

CURRENT MONITOR RELAYS

Product Summary



Current Monitor Relays monitor AC single phase currents for over or under current conditions. A separate 24 or 120VAC input (supply) voltage is required to power these units. Three current ranges are available: 0.1 – 1A; 0.5 – 5A; and 1 – 10A. An external current transformer may be used to extend the range of these products (see Typical Installations on Page 19). All versions are available in a compact plug-in case utilizing industry-standard 8 or 11 pin octal sockets.

The Reference Guide below provides general information on the different versions of Current Monitor Relays offered by Macromatic (see Product Selection on the following pages for further details):

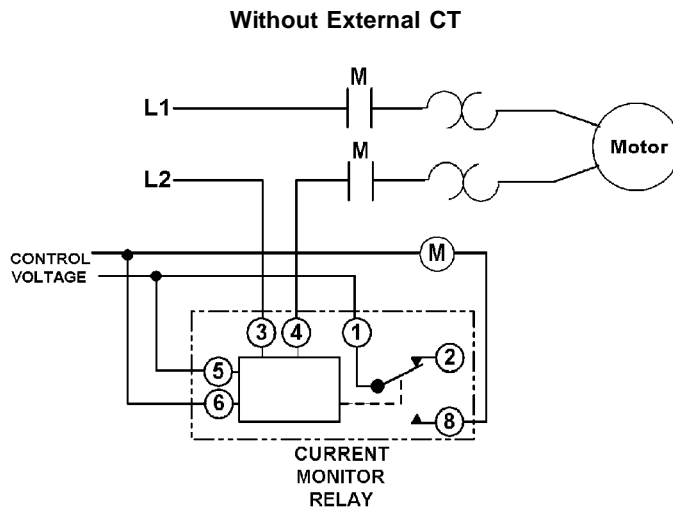
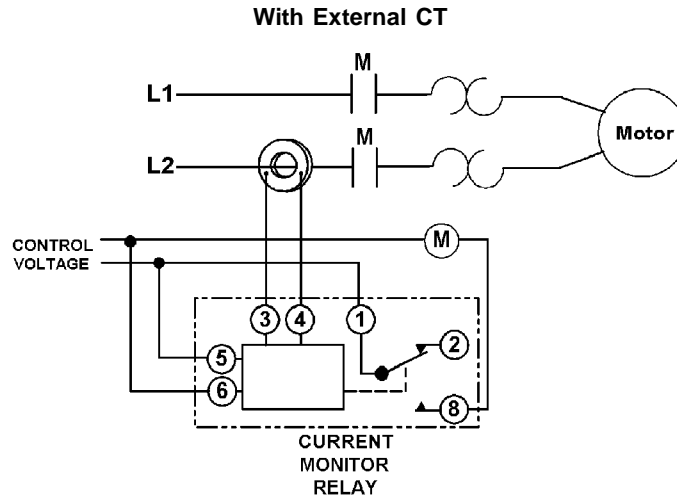
Series	Pick-up Current		Drop-Out Current		Function Chart	Page
	Setting	Time Delay	Setting	Time Delay		
CMP	Adjustable (Across Monitored Range)	Fixed 100ms *	Fixed at 95% of Pick-Up	Fixed 100ms *		20
CMKP			Adjustable 50-95% of Pick-Up	Fixed 100ms *		
COP	Adjustable (Across Monitored Range)	Adjustable 0.1-10 seconds	Fixed at 95% of Pick-Up	Fixed 100ms *		22
COKP			Adjustable 50-95% of Pick-Up	Fixed 100ms *		
CUP	Fixed (+5% of Drop-Out)	Fixed 100ms *	Adjustable (Across Monitored Range)	Adjustable 0.1-10 seconds		24

*Fixed time delay eliminates nuisance tripping due to short current surges or drops.

CURRENT MONITOR RELAYS

Product Summary

Typical Installations



Approvals

All Macromatic plug-in Current Monitor Relays are UL Component Recognized. They are also UL Listed when used with the appropriate Macromatic socket.

