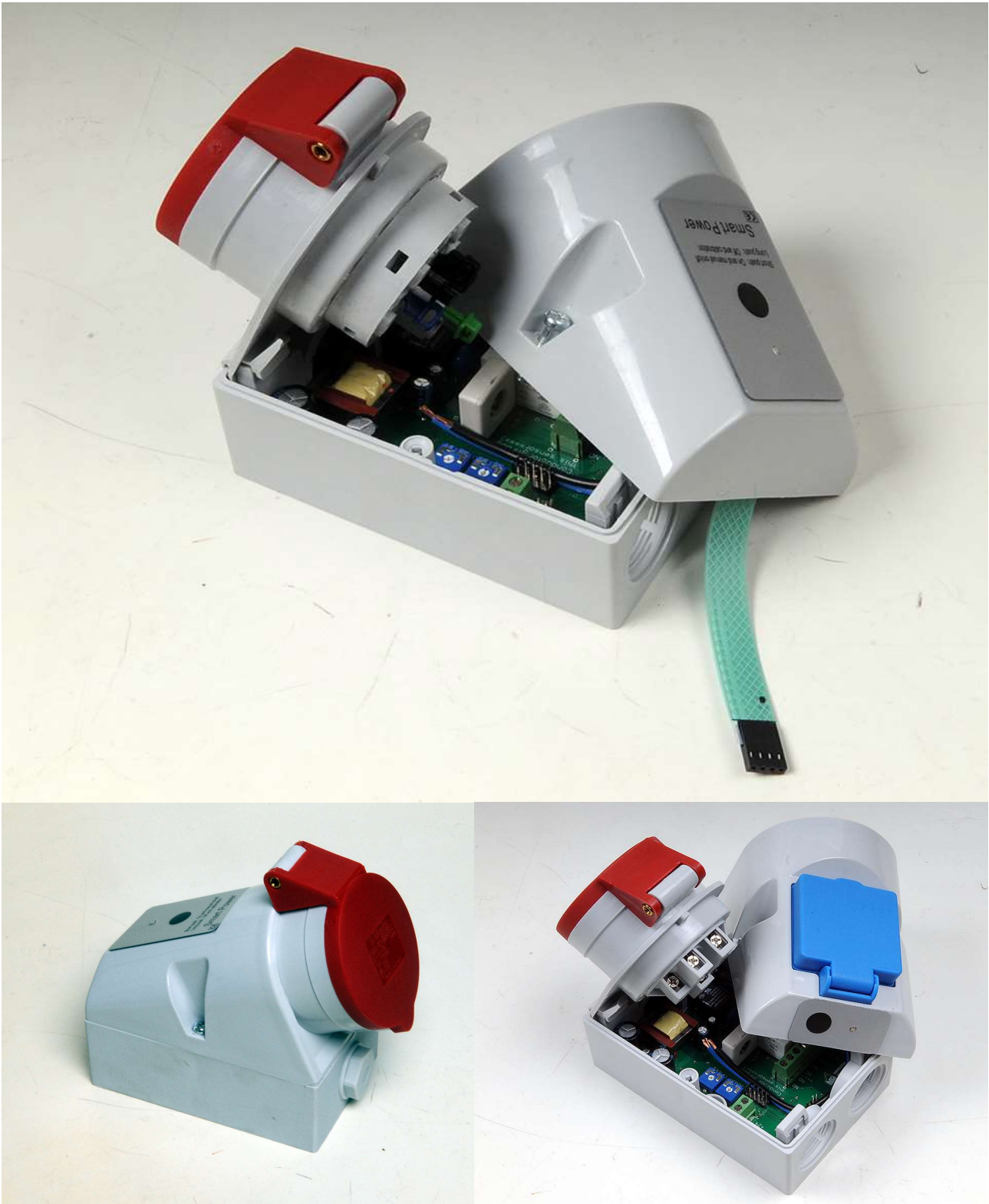


Smartpower version 4.0

The Smartpower controller facilitates automatic processes with reference in higher power consumption. The controller is designed to open ventilation dampers/starting ventilation motors when a device is in use. The device can be welders, angle-grinders, belt-sanders, plasma-cutters and much more. The result is savings on the electrical and heating bill. The controller is available in different CEE outlets and boxes. The controller is easy to install and calibrate, through the control panel.



