![Chipsmall logo]

Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

Contact us

CROUZET
CONTROL

DIN Rail Mount 35 mm HNM Part number 84870700

- Control of one or two levels
- Filling or emptying function
- HNM : Control by a resistive level probe
- HNE : Control by a discrete sensor

Part numbers

	Type	Sensing	Nominal voltage (V)
84870700	HNM	By resistive probes	24 →240 V AC/DC

Specifications

Supply

Supply voltage Un	24 V →240 V AC/DC
Voltage supply tolerance	-15 % / +10 %
Operating range	20,4 →264 V AC/DC
Polarity with DC voltage	No
AC supply voltage frequency	50/60 Hz ± 10 %
Galvanic isolation of power supply/measurement	No

Timing

Delay on thresold crossing	0,1 →5 s (0, + 10 %)
Repetition accuracy with constant parameters	± 2 %
Delay on pick-up	600 ms

Output

Type of contacts	No cadmium
Maximum breaking voltage	250 V AC/DC
Max. breaking current	5 A AC/DC
Min. breaking current	10 mA / 5 V DC
Electrical life (number of operations)	1×10^5
Breaking capacity (resistive)	1 250 VA AC
Maximum rate	360 operations/hour at full load
Operating categories acc. to IEC/EN 60947-5-1	AC12, AC 13, AC 14, AC 15, DC 12, DC 13
Mechanical life (operations)	30×10^6

Insulation

Nominal insulation voltage IEC/EN 60664-1	250 V
Insulation coordination (IEC/EN 60664-1)	Overvoltage category III : degree of pollution 3
Rated impulse withstand voltage (IEC/EN 60664-1)	4 KV (1,2 / 50 µs)
Dielectric strength (IEC/EN 60664-1)	2 KV AC 50 Hz 1 min.
Insulation resistance (IEC/EN 60664-1)	> 500 MΩ / 500 V DC

General characteristics

Display power supply	Green LED
Display relay	Yellow LED
Delay	Yellow LED
Casing	35 mm
Mounting	On 35 mm symmetrical DIN rail, IEC/EN 60715
Mounting position	All positions
Material : enclosure plastic type VO to UL94 standard	Incandescent wire test according to IEC 60695-2-11 & NF EN 60695-2-11
Protection (IEC/EN 60529)	Terminal block : IP20 Casing : IP30
Connecting capacity IEC/EN 60947-1	Rigid : 1 x 4^2 - 2 x 2.5^2 mm^2 1 x 11 AWG - 2 x 14 AWG Flexible with ferrules : 1 x 2.5^2 - 2 x 1.5^2 mm^2 1 x 14 AWG - 2 x 16 AWG
Max. tightening torques IEC/EN 60947-1	0,6 →1 Nm / 5,3 →8,8 Lbf.In
Operating temperature IEC/EN 60068-2	-20 →+50 °C
Storage temperature IEC/EN 60068-2	-40 →+70 °C
Humidity IEC/EN 60068-2-30	2 x 24 hr cycle 95 % RH max. without condensation 55 °C
Vibrations according to IEC/EN60068-2-6	10 →150 Hz, A = 0.035 mm
Shocks IEC/EN 60068-2-6	5 g

Unless otherwise specified, the characteristics given are applicable to all or part of the product range selected

Standards

Marking	CE (DBT) 2006/95/EC - EMC 2004/108/EC
Product standard	NF EN 60255-6 / IEC 60255-6 / UL 508 / CSA C22.2 N°14
Electromagnetic compatibility (EMC)	Immunity EN 61000-6-2/IEC 61000-6-2 Emission EN 61000-6-4 2002/EN 61000-6-3 IEC 61000-6-4/IEC 61000-6-3 Emission EN 55022 class A
Certifications	UL, CSA
Conformity with environmental directives	RoHS

Supply

Power consumption at Un	5 VA in AC/1.5 W in DC
Immunity from micro power cuts	90 ms max. in AC/ 100 ms max. in DC

