



## INSTALLATION AND OPERATING MANUAL

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# Contents

<b>1. Overview .....</b>	<b>3</b>
<b>2. Set-UP .....</b>	<b>3</b>
2.1. Connecting Power Supply .....	3
2.2. Connecting Inputs .....	3
2.3. Connecting Relay Output.....	3
2.4. First Power-UP .....	3
<b>3. Installation of the device.....</b>	<b>4</b>
3.1. Diagram Connections.....	4
<b>4. Configuration of device .....</b>	<b>6</b>
<b>5. Modbus-configuration.....</b>	<b>8</b>
<b>6. Operation .....</b>	<b>10</b>
<b>7. Technical Characteristics .....</b>	<b>11</b>
<b>8. Reference standards .....</b>	<b>11</b>
<b>9. Declaration of conformity .....</b>	<b>12</b>

## 1. Overview

Floalarm is especially conceived to monitor alarm conditions in compressed gas storages and supply pipelines.

Two types are available: K4 with four inputs and K12 with twelve inputs.

All alarm inputs are compatible with popular switch sensors and inductive proximity sensors type NAMUR.

The alarm status is testified by the visual and acoustic signals. Visual signals include 4 or 12 red LEDs associated to each alarm input. Two green LEDs: one green LED (Power) to indicate that the device is powered and one green LED (OK) to indicate that there are no alarm conditions.

Blinking status of red LED testifies that the corresponding alarm input is active and this alarm condition is still unacknowledged.

Fixed lighted status of red LED testifies that the corresponding alarm input is active and this alarm condition was already acknowledged.

Acoustic alarm signal indicates one or more unacknowledged alarm conditions.

All current unacknowledged alarm conditions become acknowledged and the acoustic signal is switched off by pushing CANCEL HOOTER button.

The TEST button starts the standard test of all signaling devices and programming check cycle.

A relay output is available to drive an additional hooter or an external alarm indicator.

All programming functions can be set and modified by two buttons on the back of the frontal part of the alarm device.

## 2. Set-UP

***WARNING: For safety reasons, the qualified operators must only carry out the installation in accordance with this instruction manual. The manufacturer rejects any responsibility for accidents or damages due to negligence of these instructions.***

### 2.1. Connecting Power Supply

Use 1.5 mm<sup>2</sup> section cables.

Put a 2 A bipolar security interrupter on the power supply line.

### 2.2. Connecting Inputs

Connect each sensor using bipolar 0.25 - 0.5 mm<sup>2</sup> section cable.

Shielded cables with shields connected to earth are suggested, but not mandatory.

### 2.3. Connecting Relay Output

Use 0.5 to 1.5 mm<sup>2</sup> section cables, in function of switching current and line length.

### 2.4. First Power-UP

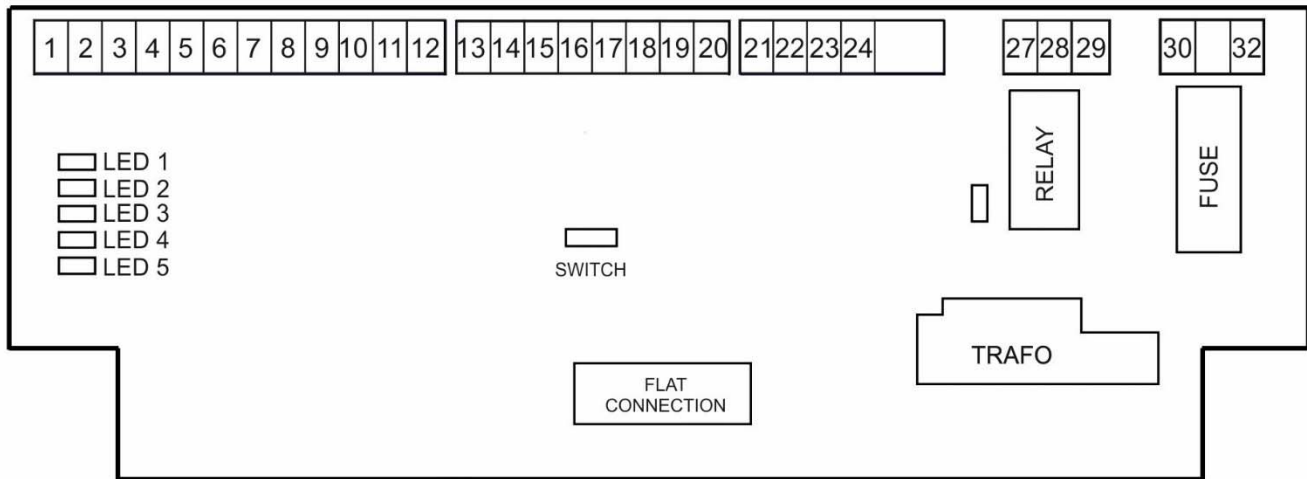
At the first power-up, all the inputs are set normally closed (NC), the green LEDs of "OK" and "POWER" must be on and all the red LEDs are off; the ringtone is not active.

