



- Precision Generator kW Load Protection, not affected by heavily distorted waveforms
- Total processing time less than 50mS
- 3 or 4-wire systems. Definite time trip delays
- 2-level overload protection (F version)
- Optional fast analogue kW-signal output, <50mS
- Wide range setting of overload contact hysteresis

Specifications

Monitored Voltage:	100-120, 200-240, 380-415 or 440-460VAC, 40-70Hz (Fuse 0,5A)		
Optional separate aux. supply: (Add nr 2 for models with separate AC aux. supply. ex. KPW171C2)	AC	DC	
	100-120V, 200-240V, 380-415V, 440-460V (Fuse 0.5A)	24, 48, 110VDC (Fuse 2A)	
Current Input:	1 or 5A C.T. <0,1VA		
Contact rating:	AC: 100VA - 250V/2A max. DC: 50W - 100V/1A max.		
Adjustments:	Trip level:	Delay:	
	Overload:	0-100% of FSD	0-30secs
	Reverse Power:	0-20% of FSD	0-30secs
Hysteresis:	2-50%		
Adjus. F-versions:	Trip level:	Delay:	
	Overload 1:	0-100% of FSD	0-30secs
	Overload 2:	0-100% of FSD	0-30secs
	Reverse Power:	0-20% of FSD	0-30secs
Hysteresis:	Fixed 10%		
Analogue Output:	Up to 20mA, max 500R Up to 10V, min 100kohm (other on request)		
Temperature:	-20 to +70°C		
Weight:	0.6kgs		
Front protection:	IP54 (IP65 optional)		

Application

The digital controlled KPW17x range provides precision (1.0%) reverse power and overload protection and monitoring of three phase generators.

Available for 3-phase 3-wire (2W3) and 4-wire (3W4) systems.

The unit measures the voltage and current true r.m.s. value, and accuracy is independent of any wave form distortion. As standard the auxiliary voltage is taken from the unit monitored voltage input. A separate AC or DC auxiliary voltage is optionally available.

A green LED indicates POWER on. Start of monitoring function is delayed when power is switched on (default 2 secs delay). In this way false tripping during power up is avoided.

The DIN96 instrument reads the power level directly in kW. The wattmeter and the triple-zone status LEDs at a glance gives the clear safety message:

- OVERLOAD
- NORMAL
- REVERSE POWER

Relay operation depends on the selected model. Other combinations are available on request.

OUTPUTS

If output is used for remote meter reading, we recommend 0-1mA for the slave indicator.

The unit meets IEC60092-504 and the relevant environmental and EMC tests specified in IEC60068/60092 and IEC61000/60533 respectively, to comply with the requirements of the major Classification Societies.

Related information:

The KPW17x-range is also available for rail mounting as KCW17x.

Description

KPW171C - KPW171H & KPW176A - KPW176H

Configuration: 3-Phase, 3-Wire (Bi-Polar 1)

3-wire configuration. Reverse power relay (R1) is used to trip the generator breaker. The overload relay (R2) can be used for non-essential load release or as start signal to standby generator etc. A wide range overload hysteresis can be set to enable R2 to be used for non-essential load to be reconnected or as standby generator stop signal. Relay R3 is intended for notification of a reverse power condition, or can be used for local indication, as input to an alarm system etc. R1 and R3 will latch after trip.

	REVERSE POWER	OVER LOAD	N/A	Fail Safe	Latch	Fixed Hysteresis	Adjustable Hysteresis
R1	✓			✓	*✓		
R2		✓					✓
R3	✓				*✓		

*Only for KPW171C & KPW176A

KPW176A & KPW176H have **analogue output** proportional to the generator kW-load.

KPW171F & KPW171HF - KPW176F & KPW176HF

Configuration: 3-Phase, 3-Wire (Bi-Polar 1)

3-wire configuration. Reverse power relay (R1) is used to trip the generator breaker. The two individual settable overload relays (R2 and R3) can be used for non-essential load release or as start signal to standby generator etc. R2 and R3 are non-latching and have a 10% fixed hysteresis.

