SINGLE PHASE - FREQUENCY AND VOLTAGE GUARD

KCFV51x

- **Under and Over Voltage and Frequency Protection**
- **Adjustable Voltage and Frequency Deviation Set points**
- **Up to two individual very fast analogue output signals (<50mS), (optional)**
- **DIN96 Slave Indicator with Hz scale (optional)**

Specifications

Monitored Voltage:	100-120V, 200-240V, 380-415V, 440-460V, 480VAC 40-70Hz (Fuse 0,5A)
Optional Separate Auxiliary Voltage AC:	100-120V, 200-240V, 380-415V, 440-460V, 480VAC 40-70Hz (Fuse 0,5A)
Optional Separate Auxiliary Voltage DC:	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 table on the right)
Frequency range: (Other range on request)	45-55Hz 55-65Hz 45-65Hz 30-70Hz
Analogue output 1: (see page 2 for available outputs)	mA: Up to 20mA, max 500R V: Up to 10V, min 100kohm (other on request)
Analogue output 2: (see page 2 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 +70°C
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.

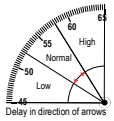
Related information:
The KCFV51x series are also available for panel mounting as KPFV51x series.

Description

The digitally controlled KCFV51x is for use on single phase systems. KCFV51x provides precision monitoring of frequency and line voltage on any generator system. When trip delays are set to zero (0,1sec) operation corresponds with G59 requirements.

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

LED status		
Power	V	Hz
●	●	●
Normal	Alarm	Alarm



Up to two individual very fast analogue output signals (optional) proportional to Hz range (see page 2 for available outputs). The analogue output is isolated from both voltage input and auxiliary power.

Relay Configurations

Less than 50mS fault detection. R1 (Under & Over Frequency) and R2 (Under & Over Voltage) activates when set level is exceeded and time delay has elapsed. R3 activates when R1 or R2 is activated and can be used as a common alarm.

KCFV51E - KCFV51FA - KCFV51FB

Models	Latch	Output 1	Output 2
KCFV51E	X	-	-
KCFV51FA	X	X	-
KCFV51FB	X	X	X

(KCFV51E is the standard version)

Relay	V	Hz	Fail Safe	Latch
R1		X		X
R2	X		X	X
R3	X	X		X

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

Adjustments	Trip level	Delay
U/V:	0-20% of V nom.	0,1-30secs
O/V:	0-20% of V nom.	0,1-30secs
U/Hz:	45-65Hz	0,1-30secs
O/Hz:	45-65Hz	0,1-30secs
Hysteresis:	Fixed 1%	

KCFV51C - KCFV51CFA - KCFV51CFB

Models	Latch	Output 1	Output 2
KCFV51C	X	-	-
KCFV51CFA	X	X	-
KCFV51CFB	X	X	X

Relay	V	Hz	Fail Safe	Latch
R1		X		X
R2	X		X	X
R3	X	X		X

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

Adjustments	Trip level	Delay
U/V:	0-20% of V nom.	0,1-3secs
O/V:	0-20% of V nom.	0,1-3secs
U/Hz:	45-65Hz	0,1-3secs
O/Hz:	45-65Hz	0,1-3secs
Hysteresis:	Fixed 1%	

KCFV51D - KCFV51DFA - KCFV51DFB

Models	Latch	Output 1	Output 2
KCFV51D	-	-	-
KCFV51DFA	-	X	-
KCFV51DFB	-	X	X

Relay	V	Hz	Fail Safe	Latch
R1		X		
R2	X		X	
R3	X	X		

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

Adjustments	Trip level	Delay
U/V:	0-20% of V nom.	0,1-30secs
O/V:	0-20% of V nom.	0,1-30secs
U/Hz:	45-65Hz	0,1-30secs
O/Hz:	45-65Hz	0,1-30secs
Hysteresis:	Fixed 1%	

KCFV51D2 - KCFV51D2FA - KCFV51D2FB

Models	Latch	Output 1	Output 2
KCFV51D2	-	-	-
KCFV51D2FA	-	X	-
KCFV51D2FB	-	X	X

Relay	V	Hz	Fail Safe	Latch
R1		X		
R2	X			
R3	X	X	X	

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

Adjustments	Trip level	Delay
U/V:	0-20% of V nom.	0,1-30secs
O/V:	0-20% of V nom.	0,1-30secs
U/Hz:	45-65Hz	0,1-30secs
O/Hz:	45-65Hz	0,1-30secs
Hysteresis:	Fixed 1%	