Output

Type of output	1 double changeover relay

Timing

Maximum reset time	4 s

Inputs and measuring circuit

Measurement range	250 Ω→1 MΩ
Low sensitivity adjustment (LS)	250 Ω→5 kΩ
Standard sensitivity adjustment St	5 kΩ→100 kΩ
High sensitivity adjustment (HS)	50 kΩ→1 MΩ
Adjustment of sensitivity	5 →100 % of the selected range
Display precision	± 10 % of full scale for LS and St ranges -40 % / +10 % of full scale for HS range
Measuring error with temperature drift	0.5 % / °C in standardsensitivity
Measuring error with voltage drift	0 %/V across the whole range
Max. voltage at probe terminals	5 V / 500 Hz ± 10 %
Max. current via probes	< 1 mA
Max. length of probe cables	100 m
Max. capacity of probe cable (nF)	1 nF for HS range2.2 nF for St range4.7 nF for LS range
Input circuit 3-wire sensors	No

General characteristics

Weight	115 g

Accessories

Description	Code
Removable sealable cover for 35 mm casing	84800001

Principles

Overview

HNM and HNE control relays are designed to monitor the levels of :
- Conductive liquid (HNM)
- Any other product (HNE)

The HNM relay takes its measurements by means of resistive probes.
The HNE relay takes its measurements by means of discrete sensors.
Both these products actuate their output relay during emptying or filling of a tank.

General principle :

HNM relays control levels of conductive liquids. The principle is based on measuring the apparent resistance of the liquid between two submerged probes. When this value is below the preset threshold displayed on the front face of the unit, the relay changes state. To avoid electrolytic phenomena, an AC current runs across the probes. A rotary switch on the front face can be used to select the desired function and sensitivity range.

HNE relays control levels of products which may or may not be conductive. High and low-level data is produced by 3-wire output discrete sensors.

A green LED indicates the presence of the supply voltage.
A yellow LED indicates the status of the output relay.
A yellow LED flashes during the time delay.

Parameter setting :

A rotary switch on the front face can be used to select the sensitivity range, and the emptying or filling function.
A second switch can be used to select the number of levels (1 or 2), as well as the type of time delay in the case of 1-level mode.
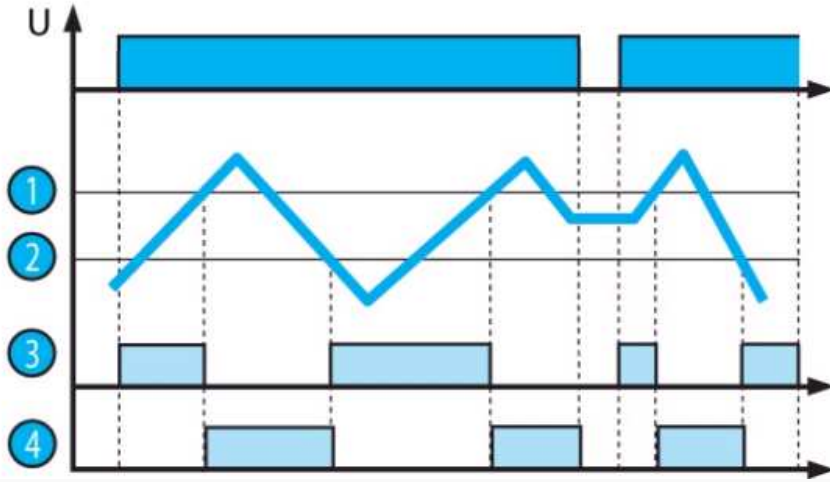The configuration of these switches is taken into account on energisation.
If the switch is set to a non-conforming position on energisation, the product goes into fault mode, the output relay stays open and the LEDs flash to signal the position error.
If the switch position changes while the unit is operating, all the LEDs flash but the product continues to work normally with the function selected on energisation prior to the change of position.
The LEDs return to their normal state if the switch is reset to its initial position defined before the last energisation.

Principles

Unless otherwise specified, the characteristics given are applicable to all or part of the product range selected

Control of two levels, emptying function
(Level : 2, LS emptying function (Low sensitivity : 250Ω to 5 kΩ), St emptying (Standard sensitivity :   5 kΩ to 100 kΩ), HS emptying (High sensitivity : 50 kΩ to 1 MΩ).

As long as the liquid level has not reached the probe maximum, the output relay stays open. Once the max. level is reached, the contact closes, thus allowing the tank to empty (valve opens, pump starts, etc). When the level drops below the min. level, the contact opens to interrupt the emptying process.
NB : In two-level control mode the time delay for preventing wave effect is not active.

