NEW ELEC

MOTOR PROTECTION & CONTROL TECHNOLOGY

KA, KB, KC

Electronic Motor Protection Relay

A South African Company to be Proud of

About

The KA, KB and KC Series of Electronic Motor Protection and control relays are housed in a small footprint, DIN rail mount. Fixed thermal curves (Class 15 Cold - Class 5 Hot) with thermal pre-loading, match the Hot and Cold stall times of the motor during operation.

The KA relay is mains powered auto-selecting 380/400V or 525V supply whilst the KB and KC relays require either 110V or 220V AC auxiliary supply.

The KA, KB and KC relays provide a single unit solution in pumping applications that traditionally would have used a combination of thermal overload, undercurrent and restart timers. The unit provides overload, underload, single-phasing, unbalanced current, overvoltage, undervoltage and phase rotation protection.

The relays are available in the range from 0,5A to 50A, directly through the current transformer module block. Also available in the range from 100A to 400A using external current tranformers in xxx:5 ratio.

Features Include:

- Thermal Overload Protection
- Thermal Memory
- Pre-Loading
- Locked Rotor Protection
- Jam Protection
- Current Unbalance Protection
- Phase Loss Protection
- User-Selectable Auto Reset
- Underload / Dry Run Protection
- Restart Timer
- Restart Contact
- Phase Rotation Protection
- Overvoltage Protection
- Undervoltage Protection
- Voltage Phase Symmetry
- Latched LED Trip Indication

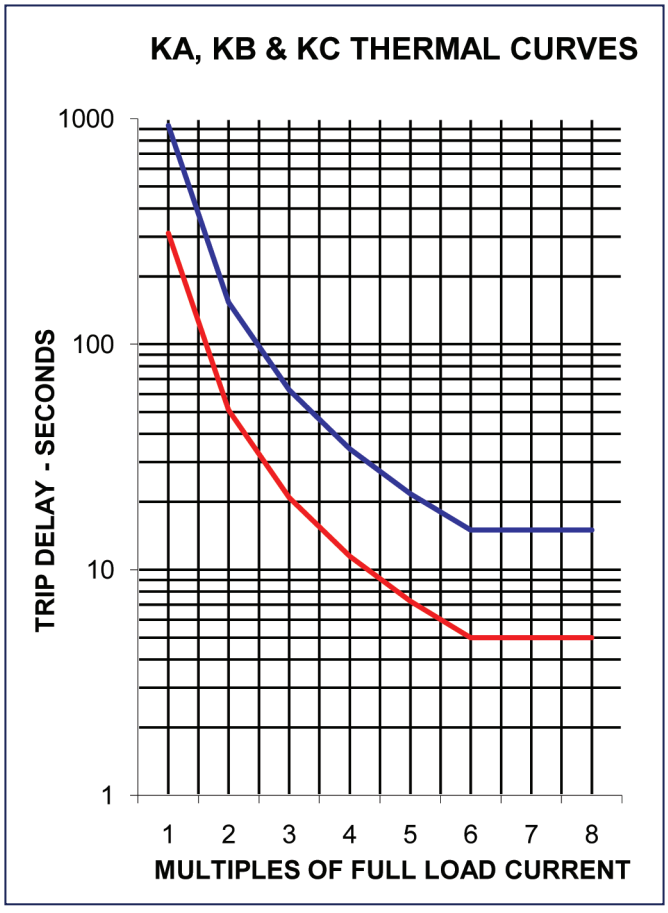
Accessories

Model	Range	CTs
Kx 5	0,5 to 5 Amp	Not required
Kx 10	1 to 10 Amp	Not required
Kx 25	2,5 to 25 Amp	Not required
Kx 50	5 to 50 Amp	Not required
Kx 100	10 to 100 Amp	100 : 5
Kx 200	20 to 200 Amp	200 : 5
Kx 400	40 to 400 Amp	400 : 5

Ordering Code

Example 1
Protection for 3kW 380V three-phase motor
Motor full load = 6,5A
Suggestion KA10 / 380V
KC10 / STD (110V - 220V)

Example 2
Protection for 132kW 525V 4-pole, three-phase motor
Motor full load = 175A
Suggestion KA200 / 525 / 200:5
KC200 / STD / 200:5
KC200 / 380-525 / 200:5