Technical specifications

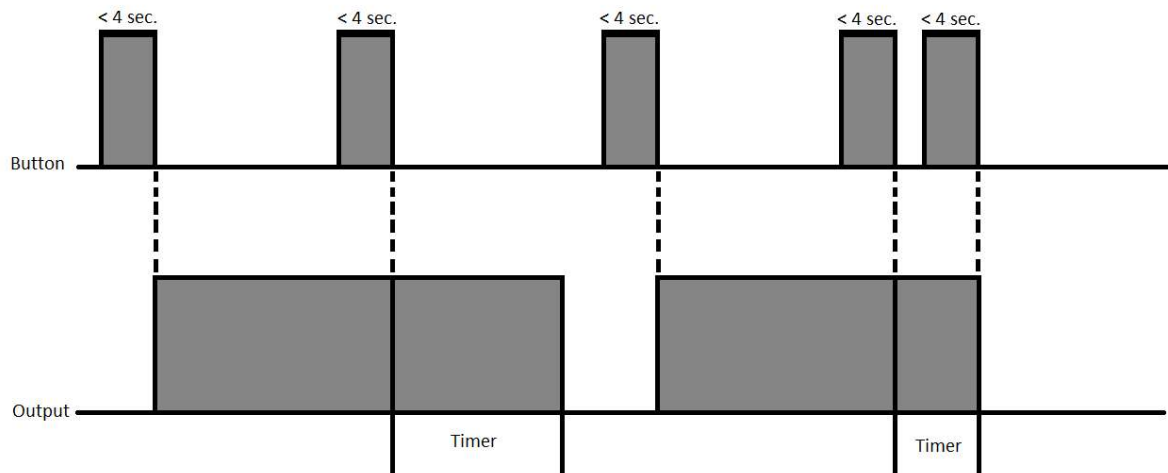
Supply voltage	110-230VAC
Standby power consumption	>0,5W
Maximum power consumption	30W
DC supply	24VDC 1A – short circuit protected
AC supply	110-230VAC, 1.5A
Output type	2 relays, 1NO, 1NO/NC
Build in timer	5-261 Sek
Current Sensor	AC Hall effekt

LED-indicator

NO LIGHT	OFF/no supply voltage
RED	Standby
YELLOW	Manual mode
YELLOW FLASHING	Manual timer active
GREEN	Automatic mode
GREEN FLASHING	Automatic timer active.

