



- DC Voltage Guards
- Direct input up to 100VDC, up to 2000VDC with HV adapter
- Two individually settable relays
- Triple relay for more flexibility
- Up to two individual very fast analogue output signals (<50mS), (optional)
- DIN96 Slave Indicator with full current scale (optional)

Specifications

Auxiliary Voltage:	24-60VDC (Fuse 0,5A) 110-220VDC (Fuse 1A)
Optional Aux. Voltage:	100-120V, 200-240V, 380-415V, 440-460 or 480VAC 40-70Hz (Fuse 0,5A)
Supply tolerance:	± 10%
Power rating:	1,5VA
DC Input signal:	0-100VDC (up to 2000VDC via HV adapter)
Contact rating:	AC: 100VA -250V/2A max. DC: 50W -100V/1A max.
Adjustments:	
Trip level High:	0-100% of FSD (FSD = Full Scale Deflection)
Trip delay High:	0-30 secs
Hysteresis High:	2-50% of FSD (on non latching relays)
Trip level Low:	0-100% of FSD
Trip delay Low:	0-30 secs
Hysteresis Low:	2-50% of FSD (on non latching relays)
Output range:	Any % of the scale
Analogue output 1: (see page 4 for available outputs)	mA: Up to 20mA, max 500R V: Up to 10V, min 100kohm (other on request)
Analogue output 2: (see page 4 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 KCV4x series is also available for rail mounting as KPV4x serie.

Application

The KCV4x is a digitally controlled guard for monitoring of battery system voltage.

An AC or DC auxiliary voltage is required for the unit. 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 precision DIN96 slave moving coil meter reads the monitored parameter, and has low-reflection glass to ease reading at a distance.

The units three C/O relay outputs are configured as Low, High trip and Trip Status (R3). The triple-zone status LEDs at a glance gives the clear safety message:

- HIGH
- NORMAL
- LOW

Up to two individual very fast analogue output signals (optional) proportional to a range (see page 4 for available outputs). The analogue output is isolated from the CT and auxiliary power.

The trip levels and trip delays are user settable on unit rear to suit most applications (see relay operation on page 2 & 3).

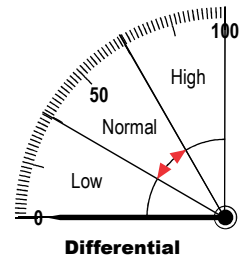
Red relay trip lamps flash instantly (approx. 1 flash per second) when the trip level is passed, the relay trips after elapsed delay. The lamp changes state and the trip relay operates after the pre-set delay. If a trip condition ends during the delay interval, the timer will automatically reset.

As standard the unit is supplied for automatic reset. Manual reset (latching relays) is optional (All G-versions).

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).



Description

KCV401x

Over and Under DC Voltage Guard

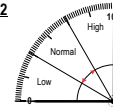
A DC voltage guard for any scale range up to 100VDC. The unit is used for protection and monitoring of batteries.

Relay Operation

Relay Configuration: **Differential**

Relay	Low	High	Fail Safe	Latch	Adjustable Hysteresis
R1		X		X	X
R2	X			X	X
R3	X	X	X	X	

Models	Latch	Output 1	Output 2	Adjustments	Trip level	Delay
KCV401E	-	-	-	Low: 0-100%	0-100%	0-30secs
KCV401FA	-	X	-	High: 0-100%	0-100%	0-30secs
KCV401FB	-	X	X	Hysteresis Low: 2-50% of FSD	2-50% of FSD	
KCV401G	X	-	-	Hysteresis High: 2-50% of FSD	2-50% of FSD	
KCV401GFA	X	X	-	Relays shown de-energised. R3 are fail-safe and energises when unit is powered.		
KCV401GFB	X	X	X			



KCV402x

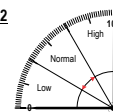
Over and Under DC Voltage Guard

Input from voltage divider for any voltage range. The unit is used for protection and monitoring of batteries.