CURRENT MONITOR RELAYS

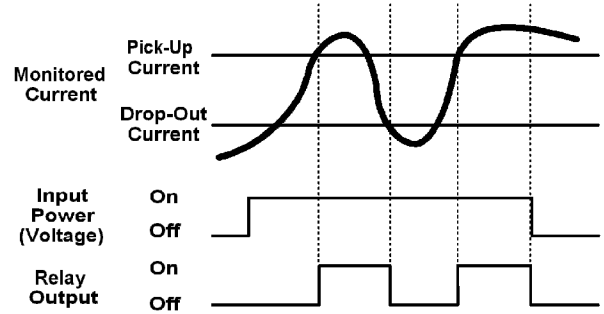
CM Series Standard AC PI ug-in



- u Monitors AC single phase currents
- u Three separate current monitoring ranges covering 0.1 - 10 amperes
- u External CT can be used to extend ranges
- u Adjustable Pick-up Setting with either Fixed or Adjustable Drop-out Setting
- u LED indicates output relay status
- u Choice of compact 8 Pin SPDT or 11 Pin DPDT plug-in case
- u 10A output contacts

The CM Series is used to detect either an overcurrent or undercurrent condition. The pick-up current setting is user-adjustable within one of three ranges as shown in the Product Selection Table below. An external current transformer can be used to extend the range beyond 10 amperes.

Choose between a fixed drop-out current setting at 95% of the selected pick-up setting or an adjustable drop-out setting of 50-95% of the selected pick-up setting. The relay will energize when the monitored AC current is above the pick-up setting, and will de-energize when the monitored AC current is below the drop-out setting. The time delay on both pick-up and drop-out is fixed at 100ms (for products with adjustable time delay on pick-up, see page 22; for adjustable time delay on drop-out, see page 24).



SPDT 8 Pin Plug-in

Pick-up Setting	Drop-Out Setting	Input Voltage	Current Range Monitored	Product Number	Wiring/Socket
Adjustable (Across Monitored Range)	Fixed (At 95% of Pick-Up)	24V AC	0.1 - 1A 0.5 - 5A 1 - 10A	CMP01A68 CMP05A68 CMP10A68	<p>Diagram 21</p>
		120V AC	0.1 - 1A 0.5 - 5A 1 - 10A	CMP01A62 CMP05A62 CMP10A62	
Adjustable (Across Monitored Range)	Adjustable (From 50-95% of Pick-Up)	24V AC	0.1 - 1A 0.5 - 5A 1 - 10A	CMKP01A68 CMKP05A68 CMKP10A68	
		120V AC	0.1 - 1A 0.5 - 5A 1 - 10A	CMKP01A62 CMKP05A62 CMKP10A62	

DPDT 11 Pin Plug-in

Pick-up Setting	Drop-Out Setting	Input Voltage	Current Range Monitored	Product Number	Wiring/Socket
Adjustable (Across Monitored Range)	Fixed (At 95% of Pick-Up)	24V AC	0.1 - 1A 0.5 - 5A 1 - 10A	CMP01A28 CMP05A28 CMP10A28	<p>Diagram 22</p>
		120V AC	0.1 - 1A 0.5 - 5A 1 - 10A	CMP01A22 CMP05A22 CMP10A22	
Adjustable (Across Monitored Range)	Adjustable (From 50-95% of Pick-Up)	24V AC	0.1 - 1A 0.5 - 5A 1 - 10A	CMKP01A28 CMKP05A28 CMKP10A28	
		120V AC	0.1 - 1A 0.5 - 5A 1 - 10A	CMKP01A22 CMKP05A22 CMKP10A22	



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CURRENT MONITOR RELAYS

CM Series Standard

AC Plug-in Application Data & Dimensions

Application Data

Input Voltage Tolerance:

AC Operation: +10/-15% of nominal at 50/60 Hz.

Load (Burden):

Less than 5VA

Current Settings:

Pick-up: Adjustable throughout current range monitored
Drop-out: Fixed at 95% of pick-up setting (CMP Series); or
Adjustable from 50-95% of pick-up setting (CMKP Series)

Temperature:

-28° to 55° C (-20° to 131° F)

Response Times:

Pick-up: 100ms

Drop-out: 100ms

Output Contacts:

10A @ 240V AC/30V DC, 1/2HP @ 120/240V AC (N.O.),
1/3HP @ 120/240V AC (N.C.)

Life:

Mechanical: 10,000,000 operations

Full Load: 100,000 operations

Indicator LED: Green when Input Voltage is applied;
Red when Relay is energized

Reset: Automatic. Contact Macromatic for information on a product with a latching function--the relay remains energized even after the current drops below the drop-out setting until a remote N.C. button is opened.