To program each inputs, open the front part of the box and enter in the configuration mode (please, read the following instructions).

### 3. Installation of the device

#### 3.1. Diagram Connections

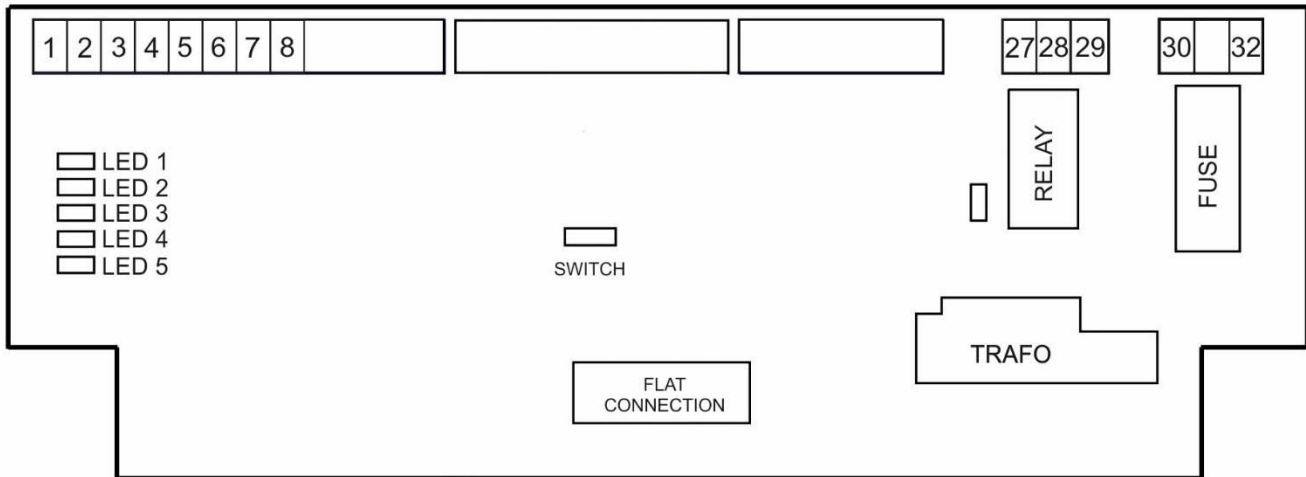
## FLOALARM K12



Connections Legend			
Clamp	Description	Clamp	Description
1	Input Kanal / Line 1	17	Input Kanal / Line 9
2		18	
3		19	
4	Input Kanal / Line 2	20	Input Kanal / Line 10
5		21	
6	Input Kanal / Line 3	22	Input Kanal / Line 11
7		23	
8	Input Kanal / Line 4	24	Input Kanal / Line 12
9			
10	Input Kanal / Line 5		
11		27	Relay N.O.
12	Input Kanal / Line 6	28	Relay N.C.
13		29	Common Relay
14	Input Kanal / Line 7	30	Power Supply
15			
16	Input Kanal / Line 8	32	

**Attention:** In case of FUSE substitution, use one of 500mA.  
 For the connection between the device and sensors, use wires with section 0.25 – 0.50 mm<sup>2</sup>, for the power supply wires with section 1.5 mm<sup>2</sup>.

## FLOALARM K4



Connections Legend	
Clamp	Description
1	Input Kanal / Line 1
2	
3	Input Kanal / Line 2
4	
5	Input Kanal / Line 3
6	
7	Input Kanal / Line 4
8	
27	Relay N.O.
28	Relay N.C.
29	Common Relay
30	Power Supply
32	

**Attention:** In case of FUSE substitution, use one of 500mA.  
 For the connection between the device and sensors, use wires with section 0.25 – 0.50 mm<sup>2</sup>, for the power supply wires with section 1.5 mm<sup>2</sup>.

## 4. Configuration of device

To configure the device, it is necessary to enter in the configuration mode.

- Configuration mode

To enter in the configuration mode, follow these steps:

- Open the box removing the screws under the cover strips.
- Push for 5 seconds the **upper yellow push button** behind the front panel.  
The green LED of POWER will start to blink.

- Selection of the input

To select the input that must be configured, follow these steps:

- Push the **TEST** button.  
Scroll the inputs; the input selected is indicated by the red LED.
- Push the **HUPE AUS/CANCEL HOOTER** button.  
The red LED start to blink.