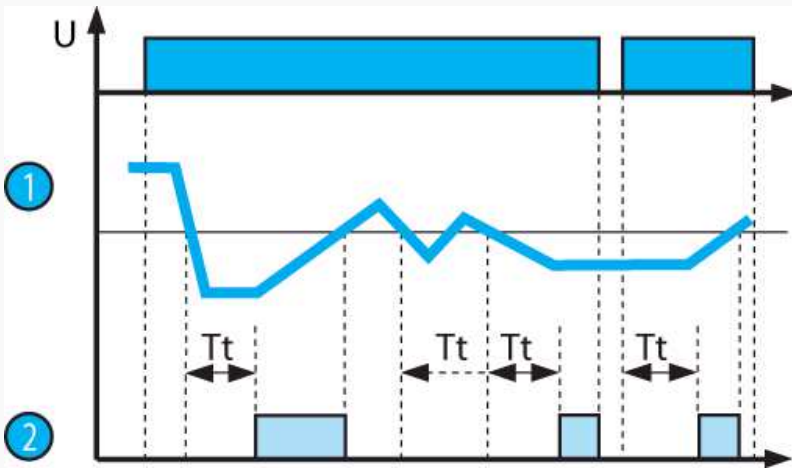**Control of two levels, filling function**
(Level : 2, LS filling function (Low sensitivity : 250Ω to 5 kΩ), St filling (Standard sensitivity :   5 kΩ to 100 kΩ), HS filling (High sensitivity : 50 kΩ to 1 MΩ).

As long as the liquid level has not reached the probe maximum, the output relay stays closed. Once the max. level is reached, the contact opens and pumping stops. When the level drops below the min. level, the contact closes again and pumping restarts so as to make the liquid level rise again.
NB : In two-level control mode the time delay for preventing wave effect is not active.

Nº	Legend
❶	Maximum level
❷	Minimum level
❸	Output relay R filling function "Up"
❹	Output relay R emptying function "Down"

Principles

One-level control (min. probe), filling function, on-delay
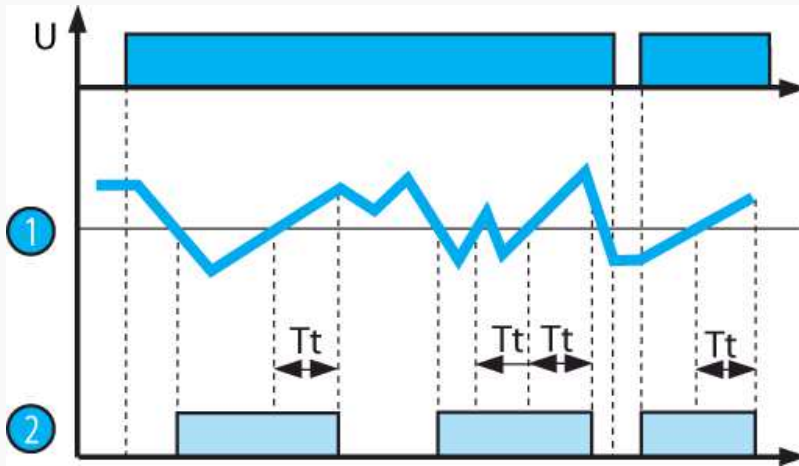(Level :   1 - **on-delay,** LS filling function (Low sensitivity : 250Ω to 5 kΩ), St filling (Standard sensitivity :   5 kΩ to 100 kΩ), HS filling (High sensitivity : 50 kΩ to 1 MΩ).

When the liquid level drops below the probe for a duration longer than the value of time delay Tt set on the front face, the relay closes and stays closed until the liquid level reaches the probe again.

If the liquid level rises back above the level set before the end of the time delay, the relay does not close.