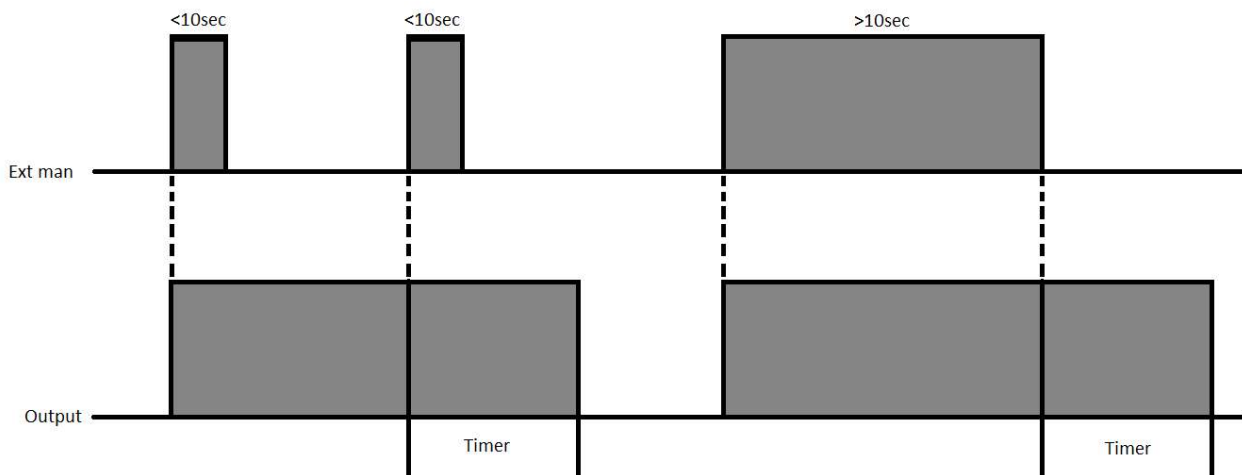
Manual function

The manual function is activated with a short push on the button. To deactivate, simply push again and the controller will activate the manual timer. The timer can be adjusted on the circuit board on the trimmer marked "Timer". The timer can be bypassed with another push and the controller will go into standby. Function table below.



External manual function

The use of an external manual switch is possible. The external manual input on terminal 2 is activated with +24VDC. This function can be toggled with a 24VDC pulse under 10 second. If the input is active for more than 10 seconds, the controller will recognize the switch as being a toggle switch. In this case the controller will deactivate when the input is low. Function table below.



Manuel auto OFF function

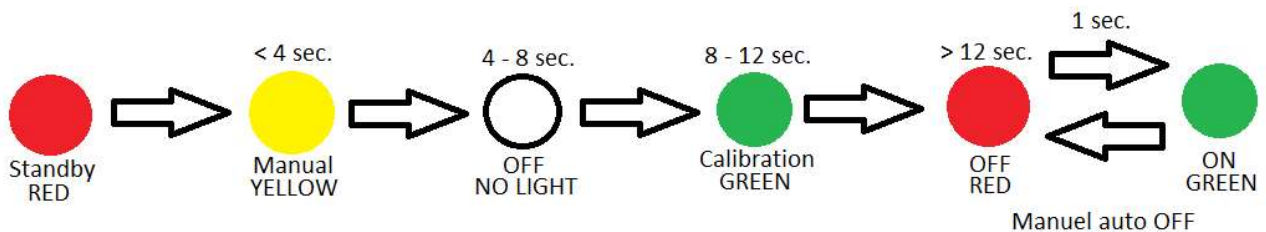
This is a built in feature in case the user forgets to turn the manual function off. The manual function is turned off after 30 min. and will start the timer. This feature can be disabled with the keypad. See the flow chart under operation.

Operation

The button has several functions:

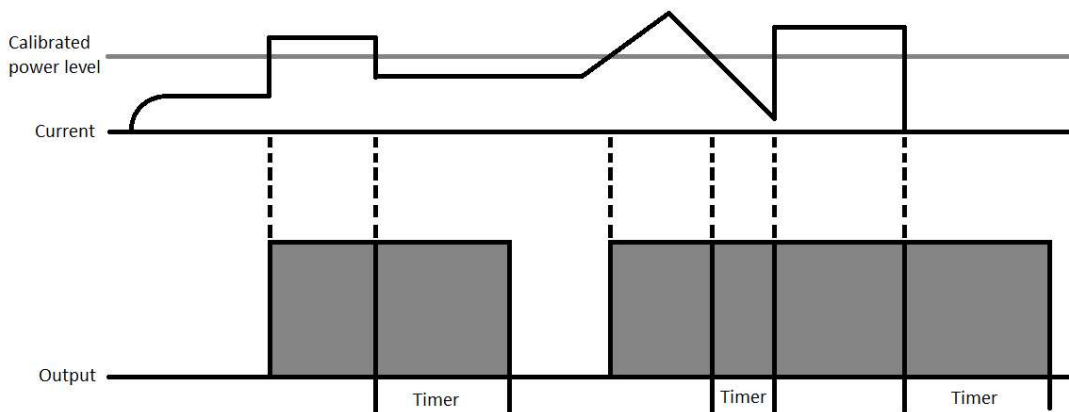
- 1: Manuel Mode
- 2: The controller can be turned OFF
- 3: Calibration of the standby power consumption
- 4: The manuel auto OFF function can be disabled

This is a flow chart with the different stages, when the button is pressed. When the function you need is lit up, simply release the button.