Mounting:

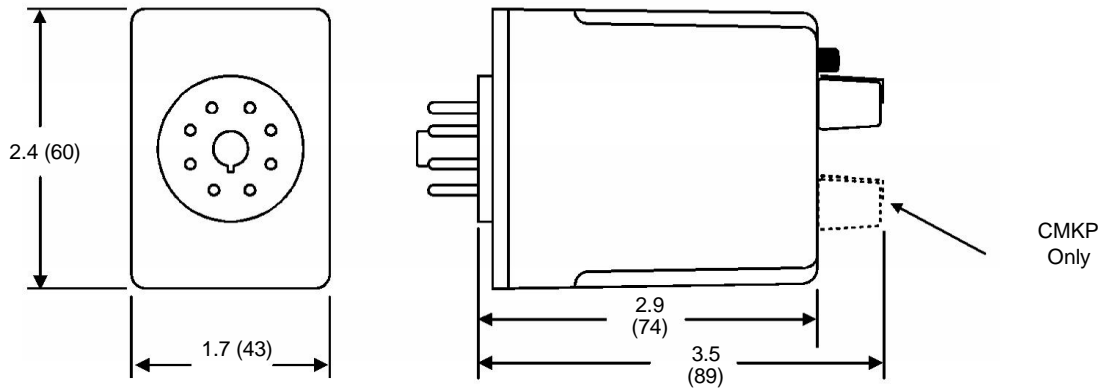
Requires an 8 or 11 pin octal socket--see page 81.

Approvals:

Low Voltage & EMC Directives
EN60947-1, EN60947-5-1

with appropriate socket
File #E109466

Dimensions



All dimensions are inches (millimeters)

CURRENT MONITOR RELAYS

CO Series Over current AC PI ug-in

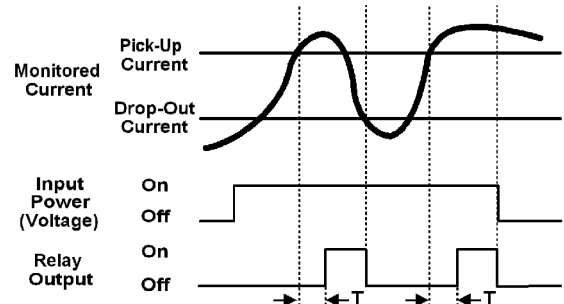


- u Monitors AC single phase currents for overcurrent conditions
- u Three separate current monitoring ranges covering 0.1 - 10 amperes
- u External CT can be used to extend ranges
- u Adjustable Pick-up Setting with either Fixed or Adjustable Drop-out Setting
- u Adjustable time delay of 0.1-10 seconds on pick-up
- u LED indicates output relay status
- u Choice of compact 8 Pin SPDT or 11 Pin DPDT plug-in case
- u 10A output contacts



The CO Series is used to detect an overcurrent condition. The pick-up current setting is user-adjustable within one of three ranges as shown in the Product Selection Table below. An external current transformer can be used to extend the range beyond 10 amperes.

Choose between a fixed drop-out current setting at 95% of the selected pick-up setting or an adjustable drop-out setting of 50-95% of the selected pick-up setting. The relay will energize when the monitored AC current is above the pick-up setting for a period longer than the adjustable time delay of 0.1-10 seconds. This delay prevents nuisance tripping caused by inrush currents. It will de-energize when the monitored AC current is below the drop-out setting.



8 Pin SPDT Plug-in

Pick-up Setting	Drop-Out Setting	Input Voltage	Current Range Monitored	Product Number	Wiring/Socket
Adjustable (Across Monitored Range)	Fixed (At 95% of Pick-Up)	24V AC	0.1 - 1A 0.5 - 5A 1 - 10A	COP01A68 COP05A68 COP10A68	<p>Diagram 21</p>
		120V AC	0.1 - 1A 0.5 - 5A 1 - 10A	COP01A62 COP05A62 COP10A62	
Adjustable (Across Monitored Range)	Adjustable (From 50-95% of Pick-Up)	24V AC	0.1 - 1A 0.5 - 5A 1 - 10A	COKP01A68 COKP05A68 COKP10A68	
		120V AC	0.1 - 1A 0.5 - 5A 1 - 10A	COKP01A62 COKP05A62 COKP10A62	