Relay Configuration: **Differential**

Relay	Low	High	Fail Safe	Latch	Adjustable Hysteresis
R1		X		X	X
R2	X			X	X
R3	X	X	X	X	

Models	Latch	Output 1	Output 2	Adjustments	Trip level	Delay
KCV402E	-	-	-	Low: 0-100%	0-100%	0-30secs
KCV402FA	-	X	-	High: 0-100%	0-100%	0-30secs
KCV402FB	-	X	X	Hysteresis Low: 2-50% of FSD	2-50% of FSD	
KCV402G	X	-	-	Hysteresis High: 2-50% of FSD	2-50% of FSD	
KCV402GFA	X	X	-	Relays shown de-energised. R3 are fail-safe and energises when unit is powered.		
KCV402GFB	X	X	X			



KCV404x

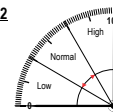
Over and Under DC Voltage Guard

Input from voltage divider for any voltage range. The unit is used for protection and monitoring of batteries.

Relay Configuration: **Differential**

Relay	Low	High	Fail Safe	Latch	Adjustable Hysteresis
R1		X		X	X
R2	X			X	X
R3	X	X	X	X	

Models	Latch	Output 1	Output 2	Adjustments	Trip level	Delay
KCV404E	-	-	-	Low: 0-100%	0-100%	0-30secs
KCV404FA	-	X	-	High: 0-100%	0-100%	0-30secs
KCV404FB	-	X	X	Hysteresis Low: 2-50% of FSD	2-50% of FSD	
KCV404G	X	-	-	Hysteresis High: 2-50% of FSD	2-50% of FSD	
KCV404GFA	X	X	-	Relays shown de-energised. R3 are fail-safe and energises when unit is powered.		
KCV404GFB	X	X	X			



KCV408x

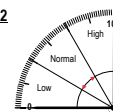
Over and Under DC Voltage Guard

Input from voltage divider for any voltage range. The unit is used for protection and monitoring of batteries.

Relay Configuration: **Differential**

Relay	Low	High	Fail Safe	Latch	Adjustable Hysteresis
R1		X		X	X
R2	X			X	X
R3	X	X	X	X	

Models	Latch	Output 1	Output 2	Adjustments	Trip level	Delay
KCV408E	-	-	-	Low: 0-100%	0-100%	0-30secs
KCV408FA	-	X	-	High: 0-100%	0-100%	0-30secs
KCV408FB	-	X	X	Hysteresis Low: 2-50% of FSD	2-50% of FSD	
KCV408G	X	-	-	Hysteresis High: 2-50% of FSD	2-50% of FSD	
KCV408GFA	X	X	-	Relays shown de-energised. R3 are fail-safe and energises when unit is powered.		
KCV408GFB	X	X	X			



KCV410x

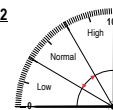
Over and Under DC Voltage Guard

Input from voltage divider for any voltage range. The unit is used for protection and monitoring of batteries.

Relay Configuration: **Differential**

Relay	Low	High	Fail Safe	Latch	Adjustable Hysteresis
R1		X		X	X
R2	X			X	X
R3	X	X	X	X	

Models	Latch	Output 1	Output 2	Adjustments	Trip level	Delay
KCV410E	-	-	-	Low: 0-100%	0-100%	0-30secs
KCV410FA	-	X	-	High: 0-100%	0-100%	0-30secs
KCV410FB	-	X	X	Hysteresis Low: 2-50% of FSD	2-50% of FSD	
KCV410G	X	-	-	Hysteresis High: 2-50% of FSD	2-50% of FSD	
KCV410GFA	X	X	-	Relays shown de-energised. R3 are fail-safe and energises when unit is powered.		
KCV410GFB	X	X	X			



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



Description

KCV412x

Over and Under DC Voltage Guard

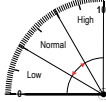
Input from voltage divider for any voltage range. The unit is used for protection and monitoring of batteries.