	REVERSE POWER	OVER LOAD 1	OVER LOAD 2	Fail Safe	Latch	Fixed Hysteresis	Adjustable Hysteresis
R1	✓			✓	*✓		
R2		✓				✓	
R3			✓			✓	

*Only for KPW171F & KPW176F

KPW176F & KPW176HF have **analogue output** proportional to the generator kW-load.

KPW172A & KPW178A

Configuration: 3-Phase, 3-Wire (Bi-Polar 2)

3-wire configuration. The overload relay (R2) can be used for non-essential load release or as start signal to standby generator etc. A wide range adjustment for overload contact hysteresis can be set to enable R2 to be used for non-essential load to be reconnected or as standby generator stop signal. Reverse overload relay (R1 & R3) is reverse over load protection when generator is running as motor. Reverse power relays can be used for generator trip, local indication, alarm system etc.

	REVERSE POWER	OVER LOAD 1	N/A	Fail Safe	Latch	Fixed Hysteresis	Adjustable Hysteresis
R1	✓						
R2		✓					
R3	✓						✓

NB! Meter and relay range is +/-100%.

KPW178A have **analogue output** proportional to the generator kW-load.

KPW174C - KPW174H & KPW177A - KPW177H

Configuration: 3-Phase, 4-Wire (Bi-Polar 1)

4-wire configuration. Reverse power relay (R1) is used to trip the generator breaker. The overload relay (R2) can be used for non-essential load release or as start signal to standby generator etc. A wide range overload hysteresis can be set to enable R2 to be used for non-essential load to be reconnected or as standby generator stop signal. Relay R3 is intended for notification of a reverse power condition, or can be used for local indication, as input to an alarm system etc. R1 and R3 will latch after trip.

	REVERSE POWER	OVER LOAD	N/A	Fail Safe	Latch	Fixed Hysteresis	Adjustable Hysteresis
R1	✓			✓	*✓		
R2		✓					✓
R3	✓				*✓		

*Only for KPW174C & KPW177A

KPW177A & KPW177H have **analogue output** proportional to the generator kW-load.

KPW174F & KPW174HF - KPW177F & KPW177HF

Configuration: 3-Phase, 4-Wire (Bi-Polar 1)

4-wire configuration. Reverse power relay (R1) is used to trip the generator breaker. The two individual settable overload relays (R2 and R3) can be used for non-essential load release or as start signal to standby generator etc. R2 and R3 are non-latching and have a 10% fixed hysteresis.

	REVERSE POWER	OVER LOAD 1	OVER LOAD 2	Fail Safe	Latch	Fixed Hysteresis	Adjustable Hysteresis
R1	✓			✓	*✓		
R2		✓				✓	
R3			✓			✓	

*Only for KPW174F & KPW177F

KPW177F & KPW177HF have **analogue output** proportional to the generator kW-load.

KPW175A & KPW179A

Configuration: 3-Phase, 4-Wire (Bi-Polar 2)

4-wire configuration. The overload relay (R2) can be used for non-essential load release or as start signal to standby generator etc. A wide range adjustment for overload contact hysteresis can be set to enable R2 to be used for non-essential load to be reconnected or as standby generator stop signal. Reverse overload relay (R1 & R3) is reverse over load protection when generator is running as motor. Reverse power relays can be used for generator trip, local indication, alarm system etc.

	REVERSE POWER	OVER LOAD 1	N/A	Fail Safe	Latch	Fixed Hysteresis	Adjustable Hysteresis
R1	✓						
R2		✓					
R3	✓						✓

