



- Grounded neutral earth current Protection
- Definite Time Trip Delay
- Two individually settable alarm relays
- For use with 1A or 5A current transformers
- Non-resistive earth current offset function
- Very fast analogue output (<math><50\text{mS}</math>), (F-version)

## Specifications

Auxiliary Voltage:	100-120, 200-240, 380-415 or 440-460VAC, 40-70Hz (Fuse 0,5A)	
Optional Auxiliary Voltage:	24, 48 or 110VDC (Fuse 2A)	
Supply tolerance:	$\pm 10\%$	
Power rating:	1,5VA	
Current Input:	1A or 5A C.T. (Preferred class 0,5 or better)	
Scaling	Minimum 10% of the C.T. rating See page 2 for application notes	
Contact rating:	AC: 100VA - 250V/2A max. DC: 50W - 100V/1A max.	
Adjustments:	Trip level:	Delay:
ALARM:	0-100% of FSD	0-30secs
WARNING:	0-100% of FSD	0-30secs
Offset:	0-25%	
Analogue Output:	Up to 20mA, max 500R Up to 10V, min 100kohm (other on request)	
Temperature:	-20 to +70°C	
Weight:	0.64kgs	
Front protection:	IP52 (IP65 optional)	

The unit meets EN 61010-1 Cat. III, Pollution degree 2 and the relevant environmental and EMC tests specified in EN 61326-2-4 to comply with the requirements of the major Classification Societies.

## Description

**KPC105x monitors leakage current in a grounded neutral network and provides earth current protection.**

True RMS measurement not affected by heavily distorted waveforms (1.0%) protection. Less than 50mS current detection time. R1 energises when trip level one (Warning) is exceeded and R2 trips when trip level two (Alarm) 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.

Fast response mA output signal proportional to a range (F-version).

### Safety

The instrument measuring input is overload protected against high current  $<15 \times \text{CT}/(1\text{A})$  or  $<3 \times \text{CT}/(5\text{A})$ . If unit is used for tripping it is recommended to use manual reset.

User settable trip levels and delays. Colour of LEDs indicates alarm status. LEDs flash during countdown.

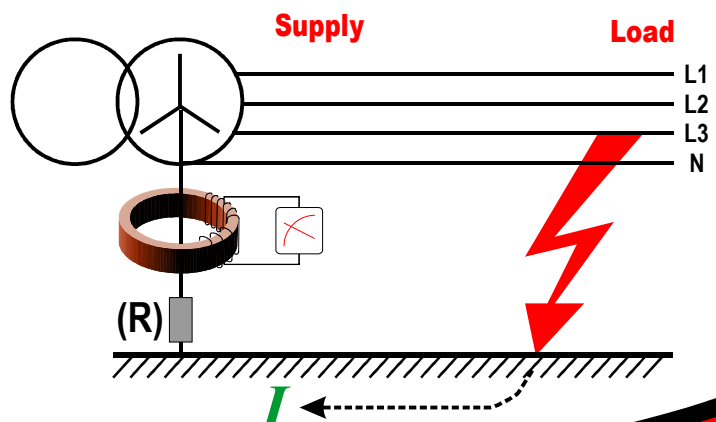
### Offset Function

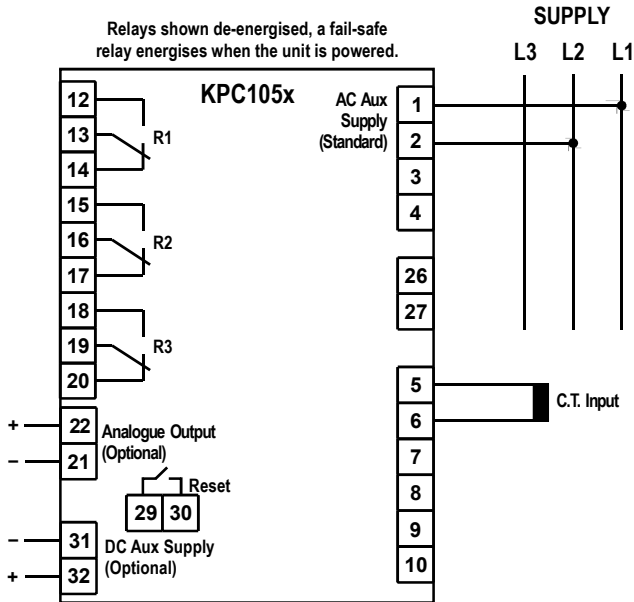
Only the resistive (ohmic) earth leakage current is a measure for the insulation condition between the AC supply and its protective earth. Any reading of leakage current in a fault free network will be caused by the networks spread capacitance. An offset potentiometer on the rear allows normal reactive (capacitive) currents to be ignored.