Automatic function

The controller is constantly monitoring the current sensor when in standby mode. If the power exceeds the calibrated level, the relays will activate and the LED will light up green. When the power consumption drops below the calibrated level, the controller will start the timer and the LED will flash green. Function table below.



Adjustments on the controller

There is a calibration procedure and 2 adjustment trimmers on the circuit board. These trimmers are for adjusting the timer and the sensitivity of the sensor. The timer adjustment is marked "TIMER" and the sensitivity adjustment is marked "I-SENS" on the circuit board.

The timer can be adjusted between 5-261 seconds. Prolonging the timer is done by turning the trimmer clockwise.

Adjusting sensitivity on the current sensor makes it possible to handle small and large currents. With low power consumption the sensitivity can be turned up by turning the trimmer clockwise. Reverse this with high power consumption. The software calibration must be executed after adjusting the sensitivity trimmer.

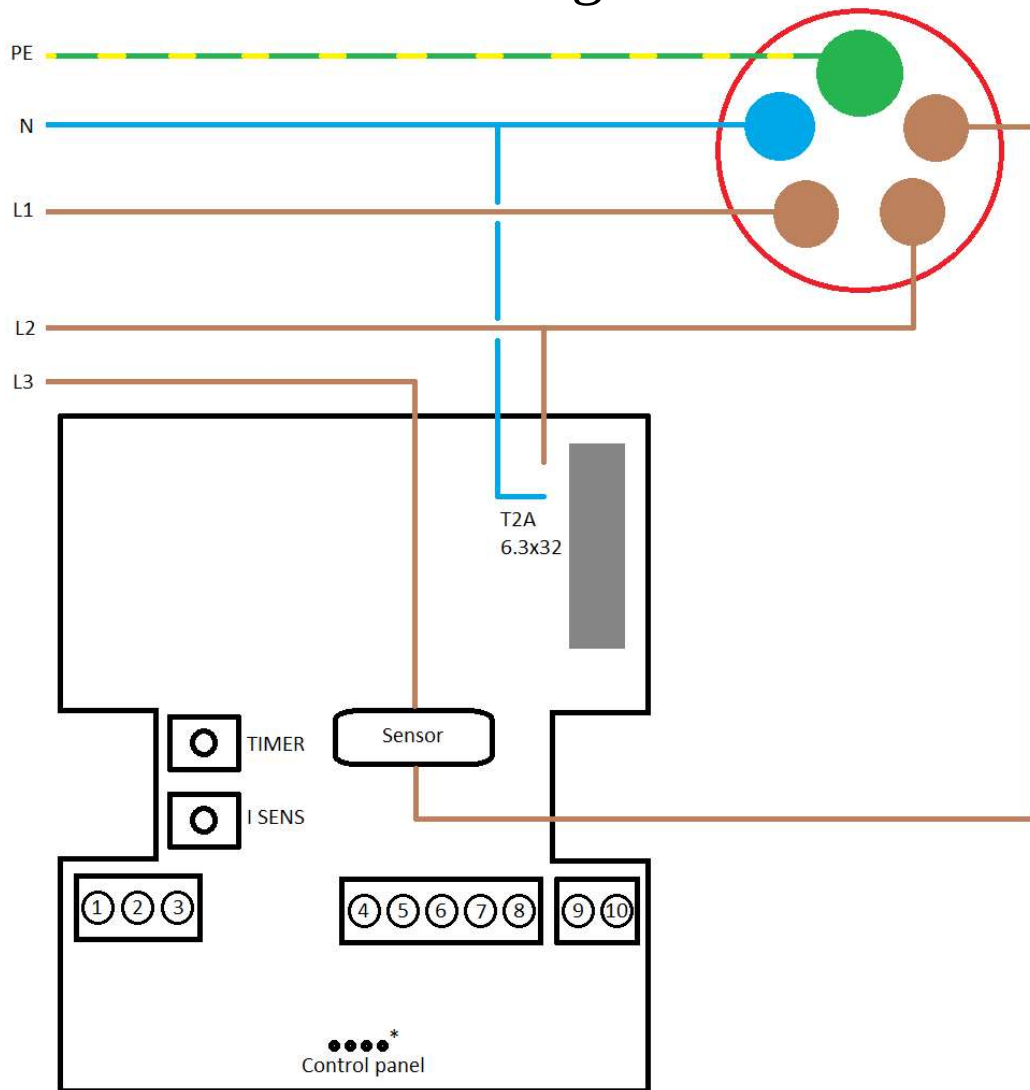
Software calibration is done by holding the button until the LED lights green. When the LED is green, let go of the button and the controller is calibrated. The value from the current sensor is stored and the software adds a predetermined value, to avoid fail triggering. In welders with cooling system it is important these circuits are active while performing the calibration. Otherwise the controller will activate on the power consumption from the cooling system.