- Configuration of the selected input

To configure the parameters of the selected inputs, check the LEDs on the bottom PCB on the device (their locations are indicated in the connection diagram of the previous page).

- Push the **TEST** button to scroll the LEDs
- Push the **HUPE AUS/CANCEL HOOTER** to choose the status of the LED (blinking or fixed)

Meaning of the LED status

LED	Parameter	Blinking	Fixed
LED 1	LED behavior	blinking	fixed
LED 2	Contact configuration	normally open contact	normally closed contact
LED 3	Ringtone configuration	active	disabled
LED 4	Relay configuration	active	disabled
LED 5	Exit LED		

- Scroll till the LED 5
- Push **HOPE AUS/CANCEL HOOTER** to exit from the configuration of the input.  
The RED led correspondent return fixed.

- Ringtone sound level

To choose the sound level of the ringtone, move the SWITCH on the bottom PCB (in the diagram of previous page, it is indicated with SWITCH).

LEFT position: HIGH sound level.

RIGHT position: LOW sound level.

- Default parameters

To load the default parameters, follow these steps:

- Push the two yellow button behind the front panel.  
All LEDs start to blink.
- Push the TEST button.  
Start a consecutive activation of all LEDs.

**Default parameters** (same for each inputs):

- LED behavior: Blinking.
- Contact configuration: Normally Closed.
- Ringtone configuration: Active.
- Relay configuration: Active.

- Exit from the configuration mode

To exit from the configuration mode, follow these steps:

- Scroll the input until arrive to the POWER LED.
- Push **HUPE AUS/CANCEL HOOPER**
- The 5 LEDs on the bottom PCB will blink in sequence and all LEDs on the front panel lights.
- After that, the configuration is set and the device is ready to work.

## 5. Modbus-configuration (K4-M / K12-M)

Each Floalarm unit must have its own Modbus address to be able to communicate with the Flomaster. To configure the device, it is necessary to enter in the configuration mode. The default address is 99.

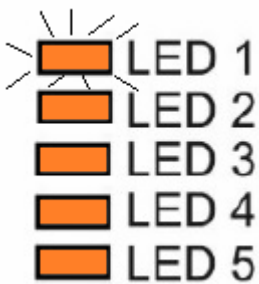
- Configuration mode

To enter in the configuration mode, follow these steps:

- Open the box removing the screws under the cover strips.
- Push for 5 seconds the **lower yellow push button** behind the front panel. The first LED (LED 1) on the PCB starts to blink quickly --> unit setting.

- Selection of the Modbus address

All other LEDs (2-5) fixed --> Modbus address = 0



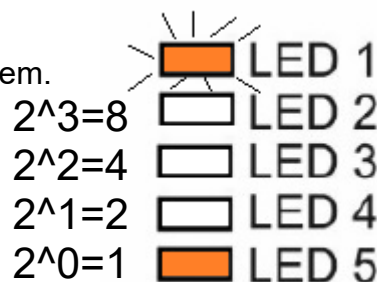
Push the **HUPE AUS/CANCEL HOOTER** button to scroll the LEDs and set the units from 1 to 9.

Examples:

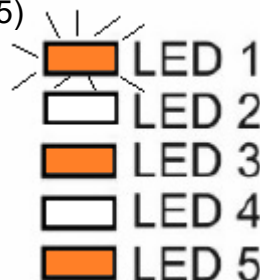
If you press **HUPE AUS/CANCEL HOOTER once**, then LED 5 is fixed and the others are OFF --> units number = 1 ( $2^0=1$ )

The address will be defined by the binary system.

It starts with the LED at the bottom ( $2^0=1$ ):



If you press **HUPE AUS/CANCEL HOOTER 5 times**, then LED 5 and LED 3 are fixed and the others are OFF --> units number = 5 ( $2^0+2^2=1+4=5$ )



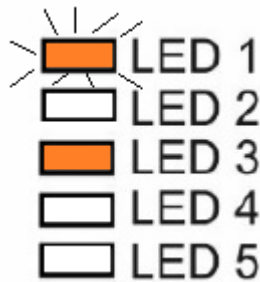


For more than 9 units:

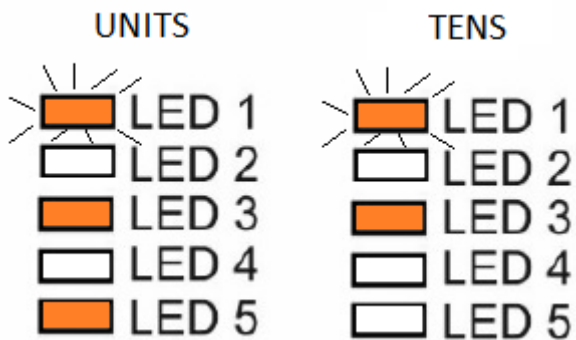
- Push the **TEST** button to **set the units and proceed to the tens:**
- The first LED (LED 1) on the PCB starts to blink slowly --> tens setting
- Push the **HUPE AUS/CANCEL HOOTER** button scroll the LEDs and set the tens