Up to 1200VDC via HV adapter RH1200S series.

Relay Operation

Relay Configuration: **Differential**

Relay	Low	High	Fail Safe	Latch	Adjustable Hysteresis
R1		X		X	X
R2	X			X	X
R3	X	X	X	X	

Models	Latch	Output 1	Output 2	Adjustments	Trip level	Delay
KCV412E	-	-	-	 Low: 0-100% High: 0-100% Hysteresis Low: 2-50% of FSD Hysteresis High: 2-50% of FSD	0-30secs	0-30secs
KCV412FA	-	X	-		Relays shown de-energised. R3 are fail-safe and energises when unit is powered.	0-30secs
KCV412FB	-	X	X			
KCV412G	X	-	-			
KCV412GFA	X	X	-			
KCV412GFB	X	X	X			

KCV416x

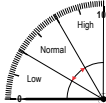
Over and Under DC Voltage Guard

Input from voltage divider for any voltage range. The unit is used for protection and monitoring of batteries.

Up to 1600VDC via HV adapter RH1600S series.

Relay Configuration: **Differential**

Relay	Low	High	Fail Safe	Latch	Adjustable Hysteresis
R1		X		X	X
R2	X			X	X
R3	X	X	X	X	

Models	Latch	Output 1	Output 2	Adjustments	Trip level	Delay
KCV416E	-	-	-	 Low: 0-100% High: 0-100% Hysteresis Low: 2-50% of FSD Hysteresis High: 2-50% of FSD	0-30secs	0-30secs
KCV416FA	-	X	-		Relays shown de-energised. R3 are fail-safe and energises when unit is powered.	0-30secs
KCV416FB	-	X	X			
KCV416G	X	-	-			
KCV416GFA	X	X	-			
KCV416GFB	X	X	X			

KCV420x

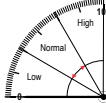
Over and Under DC Voltage Guard

Input from voltage divider for any voltage range. The unit is used for protection and monitoring of batteries.

Up to 2000VDC via HV adapter RH2000S series.

Relay Configuration: **Differential**

Relay	Low	High	Fail Safe	Latch	Adjustable Hysteresis
R1		X		X	X
R2	X			X	X
R3	X	X	X	X	

Models	Latch	Output 1	Output 2	Adjustments	Trip level	Delay
KCV420E	-	-	-	 Low: 0-100% High: 0-100% Hysteresis Low: 2-50% of FSD Hysteresis High: 2-50% of FSD	0-30secs	0-30secs
KCV420FA	-	X	-		Relays shown de-energised. R3 are fail-safe and energises when unit is powered.	0-30secs
KCV420FB	-	X	X			
KCV420G	X	-	-			
KCV420GFA	X	X	-			
KCV420GFB	X	X	X			



High Voltage Adaptors up to 2000VDC for KCV4x series

- HV Adaptor for DC Voltage Guards
- RHxS series, up to 2000VDC Voltage

Voltage Adaptors RHxS series are used for Voltage Guard KCV4x when the monitored voltage is higher than 100VDC.

These adapters are a passive resistor network and are potted in polyurethane.