### Protective Earth (PE) Grounding

The neutral grounding point is monitored by a Current Transformer (preferable class 0,5 or better). The ground connection can be directly or through a neutral earth resistor to reduce the maximum earth current in the network.

Any leakage to earth on the LOAD side will be seen as an imbalance situation, and will cause the Earth Current Guard to trip if leakage current exceeds the trip level settings.





## Analogue Output

KPC105F and KPC105GF have an analogue output proportional to meter reading. (Special outputs are available on request)

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

O/P1	0 - 10mA	O/P6	N/A
O/P2	0 - 20mA	O/P7	N/A
O/P3	4 - 20mA	O/P8	0 - 10VDC
O/P4	N/A	O/P9	N/A
O/P5	N/A	O/P10	N/A

## Application note

The selection of current transformer (C.T.) depends on the application. The C.T. must be able to withstand the maximum possible earth fault before the KPC105x trip the breaker. The customer must select the desired scaling.

### Example of current transformer and scaling:

C.T. Ratio: 400/5A       $\frac{5A}{400A : 20A} = 250mA$  (Input from the C.T.)  
Scaling is set to: 0-20A

or  
C.T. Ratio: 50/1A       $\frac{1A}{50A : 10A} = 200mA$  (Input from the C.T.)  
Scaling is set to: 0-10A

A standard Crompton C.T. can take 60 x rated current for 1 second. So maximum application earth fault current must be less than 60 x 400 = 24kA.

If there is a grounding resistor to limit the earth fault current you do not need the C.T. to take so high short circuit current.

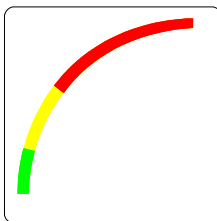
## Relay Reset

Any latched relay is reset by linking terminals 29 and 30 or by interrupting the voltage input to terminal 1.

## Settings

Coloured sectors show recommended areas of settings:

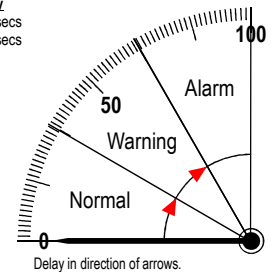
- - Red indicates alarm trip zone
- - Yellow indicates warning trip zone
- - Green indicates healthy zone



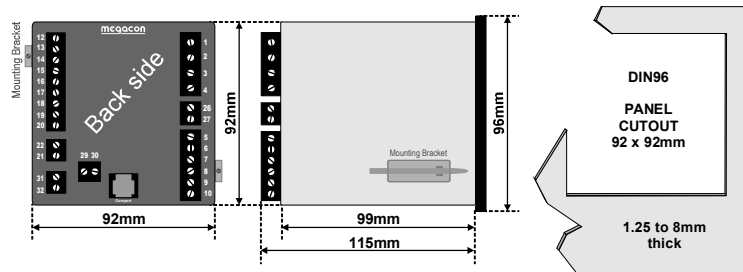
## Relay Operation

	Warning	Alarm	Fail safe	Latch
R1	✓			* ✓
R2		✓		* ✓
R3	✓	✓	✓	* ✓

Model	Latch	Output	Adjustments	Trip level	Delay
KPC105E	-	-	WARNING: 0-100%	0-100%	0-30secs
KPC105F	-	X	ALARM: 0-100%	0-100%	0-30secs
KPC105G*	X	-			
KPC105GF*	X	X			



## Dimensions



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

### ORDERING INFORMATION

Product type	: KPC105F
Aux. Supply	: 230VAC
C.T.	: 50/1A
Scale	: 0-10A
Analogue output	: O/P3: 4-20mA
Example	: KPC105F, 230VAC, 50/1A, 0-10A, O/P3:4-20mA

