions in the chapters of the FRIGOLINK system manual.