Nº	Legend
❶	Min. probe level
❷	R output relay

Unless otherwise specified, the characteristics given are applicable to all or part of the product range selected

Principles

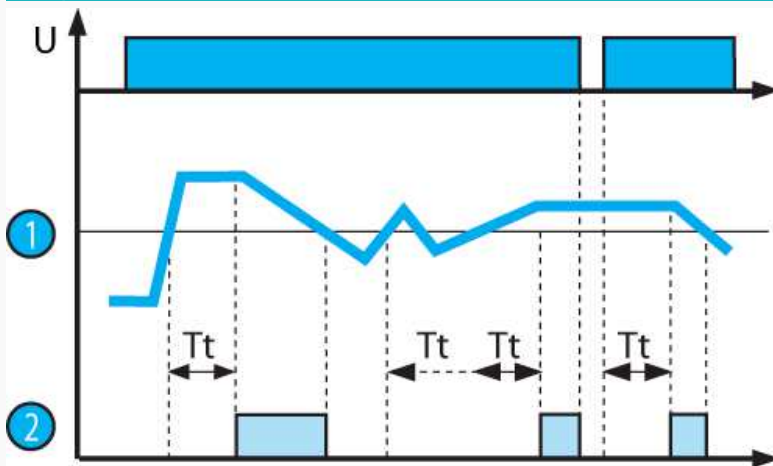**One-level control (min. probe), filling function, off-delay**
(Level : 1 - off-delay, LS filling function (Low sensitivity : 250Ω to 5 kΩ) or St filling (Standard sensitivity : 5 kΩ to 100 kΩ) or HS filling (High sensitivity : 50 kΩ to 1 MΩ).

When the liquid level drops below the probe for a duration longer than the value of time delay Tt set on the front face, the relay closes instantly and stays closed until the liquid level reaches the probe again and stays above it for a duration longer than time delay Tt set on the front face.
If the liquid level drops back below the level set before the end of the time delay, the relay stays closed.

Nº	Legend
❶	Min. probe level
❷	R output relay

Principles

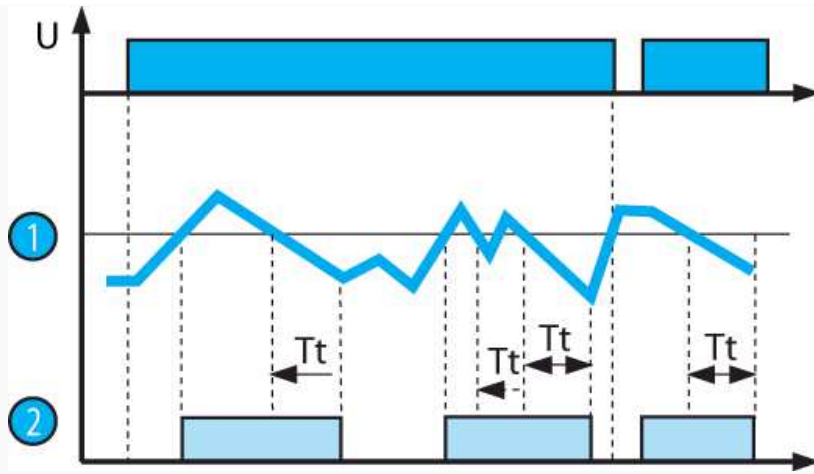**One-level control (min. probe), emptying function, on-delay**
(Level : 1 - on-delay, LS emptying function (Low sensitivity : 250Ω to 5 kWΩ), St emptying (Standard sensitivity : 5 kΩ to 100 kΩ), HS emptying (High sensitivity : 50 kΩ to 1 MΩ).

When the liquid level rises above the probe for a duration longer than the value of time delay Tt set on the front face, the relay closes and stays closed until the liquid level drops back below the probe.
If the liquid level drops back below the level set before the end of the time delay, the relay does not close.

Nº	Legend
❶	Min. probe level
❷	R output relay

Principles

Unless otherwise specified, the characteristics given are applicable to all or part of the product range selected

One-level control (min. probe), emptying function, off-delay
(Level : 1 - off-delay, LS emptying function (Low sensitivity : 250Ω to 5 kΩ), St emptying (Standard sensitivity : 5 kΩ to 100 kΩ), HS emptying (High sensitivity : 50 kΩ to 1 MΩ).

When the liquid level rises above the probe, the relay closes instantly and stays closed until the liquid level drops back below the probe for a duration longer than the value of time delay Tt set on the front face.
If the liquid level rises back above the level set before the end of the time delay, the relay stays closed.

