THREE PHASE AC OVERCURRENT GUARD

KOC112x

- **Generator Overcurrent Protection with definite time trip delay**
- **Two individually settable overcurrent relays**
- **The Pathfinder function eases faultfinding**
- **Triple relay operation give more flexibility**
- **For use with 1A or 5A current transformers**
- **Up to two individually very fast analogue output signals (<50mS), (optional)**
- **DIN96 Slave Indicator with full current scale (optional)**

Specifications

Standard Auxiliary Voltage:	100-120V, 200-240V, 380-415V, 440-460V, 480VAC, 40-70Hz (Fuse 0,5A)
Optional Auxiliary Voltage:	24-60VDC (Fuse 0,5A) 110-220VDC (Fuse 1A)
Supply tolerance:	+10%, -20%
Power rating:	5VA
Current Input:	1A CT or 5A CT, <0,1VA
Contact rating:	AC: 100VA -250V/2A max. DC: 50W -100V/1A max.
Adjustments:	Depending on the selected model (see page 2)
Ampere range:	Any % of the CT value
Analogue output 1: (see page 3 for available outputs)	mA: Up to 20mA, max 500R V: Up to 10V, min 100kohm (other on request)
Analogue output 2: (see page 3 for available outputs)	mA: Up to 20mA, max 500R V: Up to 10V, min 500ohm (other on request)
Accuracy:	Class 0,5
Temperature:	-20 to +70ºC
Humidity, relative:	0-95%
Weight:	0.6kgs
Front protection:	IP21
Flammability:	UL94-V0

The unit meets EN 60255-27 Cat. III, Pollution degree 2 and the relevant environmental and EMC tests specified in EN 60255-26 to comply with the requirements of the major Classification Societies.

Related information:
The KOC112x series are also available for panel mounting as KEC112x series.

Description

KOC112x series provides overcurrent guard for overload protection of AC generators, motors, transformers etc. for alarms or tripping of non-essential load or breaker.

True RMS measurement not affected by heavily distorted waveforms provides highest up precision (1.0%) protection.

The standard models takes the auxiliary supply voltage from the monitored voltage (terminal 1 & 2).

It can also be delivered with optional separate DC auxiliary voltage (terminal 26 & 27), but that must be specified when ordering (see page 3 for ordering code for separate Aux. Supply).

User settable trip levels and delays. Colour of LEDs indicates alarm status. Alarm LEDs flash during count-down.

LED status		
Power	O/C 1	O/C 2
●	●	●
Normal	Alarm	Alarm

On non-latching units the adjustable hysteresis can be used for reinstating disconnected loads when current levels fall.

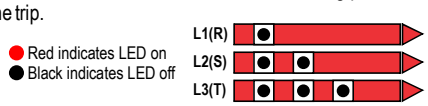
OUTPUTS
Up to two individual very fast analogue output signals (optional) proportional to range (see page 2 for models with outputs). The analogue output is isolated from the CT and auxiliary power.

RELAY OUTPUTS
Relay operation depends on the selected model (see page 2). Other combinations are available on request.

KOC112x

Pathfinder

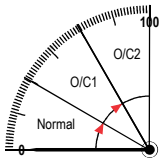
The Pathfinder (only on latching models) indicates the phase causing an over current or short circuit trip by the flashing pattern of the relevant LED. When either short circuit or over current trips have operated the relevant LED will flash in the following pattern to indicate the phase producing the trip.



Relay Configurations

The relay operation is delayed in the arrow direction, the reset is instantaneous.

Both trip levels can, independently, individually set over the scale range (0-150% FLC).



Description

Relay Operation

(FLC = Full Load Current)

KOC112E - KOC112FA / FB - KOC112G - KOC112GFA / FB

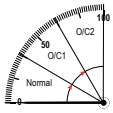
Relays shown de-energised. R2 is fail-safe and energises when unit is powered. R1 energises when trip level one (Overcurrent 1) is exceeded and R2 trips when trip level two (Overcurrent 2) is exceeded.

R3 is an extra status relay that energises if either alarm relay 1 or 2 is active and can be used for local indication, PMS input, alarm system input etc.

Adjustable Hysteresis **only** on non-latchmodels.