11 Pin DPDT Plug-in

Pick-up Setting	Drop-Out Setting	Input Voltage	Current Range Monitored	Product Number	Wiring/Socket
Adjustable (Across Monitored Range)	Fixed (At 95% of Pick-Up)	24V AC	0.1 - 1A 0.5 - 5A 1 - 10A	COP01A28 COP05A28 COP10A28	<p>Diagram 22</p>
		120VAC	0.1 - 1A 0.5 - 5A 1 - 10A	COP01A22 COP05A22 COP10A22	
Adjustable (Across Monitored Range)	Adjustable (From 50-95% of Pick-Up)	24V AC	0.1 - 1A 0.5 - 5A 1 - 10A	COKP01A28 COKP05A28 COKP10A28	
		120V AC	0.1 - 1A 0.5 - 5A 1 - 10A	COKP01A22 COKP05A22 COKP10A22	



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CURRENT MONITOR RELAYS

CO Series Overcurrent

AC Plug-in

Application Data & Dimensions

Application Data

Input Voltage Tolerance:

AC Operation: +10/-15% of nominal at 50/60 Hz.

Load (Burden):

Less than 5VA

Current Settings:

Pick-up: Adjustable throughout current range monitored

Drop-out: Fixed at 95% of pick-up setting (COP Series); or
Adjustable from 50-95% of pick-up setting (COKP Series)

Temperature:

-28° to 55° C (-20° to 131° F)

Response Times:

Pick-up: Adjustable 0.1-10 seconds

Drop-out: Fixed 100ms

Output Contacts:

10A @ 240V AC/30V DC, 1/2HP @ 120/240V AC (N.O.),
1/3HP @ 120/240V AC (N.C.)

Life:

Mechanical: 10,000,000 operations

Full Load: 100,000 operations

Indicator LED: Green when Input Voltage is applied;
Red when Relay is energized

Reset: Automatic. Contact Macromatic for information on a product with a latching function--the relay remains energized even after the current drops below the drop-out setting until a remote N.C. button is opened.

Mounting:

Requires an 8 or 11 pin octal socket--see page 81.

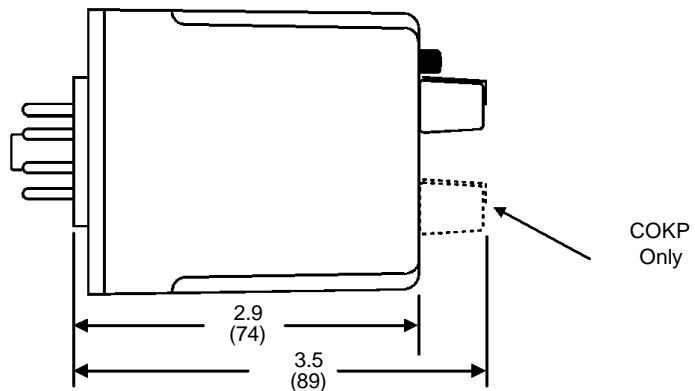
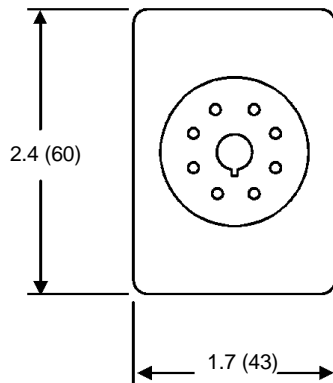
Approvals:



Low Voltage & EMC Directives
EN60947-1, EN60947-5-1

with
appropriate
socket
File #E109466

Dimensions



All dimensions are inches
(millimeters)

CURRENT MONITOR RELAYS

CU Series Undercurrent AC PI ug-in



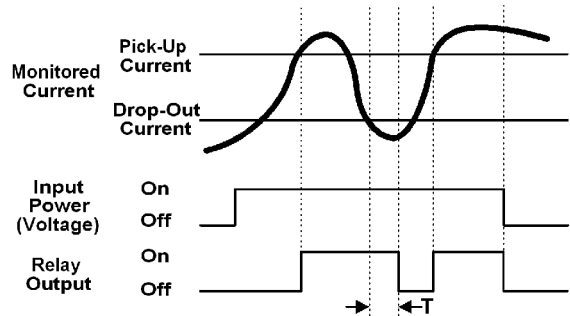
- u Monitors AC single phase currents for undercurrent conditions
- u Three separate current monitoring ranges covering 0.1 - 10 amperes
- u External CT can be used to extend ranges
- u Adjustable Drop-out Setting with Fixed Pick-up Setting
- u Adjustable time delay of 0.1-10 seconds on drop-out
- u LED indicates output relay status
- u Choice of compact 8 Pin SPDT or 11 Pin DPDT plug-in case

- u 10A output contacts



The CU Series is used to detect an undercurrent condition. The drop-out current setting is user-adjustable within one of three ranges as shown in the Product Selection Table below. An external current transformer can be used to extend the range beyond 10 amperes.