KCFV51D3 - KCFV51D3FA - KCFV51D3FB

Models	Latch	Output 1	Output 2
KCFV51D3	-	-	-
KCFV51D3FA	-	X	-
KCFV51D3FB	-	X	X

Relay	V (Low)	V (High)	Hz (Low)
R1	X		
R2		X	
R3			X

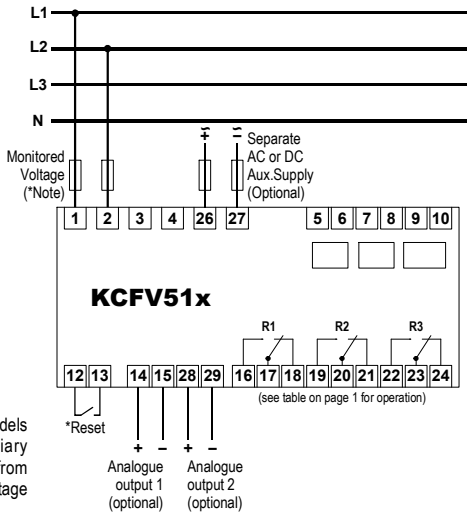
Relays shown de-energised and will energise on alarm.

Adjustments	Trip level	Delay
U/V:	0-20% of V nom.	0,1-30secs
O/V:	0-20% of V nom.	0,1-30secs
U/Hz:	45-65Hz	0,1-30secs
Hysteresis:	Fixed 1%	

KCFV51x

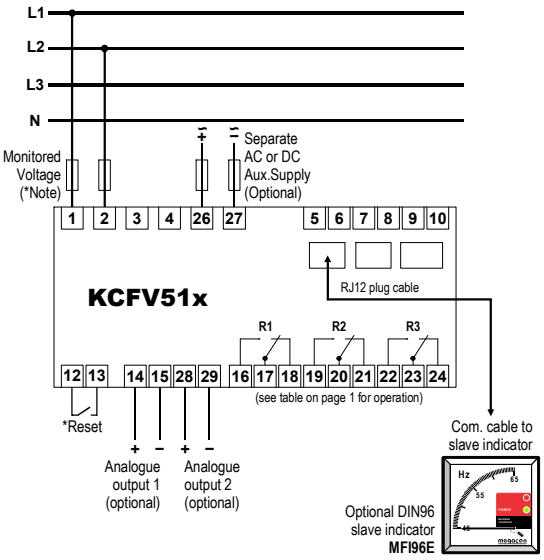
Connection Diagram

Connection Diagram without optional slave instrument



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

Connection Diagram with optional slave instrument



***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 1 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

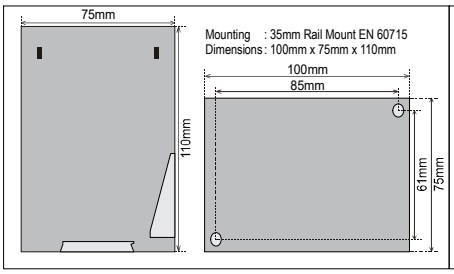
Connection

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

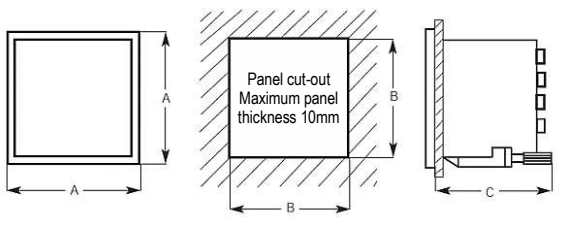
Voltage	: 1.2 x Un continuous 2 x Un for 10secs
Current	: 2.5 x In continuous 5 x In for 1secs (max 25A)

Dimensions



Slave Indicator

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



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

ORDERING INFORMATION

Type	: KCFV51FB
Aux. Supply	: 200-240VAC
Input Voltage	: Nom. 230V
Range	: 45-65Hz
Analogue output 1	: O/P3: 4-20mA
Analogue output 2	: O/P18: 0-10VDC

Optional Separate Aux. Supply:
Add **-SA** for models with Separate **AC** Aux. Supply.
(Example: KCFV51FB-**SA**)

Add **-SD** for models with Separate **DC** Aux. Supply.
(Example: KCFV51FB-**SD**)

IS range