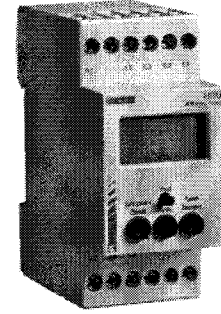


- Displays the current value and the preset on LCD
- Controls AC & DC signals (auto Detection)
- Overload or underload selectable
- Threshold and Hysteresis adjusted separately
- Memory function in case of fault
- Delay on threshold crossing
- UL / cUL listed CSA recognized CE compliant



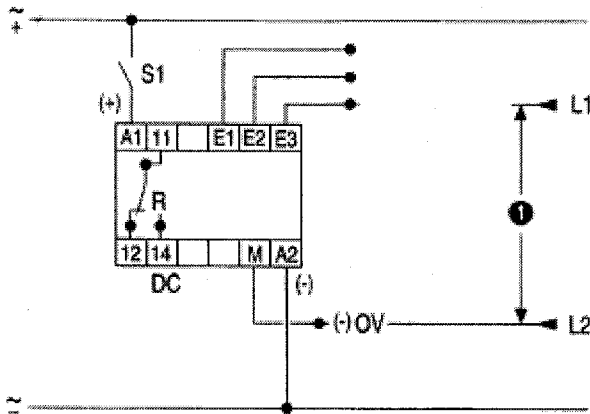
OPERATING PRINCIPLE: Controls AC and DC voltages:

HDU's are designed to control an AC or DC voltages. The threshold and hysteresis are adjusted separately via 2 potentiometers on the front face. Prior to power up, the operating mode should be selected using the 4 dip switches located on the side of the unit (with/without memory, overload/underload and the specific operating range, 500mA or 10A). The supply voltage is applied to A1 and A2. The monitored signal is connected in parallel to terminals E1 E2 or E3 (depending on the range selected) and terminal M.

TYPE	HDU - L	HDU - H
INPUTS	E1-M : 0.2-2 V	E1-M : 15 - 150 V
	E2-M : 1-10 V	E2-M : 30 - 300 V
	E3-M : 6-60 V	E3-M : 60 - 600 V
Input Resistance	E1-M : 2K ohm	E1-M : 100K ohm
	E2-M : 10K ohm	E2-M : 300K ohm
	E3-M : 60K ohm	E3-M : 600K ohm
Max permanent V @ 20C	E1-M : 4 V	E1-M : 200 V
	E2-M : 20 V	E2-M : 350 V
	E3-M : 120 V	E3-M : 650 V
Peak overload < 1ms @ 20C	E1-M : 50 V	E1-M : 2KV
	E2-M : 100 V	E2-M : 2KV
	E3-M : 300 V	E3-M : 2KV

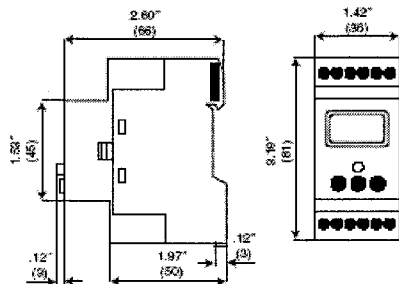
Maximum Line Voltage 277Vdc / 480Vac

Wiring Diagram



① AC or DC voltage to be controlled

Dimensions Inches (mm)



Part Numbers

24VDC	HDUL	.2 -60 V	84872301
24 VAC	HDUL	.2 -60 V	84872302
120 VAC	HDUL	.2 -60 V	84872304
230 VAC	HDUL	.2 -60 V	84872305
24VDC	HDUH	10 - 600 V	84872306
24 VAC	HDUH	10 - 600 V	84872307
120 VAC	HDUH	10 - 600 V	84872309
230 VAC	HDUH	10 - 600 V	84872310

Specifications:

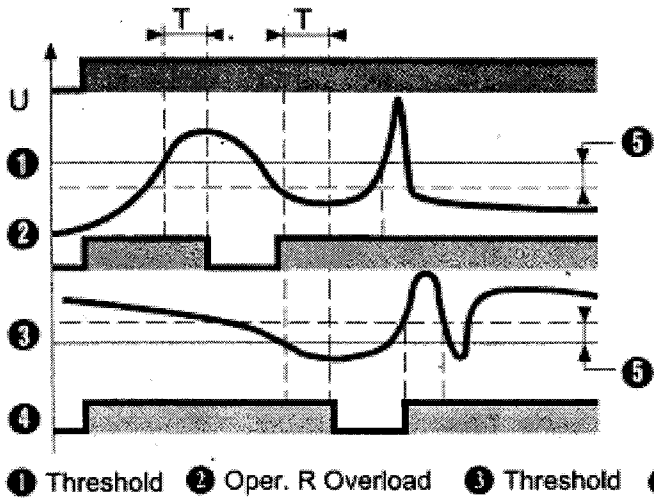
Input Power	24VDC, 24, 110, 230 VAC + 15%, 50/60 Hz
Max. power consumption	3VA at 230,120, 24VAC 1W at 24VDC
Frequency of measured signal (AC)	40-500 Hz
Setting accuracy - threshold	±10% of selected threshold
Hysteresis selection	5-50% of displayed threshold
Repeat Accuracy	±.1% w/constant parameters
Delay on threshold crossing	0.1 to 3 sec. - adjustable
Output	SPDT
Maximum current	5A resistive
Minimum current	100mA
Maximum switching voltage	250VAC
Electrical life of relay	500K operations at full load
Mechanical life of relay	5000K operations
Contact material	AgCdO
Case Material	Self extinguishing
Protection	Casing IP 40
	Terminal IP20 Housing IP 50
Operating Temperature	-4F to 140F(-20C to 60C)
Storage temperature	-22F to 158F(-30C to 70C)
Relative Humidity (No condensation)	93% +2% -3%
Weight	11.2 oz. (320g)
Threshold display accuracy	+/-10%
Display	Relay Status
	Over or Under mode
	Memory function
	Type of signal AC or DC Measurement overflow
Immunity to power cuts	10mS
Delay on pick-up	500mS
Insulation	Category III, pollution degree 2
	IAW IEC 664-1 & VDE 0110 4KV2

