THREE PHASE GENERATOR REACTIVE POWER GUARD

KCVA17x

- **Precision Generator kVAr 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)**
- **Fast response analogue kVAr-signal output, <50mS**
- **Wide range setting of overload contact hysteresis**
- **Optional DIN96 Slave Indicator with status LEDs**

Specifications

Auxiliary Voltage:	100-120, 200-240, 380-415 or 440-460VAC, 40-70Hz
Optional Auxiliary Voltage:	24, 110DC
Current Input:	1 or 5A C.T. <0,1VA
Contact rating:	AC: 100VA – 250V/2A max. DC. 50W – 100V/1A max.
Adjustments:	**Basic version** Overload 1: 0-100% of FSD Overload 1 trip delay: 0-30Sec Reverse power: 0-20% of FSD Reverse trip delay: 0-30Sec Hysteresis: 2-50% **F version** Overload 2: 0-100% of FSD Overload 2 trip delay: 0-30Sec (Fixed 10% on the F-version)
Analogue Output:	0/10, 0/20, 4/20, 4,3/20, 4/5,45/20, 4/12/20, -1/0/+10mA, max 500R or 0/10, 0,2/10V, min 10kohm
Temperature:	-20 to +70ºC
Weight:	0.6kgs
Front protection:	IP41

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 KCVA17x-range is also available for panel mounting as KPVA17x.

Application

The digital controlled KCVA17x range provides precision (1.0%) reverse reactive power and overload protection and monitoring of three phase generators.

The unit measures the voltage and current true r.m.s. value, and accuracy is independent of any wave form distortion. The auxiliary voltage is supplied from the unit voltage input. A DC auxiliary voltage input 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 DIN-rail mounted instrument reads the power level directly in kVAr. The Slave kVAr-meter and the triple-zone status LEDs at a glance gives the clear safety message: REVERSE/NORMAL/OVERLOAD.

Relay Outputs
The basic unit has relay outputs for Reverse Power (R3), Overload (R2) and R/P Status (R1). In F-versions R2 trips on O/L1 setting, R3 trips on O/L2 setting. The R/P relay is fail to safety configured. A trip LED flashes when the trip level is passed, the relay trips after elapsed delay. The timer resets if the fault is removed during countdown. Hysteresis, Trip levels and delays are settable on unit front.

Description

KCVA171C **3-wire** configuration. Reverse power relay (R3) is used to trip the generator breaker. The overload relay (R1) 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 R1 to be used for non-essential load to be reconnected or as standby generator stop signal. Relay R2 is intended for notification of a reverse power condition, or can be used for local indication, as input to an alarm system etc. R2 and R3 will latch after trip.

KCVA174C Similar to KCW171C, but for **4-wire** configuration.

KCVA171F **3-wire** configuration. The unit is similar to KCVA171C, but R1 is not used for reverse power notification, but as **Overload 2 trip relay**. R2 and R3 are non-latching and have a 10% fixed hysteresis.

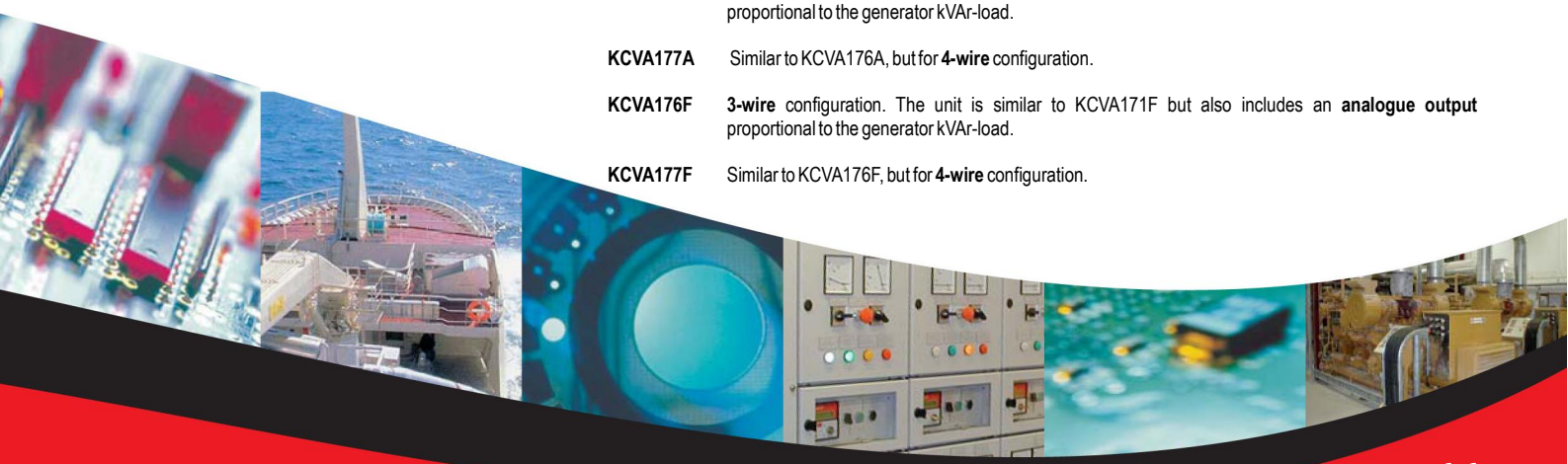
KCVA174F Similar to KCVA171F, but for **4-wire** configuration.