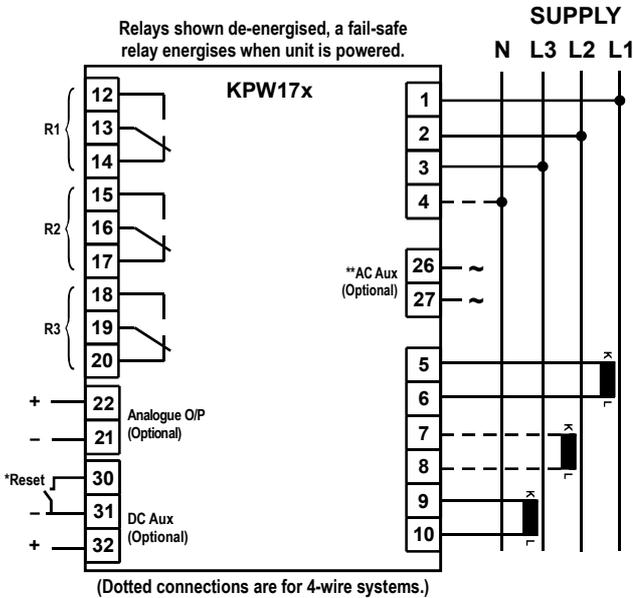
NB! Meter and relay range is +/-100%.

KPW179A have **analogue output** proportional to the generator kW-load.

The MEGAICON 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.





Analogue Output

KPW176A, KPW176H, KPW176F, KPW176HF, KPW178A, KPW177A, KPW177H, KPW177F, KPW177HF and KPW179A have an analogue output proportional to kW-meter reading. The signal is specifically intended as input to a control system for kW monitoring, load sharing, load shedding etc.

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

O/P1	0 - 10mA	O/P6	-10 - 0 - +10mA
O/P2	0 - 20mA	O/P7	-20 - 0 - +20mA
O/P3	4 - 20mA	O/P8	0 - 10V
O/P4	4 - 12 - 20mA	O/P9	0,2 - 10V
O/P5	4 - 5,45 - 20mA	O/P10	4,3 - 20mA

*Relay Reset

Any latched relay is reset by linking terminals 30 and 31 or by interrupting voltage input to terminal 1.

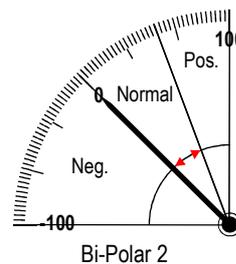
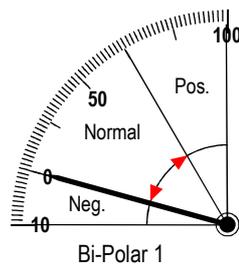
**Optional separate AC aux. Supply:

Add nr 2 for models with separate AC aux. supply. (Example: KPW171C2)

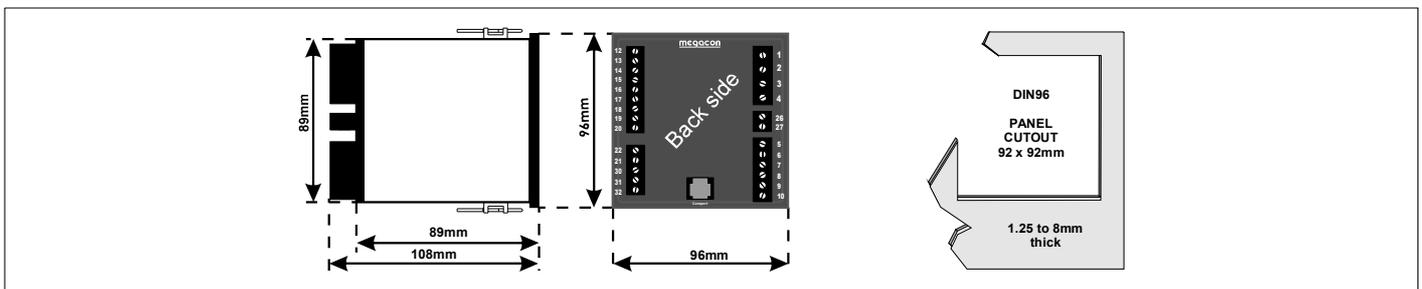
To ensure correct kW measurement voltage phase sequence and CT connections MUST be as shown on connection diagram.

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 (0-100% FSD). The Bi-Polar version is available with 10% or 100% negative scale, 10% is the standard.



Dimensions



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

ORDERING EXAMPLE:

Type: KPW176A2
 Aux. Supply: 200-240VAC
 Monitored Voltage: 690:230VAC
 Input Current: 1500/5A
 Range: -150/0/+1500kW
 Analogue O/P: 4/5,45/20mA