Outputs

There are many possibilities with the 2 separate relay outputs. There is a NO output and a NO/NC output. The NO output is often used for ventilation dampers. The NO/NC output can be used to activate variable frequency drives, contactors, lights etc.

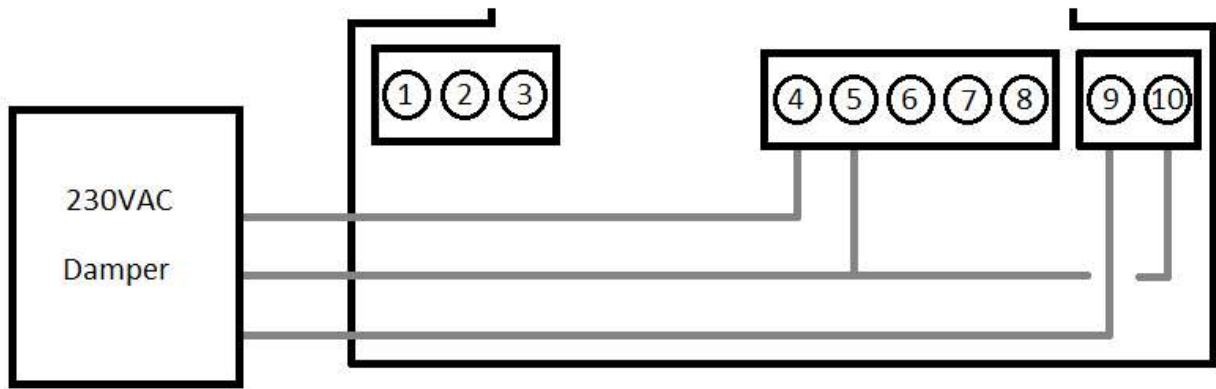
The relays are capable of handling 6A @ 250VAC. Also the contacts are gold plated, so they can handle small signals like 4-20mA control current.