KCVA176A **3-wire** configuration. The unit is similar to KCVA171C, but also includes an **analogue output** proportional to the generator kVAr-load.

KCVA177A Similar to KCVA176A, but for **4-wire** configuration.

KCVA176F **3-wire** configuration. The unit is similar to KCVA171F but also includes an **analogue output** proportional to the generator kVAr-load.

KCVA177F Similar to KCVA176F, but for **4-wire** configuration.



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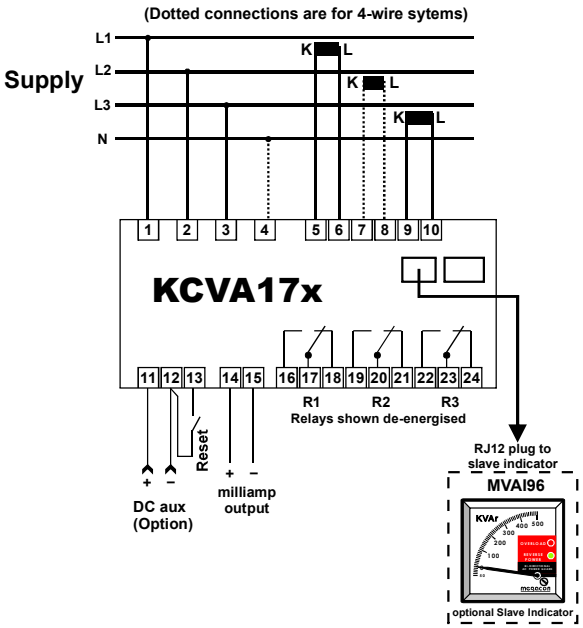
To ensure correct kW measurement voltage phase sequence and CT connections MUST be as shown on connection diagram.



Note: Details in individual connection didgram supplied with unit may differ from the general diagram showed above

Relay — Basic version

	REVERSE POWER	OVERLOAD	FAIL SAFE	LATCH
R1		√		
R2	√			√
R3	√		√	√

Relay — F version

	REVERSE POWER	OVERLOAD 1	OVERLOAD 2	FAIL SAFE	LATCH
R1	√			√	√
R2		√			
R3			√		

Relay reset - Any latched relay is reset by linking terminals 12 and 13 or by interupting voltage to terminal 1 for app. 2 seconds.

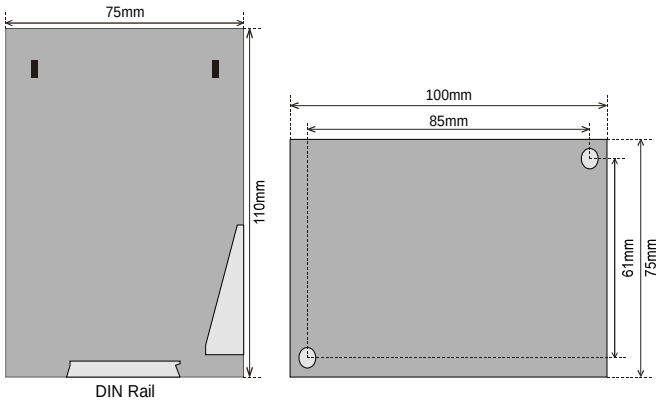
Analogue Output

KCVA176A, **KCVA177A**, **KCVA176F** and **KCVA177F** have an analogue output proportional to kVAr-meter reading. The signal is specifically intended as input to a control system for kVAr 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

Dimensions



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

ORDERING EXAMPLE:

Type:	KCVA176A
Aux. Supply:	200-240V
Input Voltage:	690:230V
Input Current:	1500/5A
Range:	-150/0/+1500kVAr
Analogue O/P:	4/5,45/20mA

IS range