The pick-up current setting is fixed at +5% of the selected drop-out setting. The relay will energize when the monitored AC current is above the pick-up setting. It will de-energize when the monitored AC current is below the drop-out setting for a period longer than the adjustable time delay of 0.1-10 seconds. This delay prevents nuisance tripping caused by momentary line dips. The relay will energize when the current rises 5% above the drop-out setting.



8 Pin SPDT Plug-in

Pick-up Setting	Drop-Out Setting	Input Voltage	Current Range Monitored	Product Number	Wiring/Socket
Fixed (At +5% of Drop-Out)	Adjustable (Across Monitored Range)	24V AC	0.1 - 1A 0.5 - 5A 1 - 10A	CUP01A68 CUP05A68 CUP10A68	<p>Diagram 21</p>
		120V AC	0.1 - 1A 0.5 - 5A 1 - 10A	CUP01A62 CUP05A62 CUP10A62	

11 Pin DPDT Plug-in

Pick-up Setting	Drop-Out Setting	Input Voltage	Current Range Monitored	Product Number	Wiring/Socket
Fixed (At +5% of Drop-Out)	Adjustable (Across Monitored Range)	24V AC	0.1 - 1A 0.5 - 5A 1 - 10A	CUP01A28 CUP05A28 CUP10A28	<p>Diagram 22</p>
		120V AC	0.1 - 1A 0.5 - 5A 1 - 10A	CUP01A22 CUP05A22 CUP10A22	



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CURRENT MONITOR RELAYS

CU Series Undercurrent

AC Plug-in

Application Data & Dimensions

Application Data

Input Voltage Tolerance:

AC Operation: +10/-15% of nominal at 50/60 Hz.

Load (Burden):

Less than 5VA

Current Settings:

Pick-up: Fixed at 5% above adjustable drop-out setting

Drop-out: Adjustable throughout current range monitored

Temperature:

-28° to 55° C (-20° to 131° F)

Response Times:

Pick-up: Fixed 100ms

Drop-out: Adjustable 0.1-10 seconds

Output Contacts:

10A @ 240V AC/30V DC, 1/2HP @ 120/240V AC (N.O.),

1/3HP @ 120/240V AC (N.C.)

Life:

Mechanical: 10,000,000 operations

Full Load: 100,000 operations

Indicator LED: Green when Input Voltage is applied;

Red when Relay is energized

Reset: Automatic

Mounting:

Requires an 8 or 11 pin octal socket--see page 81.

Approvals:

UL
File #E109466

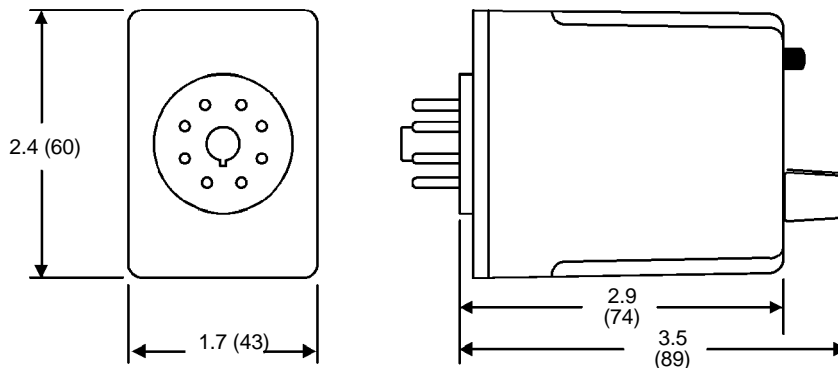
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CE

Low Voltage & EMC Directives
EN60947-1, EN60947-5-1

with
appropriate
socket
File #E109466

Dimensions



All dimensions are inches
(millimeters)