Wiring

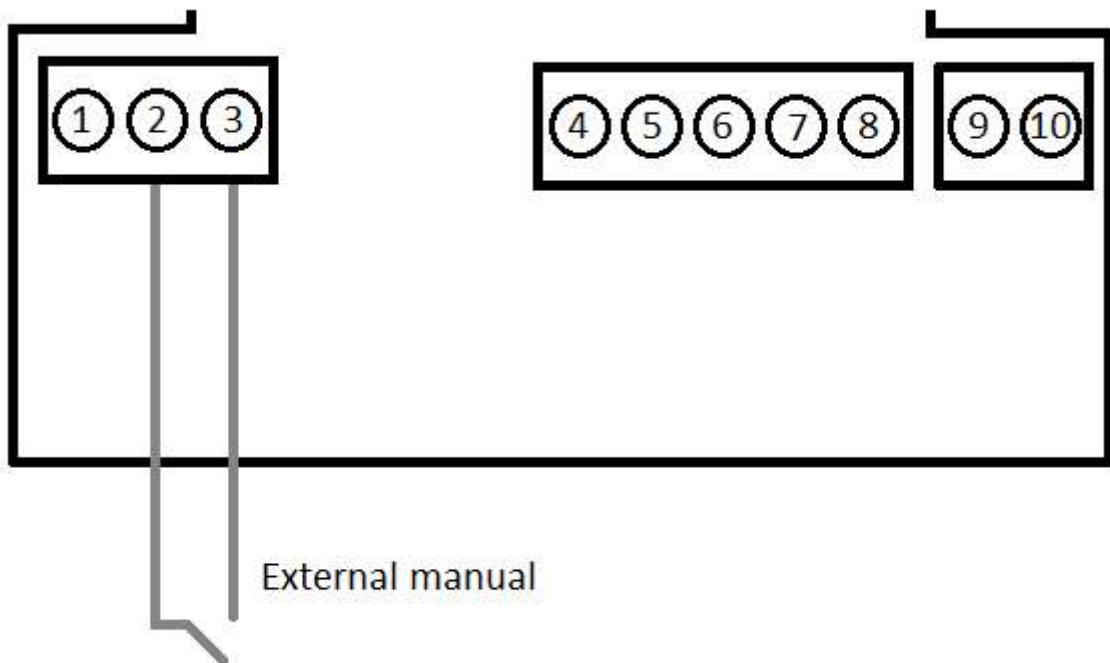


N and L are connected to the premounted wires on the controller. The conductor to be measured is looped through the sensor on the circuit board. The sensor is marked "conductor through this sensor". Notice the controller must not be powered with a conductor looping through the sensor. This can cause the controller self activate. The control panel is connected to the 4 pin header with the markings against each other. Terminal connections table below.

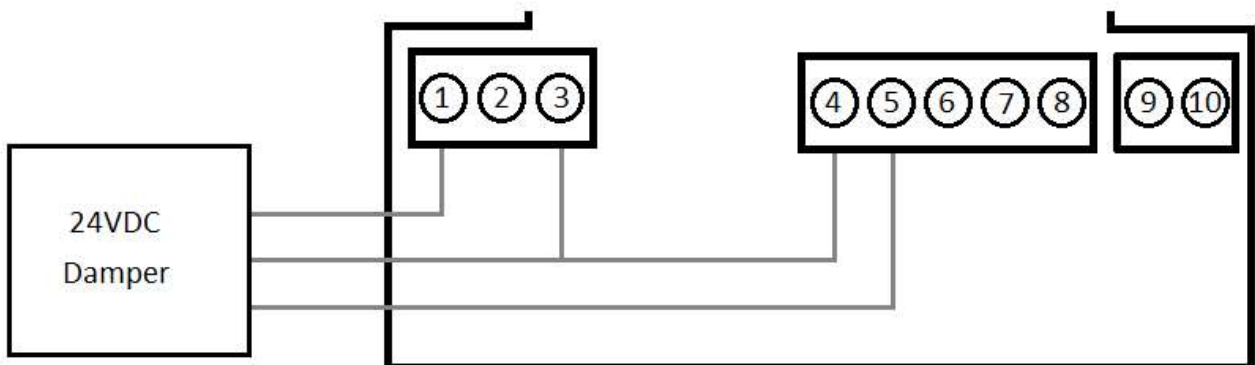
1	GND / -24V DC
2	External manual input
3	+24V DC
4	NO relay 1
5	NO relay 1
6	NC relay 2
7	NO relay 2
8	COM relay 2
9	L – AC output
10	N – AC output

