



- Precision High / Low Frequency Protection
- Quartz Controlled Frequency Protection and Meter
- Definite time trip delays
- 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:	45-55Hz (Other range on request) 55-65Hz 45-65Hz
Analogue output 1:	mA: Up to 20mA, max 500R V: Up to 10V, min 100kohm (other on request)
Analogue output 2:	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 KCF221x series are also available for panel mounting as KPF221x series.

Description

The digitally controlled KCF221x provide precision (0.5%) high/low frequency protection. KCF221x provides precision monitoring of frequency and line voltage on any generator system.

A digital, crystal controlled frequency window discriminator controls operation and delay of the frequency low/high alarm relays. The unit measures the zero point crossing of the voltage true r.m.s. value, and accuracy is independent of any wave form distortion.

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

LED status		
Power	Low	High
●	●	●
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 Frequency) and R2 (Over Frequency) activates when set level is exceeded and time delay has elapsed.

KCF221E - KCF221FA - KCF221FB

Models	Latch	Output 1	Output 2	Relay	Low	High	Fail Safe	Latch	Adjustments	Trip level	Delay
KCF221E	-	-	-	R1		X	X		Low:	45-55Hz & 55-65Hz	0,1-30secs
KCF221FA	-	X	-	R2	X		X		High:	0% to +10%	0,1-30secs
KCF221FB	-	X	X						Low:	0% to +20%	0,1-30secs
									High:	0% to +20%	0,1-30secs

(KCF221E is the standard version) Relays shown de-energised. R2 & R3 are fail-safe and energises when unit is powered.

KCF221G - KCF221GFA - KCF221GFB

Models	Latch	Output 1	Output 2	Relay	Low	High	Fail Safe	Latch	Adjustments	Trip level	Delay
KCF221G	X	-	-	R1		X	X	X	Low:	45-55Hz & 55-65Hz	0,1-30secs
KCF221GFA	X	X	-	R2	X		X	X	High:	0% to +10%	0,1-30secs
KCF221GFB	X	X	X						Low:	0% to +20%	0,1-30secs
									High:	0% to +20%	0,1-30secs

Relays shown de-energised. R2 & R3 are fail-safe and energises when unit is powered.

KCF221H - KCF221HFA - KCF221HFB

Models	Latch	Output 1	Output 2	Relay	Low	High	Fail Safe	Latch	Adjustments	Trip level	Delay
KCF221H	-	-	-	R1		X			Low:	0% to +10%	0,1-30secs
KCF221HFA	-	X	-	R2	X				High:	0% to +10%	0,1-30secs
KCF221HFB	-	X	X						Low:	0% to +20%	0,1-30secs
									High:	0% to +20%	0,1-30secs

Relays shown de-energised. R2 & R3 are fail-safe and energises when unit is powered.

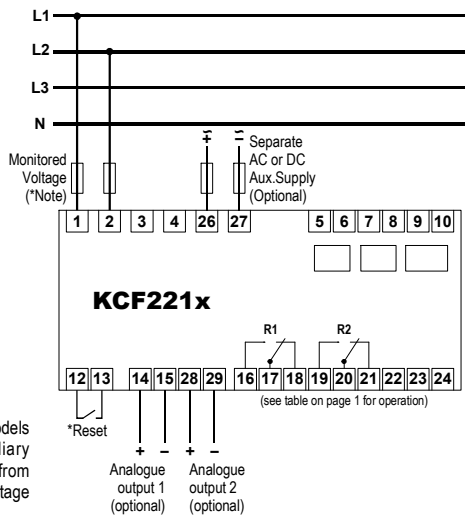
KCF221HG - KCF221HGFA - KCF221HGFB

Models	Latch	Output 1	Output 2	Relay	Low	High	Fail Safe	Latch	Adjustments	Trip level	Delay
KCF221HG	X	-	-	R1		X	X		Low:	45-55Hz & 55-65Hz	0,1-30secs
KCF221HGFA	X	X	-	R2	X		X		High:	0% to +10%	0,1-30secs
KCF221HGFB	X	X	X						Low:	0% to +20%	0,1-30secs
									High:	0% to +20%	0,1-30secs

Relays shown de-energised. R2 & R3 are fail-safe and energises when unit is powered.

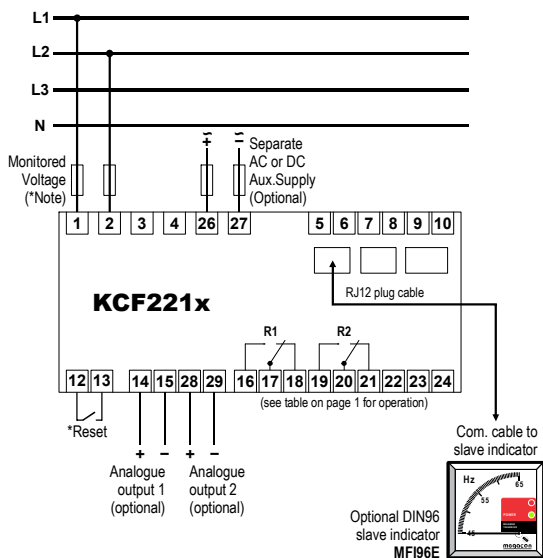
Connection Diagram

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

O/P1	0 - 10mA
O/P2	0 - 20mA
O/P3	4 - 20mA
O/P4	N/A
O/P5	N/A
O/P6	N/A
O/P7	N/A
O/P8	0 - 10V
O/P9	0,2 - 10V
O/P10	4,3 - 20mA

Outputs 2

O/P11	0 - 10mA
O/P12	0 - 20mA
O/P13	4 - 20mA
O/P14	N/A
O/P15	N/A
O/P16	N/A
O/P17	N/A
O/P18	0 - 10V
O/P19	0,2 - 10V
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

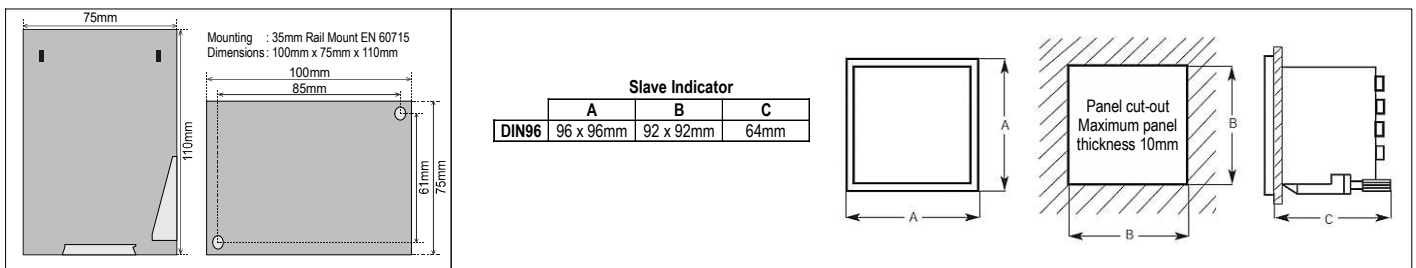
Connection

Terminal type	: Terminal Clamp and Screw
Wire max.	: T1-T4, T5-T10: AWG 24-14, 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



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

ORDERING INFORMATION

Type	: KCF221FB
Aux. Supply	: 200-240VAC
Input Voltage	: 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: KCF221FB-SA)
Add **-SD** for models with Separate DC Aux. Supply. (Example: KCF221FB-SD)