Relay	O/C1	O/C2	N/A	Fail Safe	Latch	Fixed Hysteresis	Adjustable Hysteresis	N/A	N/A
R1	X				X		*X		
R2		X		X	X		*X		
R3	X	X			X				

Models	Latch	Output 1	Output 2
KOC112E	-	-	-
KOC112FA	-	X	-
KOC112FB	-	X	X
KOC112G	X	-	-
KOC112GFA	X	X	-
KOC112GFB	X	X	X



Adjustments	Trip level	Delay
O/C1:	0-150% of FLC	0-30secs
O/C2:	0-150% of FLC	0-30secs
Hysteresis O/C1:	2-50% of FLC	
Hysteresis O/C2:	2-50% of FLC	

***X)** Adjustable Hysteresis **only** on non-latchmodeles.

Relays shown de-energised. R1 & R2 are fail-safe and energises when unit is powered.

KOC112C - KOC112CFA / FB - KOC112CG - KOC112CGFA / FB

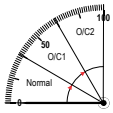
Relays shown de-energised. R2 is fail-safe and energises when unit is powered. R1 energises when trip level one (Overcurrent 1) is exceeded and R2 trips when trip level two (Overcurrent 2) is exceeded.

R3 is an extra status relay that energises if either alarm relay 1 or 2 is active and can be used for local indication, PMS input, alarm system input etc.

Adjustable Hysteresis **only** on non-latchmodels.

Relay	O/C1	O/C2	N/A	Fail Safe	Latch	Fixed Hysteresis	Adjustable Hysteresis	N/A	N/A
R1	X				X		*X		
R2		X		X	X		*X		
R3	X	X			X				

Models	Latch	Output 1	Output 2
KOC112C	-	-	-
KOC112CFA	-	X	-
KOC112CFB	-	X	X
KOC112CG	X	-	-
KOC112CGFA	X	X	-
KOC112CGFB	X	X	X



Adjustments	Trip level	Delay
O/C1:	0-150% of FLC	0-3secs
O/C2:	0-150% of FLC	0-3secs
Hysteresis O/C1:	2-50% of FLC	
Hysteresis O/C2:	2-50% of FLC	

***X)** Adjustable Hysteresis **only** on non-latchmodeles.

Relays shown de-energised. R1 & R2 are fail-safe and energises when unit is powered.

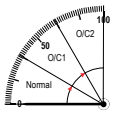
KOC112B - KOC112BFA / FB

Relays shown de-energised. R1 and R3 are fail-safe and energises when unit is powered. R1 energises when trip level one (Overcurrent 1) is exceeded and R2 trips when trip level two (Overcurrent 2) is exceeded.

R3 is an extra status relay that energises if either alarm relay 1 or 2 is active and can be used for local indication, PMS input, alarm system input etc.

Relay	O/C1	O/C2	N/A	Fail Safe	Latch	Fixed Hysteresis	Adjustable Hysteresis	N/A	N/A
R1	X			X	X				
R2		X			X				
R3	X	X		X	X				

Models	Latch	Output 1	Output 2
KOC112B	X	-	-
KOC112BFA	X	X	-
KOC112BFB	X	X	X



Adjustments	Trip level	Delay
O/C1:	0-150% of FLC	0-30secs
O/C2:	0-150% of FLC	0-30secs
Hysteresis O/C1:	N/A	
Hysteresis O/C2:	N/A	

Relays shown de-energised. R1 & R2 are fail-safe and energises when unit is powered.

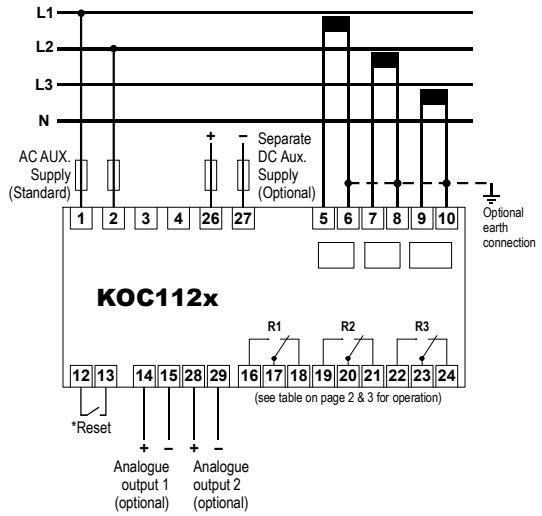
The MEGACON policy is one of continuous improvement, consequently equipment supplied may vary in detail from this publication.

Depending on application, select the model that matches the electrical installation.
If none of the listed models fit your purpose please contact Megacon for customer adaptation.