Note: 24VDC input version. The input voltage and the measured current **must be from separate sources**. The "negative" poles of the auxilliary power supply and the measurement circuit are connected internally

Operating Principles

The HDU is designed to control AC or DC voltages. The threshold and Hysteresis can be adjusted independently of each other via the 2 potentiometers on the front face. Before applying power you must select the operating mode using the dip switches located on the bottom side of the relay (with/without memory, over/under load). The mode is validated when power is applied to the relay. The voltage to be monitored is connected between terminals E1, E2, E3 and M depending on the range. See Settings

Voltage control without Memory



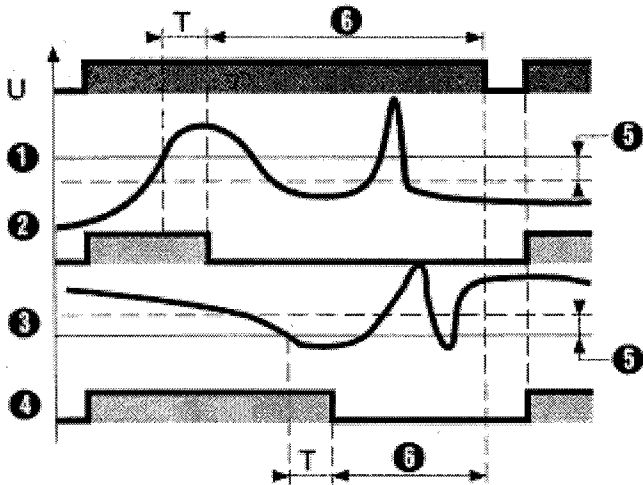
When the value of the AC / DC voltage reaches the set threshold value the output relay changes state at the end of the time delay T1 (contacts 11 & 14 open). The relay changes state again (contacts 11 & 14 closed) when the voltage falls below the threshold minus the hysteresis in the overload position, or above the threshold plus the hysteresis in the underload position.

Notes

The threshold crossing time delay T1, which is adjusted on the front face from 0.1 to 3s ensures immunity to transient voltages and other interferences, preventing the output relay from chattering.

In the "underload position the absolute value of the Hysteresis cannot be more than the maximum value of the measured range.

Voltage control with Memory



When the value of the AC / DC current reaches the set threshold value the output relay changes state at the end of the time delay T1 (contacts 11 & 14 open) and remains in that condition.

The relay is reset by disconnecting power from terminals A1 & A2.

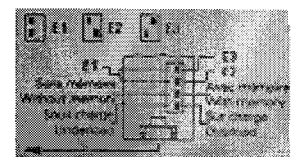
The memory mode allows for the detection of over or under voltage values for short durations.

- ① Threshold
- ② Oper. R Overload
- ③ Threshold
- ④ Oper. R Underload
- ⑤ Hysteresis
- ⑥ Memory

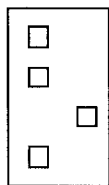
Settings

The setting switches can be found on the lower side of the relay.

The switch settings for the different modes can be found. Squares indicate switch positions right side of the relay in the lower left hand corner.



E1
W/O
Memory
Under



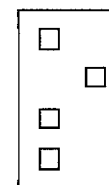
E1
With
Memory
Under



E1
W/O
Memory
Over



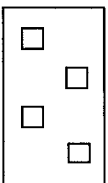
E1
With
Memory
Over



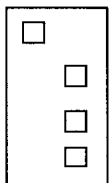
E2
W/O
Memory
Under



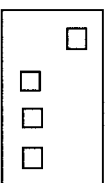
E2
With
Memory
Under



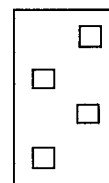
E2
W/O
Memory
Over



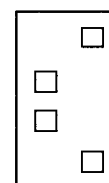
E2
With
Memory
Over



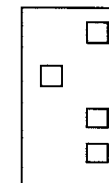
E3
W/O
Memory
Under



E3
With
Memory
Under



E3
W/O
Memory
Over



E3
With
Memory
Over