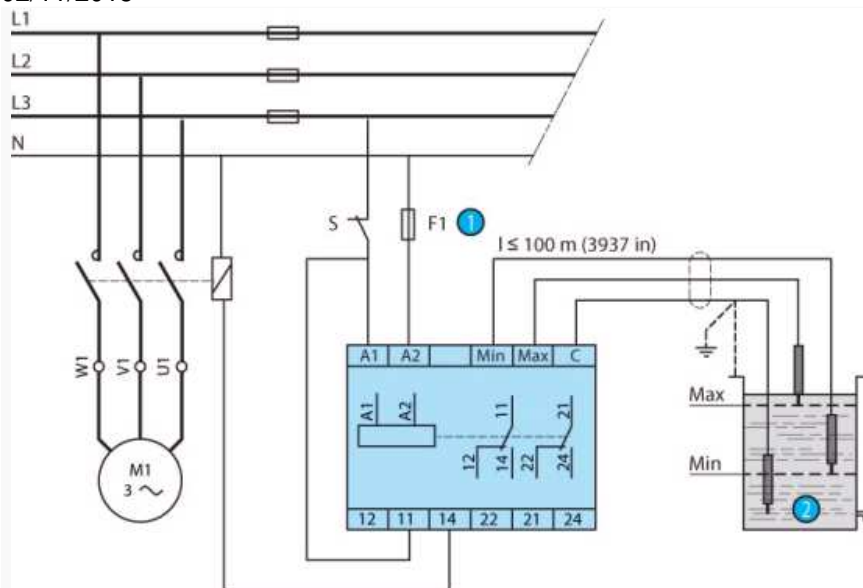| Nº	Legend
❶	Min. probe level
❷	R output relay

Dimensions (mm)

HNM-HNE
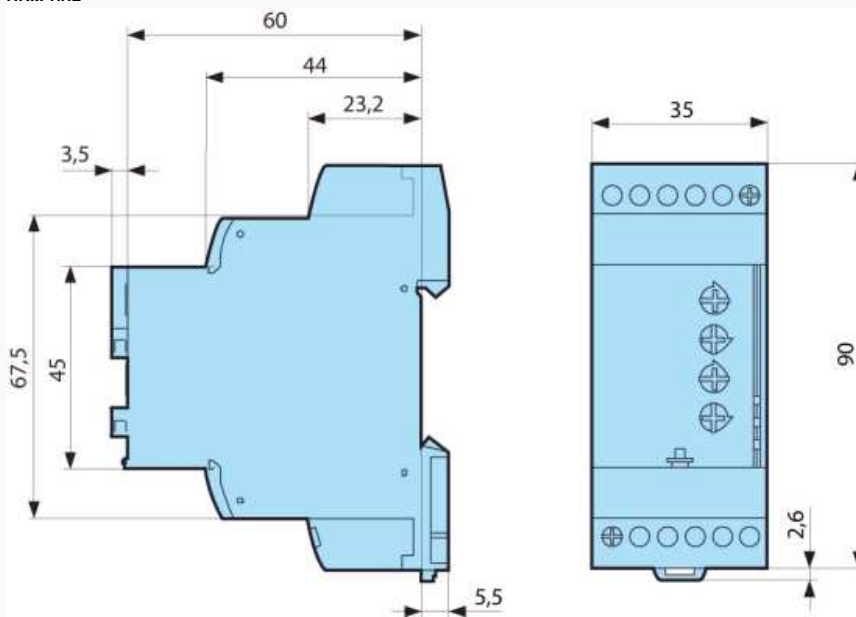
mm

Connections

HNM

NB : Probe cable : screened cable recommended, screening and "common" connected to earth. The probe cable does not have to be screened, but it is inadvisable to mount it close to the power cables. For mono level, use the "com" and "min." electrodes.

Nº	Legend
❶	1 A fast-blow fuse or cut-out
❷	Common

Connections
CA 84870700-02

❌ CA 84870700-02

NB : Probe cable : screened cable recommended, screening and "common" connected to earth. The probe cable does not have to be screened, but it is inadvisable to mount it close to the power cables. For mono level, use the "com" and "min." electrodes.

Product adaptations

- Customisable colours and labels
- Fixed or adjustable time delay
Adaptation dedicated to HNM :
- Fixed threshold in the generic measurement range

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