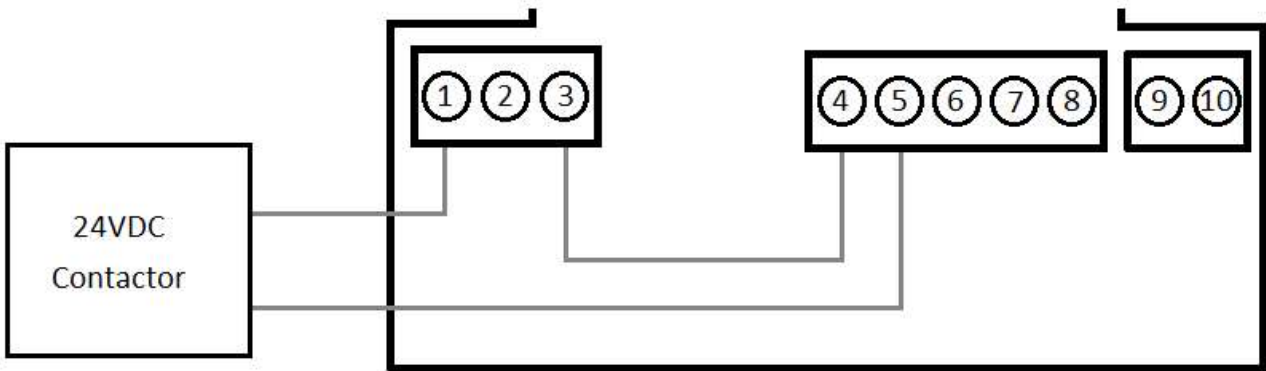


When using the AC output: notice terminal 9-10 is supplied through the same 2AT fuse as the controller. Maximum power draw is 350W.

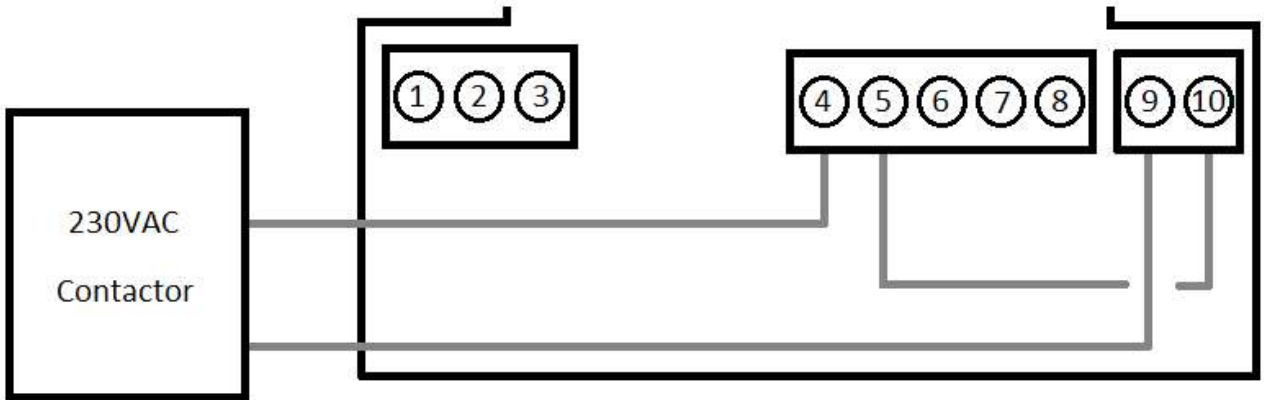


Notice the switch can be momentary or latching. Look at “external manual mode”.





Notice the 24VDC internal power supply can't deliver large inrush currents. This is relevant when using big contactors. If the installation requires big contactors it is recommended to use AC contactors. It is also recommended to use contactors with internal transient protection.



Notes