Example:

If LED 3 is fixed and the others are OFF --> Tens number = 4 ( $2^2=4$ )



Complete example: in the following setting the Modbus address is 45



- Exit from the configuration mode

To complete the procedure and save the set address push the **TEST** button. Then you will exit and reboot the device with the new data.

## 6. Operation

### Alarm management

The standard alarm sequence includes three steps:

#### **Case 1: acknowledgement before the end of the alarm event**

1. **Start of alarm event:** input switches from normal to alarm condition. Buzzer switches on and the corresponding alarm LED becomes blinking or fixed (depending to the setting), indicating an unacknowledged alarm status.
2. **Alarm acknowledgements:** user pushes CANCEL HOOTER button. Buzzer stops and alarm LED switches from blinking to fixed (if in the setting it was configured to blink), indicating an acknowledged alarm status.
3. **End of alarm event:** input switches from alarm to normal condition. Alarm LED switches from active to off.

#### **Case 2: acknowledgement after the end of the alarm event**

1. **Start of alarm event:** input switches from normal to alarm condition. Buzzer switches on and the corresponding alarm LED becomes blinking or fixed (depending to the setting), indicating an unacknowledged alarm status.
2. **End of alarm event:** input switches from alarm to normal condition. Same signals continue, system remains in previous alarm status.
3. **Alarm acknowledgement:** user pushes CANCEL HOOTER button. Buzzer stops and alarm LED turns off.

The alarm management is “with memory”; namely, if the end of the alarm event occurs before the acknowledgement, the equipment remains in unacknowledged alarm status, until the acknowledgement.

Acknowledgement operation is effective over all the current alarms.

## 7. Technical Characteristics

INPUTS specifications	V(max) = 15 Vdc; I(max) = 20 mA	
INPUTS compatibility	Standard mechanical switch sensors Solid state PNP / NPN switch sensors. DC only Inductive proximity sensors type NAMUR	
RELAY OUTPUT:	V(max) = 24 Vac I <sub>max</sub> = 1 A NO and NC contact available	
SUPPLY VOLTAGE:	110 - 230 V AC /50 – 60 Hz, P (max) = 3 W  Fuse: 230V / 0,1 A and 110 V / 0,25 A	
HOUSING:	IP65 plastic box for wall mounting K4/K8/K12 type: 200 x 120 x (h) 60 mm	
	Namur specifications	
SUPPLY VOLTAGE	5 Vdc < +Vs < 25 Vdc	
	target present	I <sub>L</sub> < 1mA
LOAD CURRENT		
	target absent	3mA < I <sub>L</sub> < 15 mA

## 8. Reference standards

The device is in compliance with CE standards directive:

EN 50081-1:	Electromagnetic compatibility - Generic emission regulation.
EN 50082-1:	Electromagnetic compatibility – Generic immunity regulation.
EN 61000-3-2:	Electromagnetic compatibility (EMC) Part 3: Limits.
EN 61000-4-3:	Electromagnetic compatibility (EMC); Parts 4-3: Technical and measurement test Immunity test to radiofrequency and irradiated electromagnetic fields.
EN 61000-4-4:	Fast transient immunity
EN 61000-4-2:	Electrostatic discharge immunity

## 9. Declaration of conformity



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*Alarm and control devices  
for medical and technical  
fields*

### Conformity Declaration

Manufacturer: TELEMEDICA Srl  
Manufacturer address: Via Brescia 3G  
I-20063 Cernusco sul Naviglio (MI) - Italy

By the present document, we declare that our products:

Code: TMAFLOW-12  
TMAFLOW-8  
TMAFLOW-4  
Description: FLOALARM DEVICE K12  
FLOALARM DEVICE K8  
FLOALARM DEVICE K4

#### Comply with the following CE standards directive:

**EN 61000-6-1: EMC Generic standard**  
Immunity for residential, commercial and light-industrial environments.

**EN 61000-6-3: EMC Generic standard**  
Emission standard for residential, commercial and light-industrial environments.

#### Additional notes:

- The included products comply with Low Voltage Directive 2006/95/CE
- The included products comply with EMC Directive 2004/108/CE
- All tests are performed in typical configuration.

Cernusco s/N (MI), 09/09/2015  
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