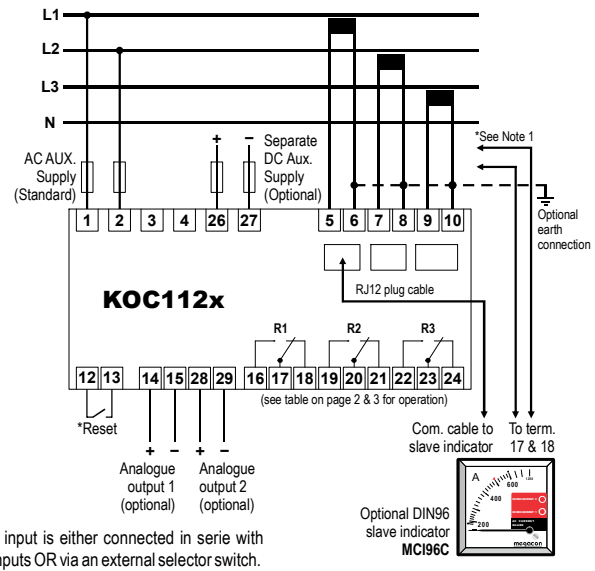
IS range

Connection Diagram

Connection Diagram without optional slave instrument



Connection Diagram with optional slave instrument



***Note 1**
Slave Ammeter input is either connected in serie with one of the C.T. inputs OR via an external selector switch.

***Reset**
Any latched relay is reset by linking terminals 12 and 13 or by interrupting the auxiliary voltage supply.

Analogue Output

The output signals are proportional to the meter reading (see page 2 for an overview of models and functions).

The signal is specifically intended as an input to a control system for monitoring or control.

Add suffix from table below to type designation to specify output required:

Outputs 1		Outputs 2	
O/P1	**0 - 10mA**	O/P11	**0 - 10mA**
O/P2	**0 - 20mA**	O/P12	**0 - 20mA**
O/P3	**4 - 20mA**	O/P13	**4 - 20mA**
O/P4	N/A	O/P14	N/A
O/P5	N/A	O/P15	N/A
O/P6	N/A	O/P16	N/A
O/P7	N/A	O/P17	N/A
O/P8	**0 - 10V**	O/P18	**0 - 10V**
O/P9	**0,2 - 10V**	O/P19	**0,2 - 10V**
O/P10	**4,3 - 20mA**	O/P20	**4,3 - 20mA**

Relay Contacts

Burden on supply	: 170mW per relay
Switching voltage (Max)	: 400V AC, 300V DC
Switching voltage (Rated)	: 250V AC, 30V DC
Max I continuous	: 6A RMS, 6A DC
Max breaking capacity	: 1500VA AC, 18-120W DC
Dielectric strength across Open contacts	: 1000V RMS

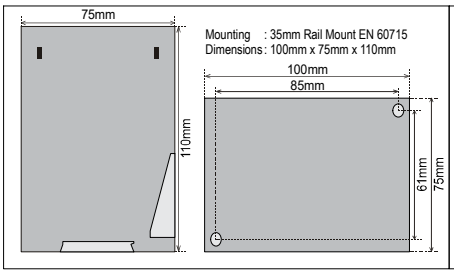
Connection

Terminal type	: Terminal Clamp and Screw
Wire max.	: T1-T4, T26-T27: AWG 24-14, T5-T10: AWG 12, other terminals: AWG 24-12
Screw Torque	: 0.5Nm

Overload

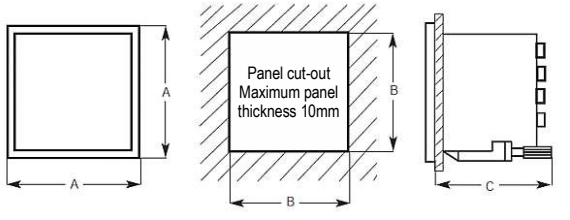
Voltage	: 1.2 x Un continuous 2 x Un for 10secs
Current	: 2.5 x In continuous 5 x In for 1secs (max 25A)

Dimensions



Slave Indicator

	A	B	C
DIN96	96 x 96mm	92 x 92mm	64mm



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ORDERING INFORMATION (Example)

Type	: KOC112FB
Aux. Supply	: 200-240VAC
Input Current C.T.	: 1500/5A
Range	: 0-1,5/3kA
Analogue output 1	: O/P3: 4-20mA
Analogue output 2	: O/P18: 0-10VDC

Optional Separate Aux. Supply:
Add **-SD** for models with Separate **DC** Aux. Supply.
(Example: KOC112FB-**SD**)

IS range