RH200S
up to 200VDC



RH400S
up to 400VDC



RH800S
up to 800VDC



RH1000S
up to 1000VDC



RH1200S
up to 1200VDC



RH1600S
up to 1600VDC



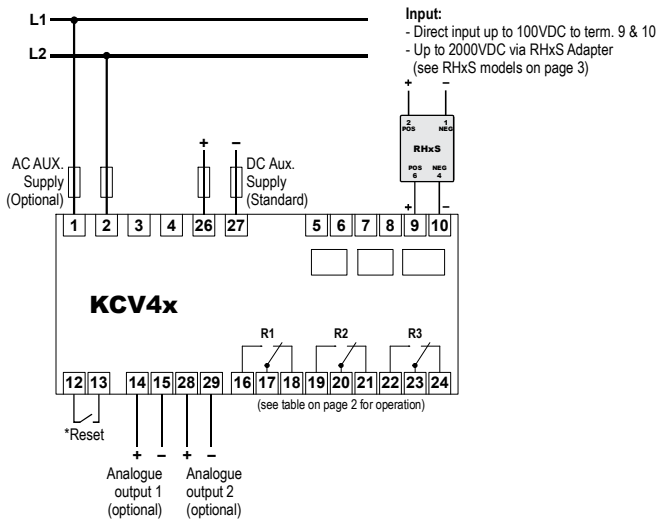
RH2000S
up to 2000VDC

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

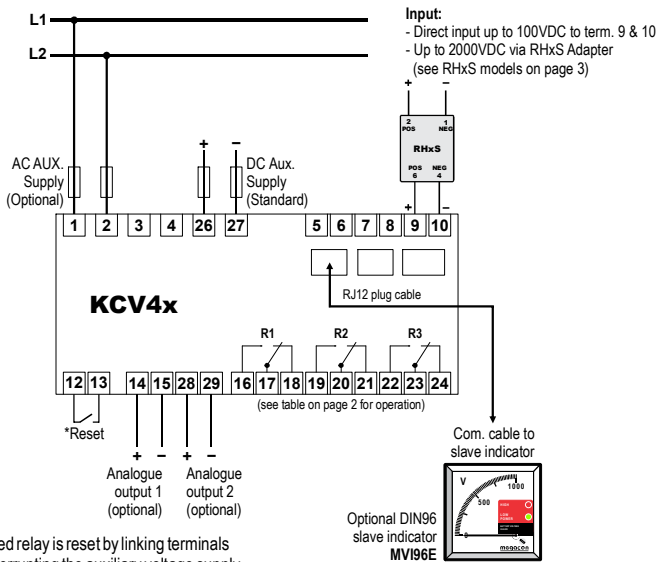


Connection Diagram

Connection Diagram without optional slave instrument



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.
Relays shown de-energised, a fail-safe relay energises When the unit is powered.

Analogue Output

The output signals are proportional to the meter reading (see page 2 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

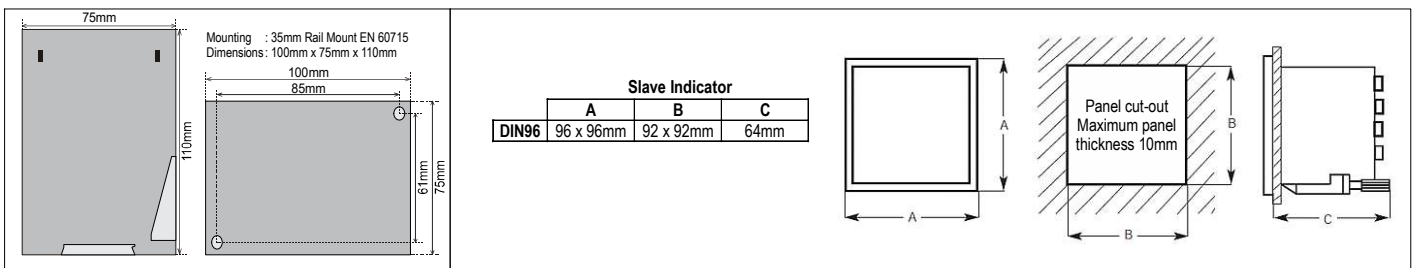
Connection

Terminal type	: Terminal Clamp and Screw
Wire max.	: T1-T4, 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



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ORDERING INFORMATION (Example)

Type	: KCV412FB
Aux. Supply	: 24VDC
Input signal	: From RH1200S
Range	: 0-1200V
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: KCV412FB-SA)