Protection Features	Model:		
	KA	KB	KC
Overload Protection	✔	✔	✔
Thermal Memory	✔	✔	✔
Preloading	✔	✔	✔
Locked Rotor	✔	✔	✔
Jam Protection			✔
Current Unbalance	✔	✔	✔
Phase Loss	✔	✔	✔
User-Selectable Auto Reset	✔	✔	✔
Underload / Dry Run	✔	✔	✔
Restart Timer			✔
Restart Contact			✔
Phase Rotation	✔		✔
Overvoltage	✔		✔
Undervoltage	✔		✔
Voltage Phase Symmetry	✔		✔
Trip Indication	✔	✔	✔

Approvals

Manufactured to ISO 9001: 2000 Standards
Copy ISO certificate available on request.

Technical Specifications

Input Converter

Class	*: Class 1*
Rating	*: 0,1VA*
Frequency Response	*: 40 to 66Hz*

Overload Trip Delay Curves

Cold

T Trip = 15 (35,49) Ln $\left[\frac{(I/Ie)^2 - (Ip/Ie)^2}{((I/Ie)2 - 1)}\right]$

Hot

T Trip = 5 (35,49) Ln $\left[\frac{(I/Ie)^2 - (Ip/Ie)^2}{((I/Ie)2 - 1)}\right]$

Accuracy	*: ± 5% 1,2 x Ie to 6 x Ie*
	: ± 10% 1,01 x Ie to 1,2 x Ie

Underload Detection

Range	*: 10 to 100% of Maximum Load Dial*
Trip Delay	*: 1 to 10 seconds*

Auto Reset Limiter (KC Model Only)

Auto Reset limited to only 3 times per hour

Maximum Load Current Setting

Level Setting Accuracy	*: ± 2%*
Linearity	*: ± 2%*
Repeatability	*: ± 1%*
Detection Level	*: ± 2%*
Calibration	*: Amps*

Main Trip Relay	*: 5 Amps 220V A.C.*
Configuration	*: 1 n/o + 1 n/c*
Terminals	*: n/c 7 and 8*
	: n/o 9 and 10

Fault Indication

Operation	*: Latch on trip*
Resetting Fault Indication	*: Latch*

Running Stall Protection (KC Model Only)

Detection Level	*: 300% of Maximum Load Dial Setting with a 1s Trip Delay*

Unbalance Setting

Level Setting	*: 30% I_{act}*
Trip Delay	*: 5 seconds*
Operation	*: Block I_{act} <20% Ie*

Restart Timer (KC Model Only)

User-selectable range	*: Manual only, 10 sec, 2 min, 10 min, 20 min, 30 min, 45 min, 1 hr, 3 hrs OR 6 hrs delay*
Example shown for a 15 sec curve selection	*: T reset = Curve [2.33 (35,49 x 4) 15 log (100/70)] - Motor Standstill*

Overload Thermal Lock-out Time to Recover 33% Capacity

Example shown for a 15 sec curve selection	: T reset = Curve [2.33 (35,49 x 2) 15 log (100/70)] - Motor Running

Environmental Specifications

Reference Standards IEC 60255
Isolation N/O contact

1kV for 1 minute to IEC 60255-5 C

Impulse Withstand

5kV to IEC 60255-4 EIII

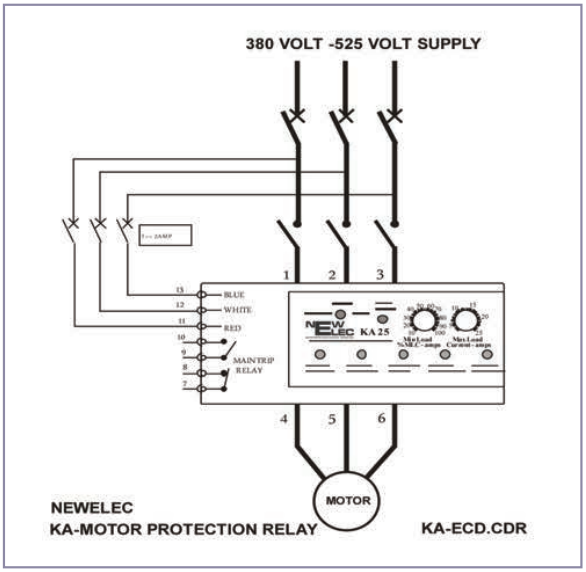
Isolation Separate Contacts

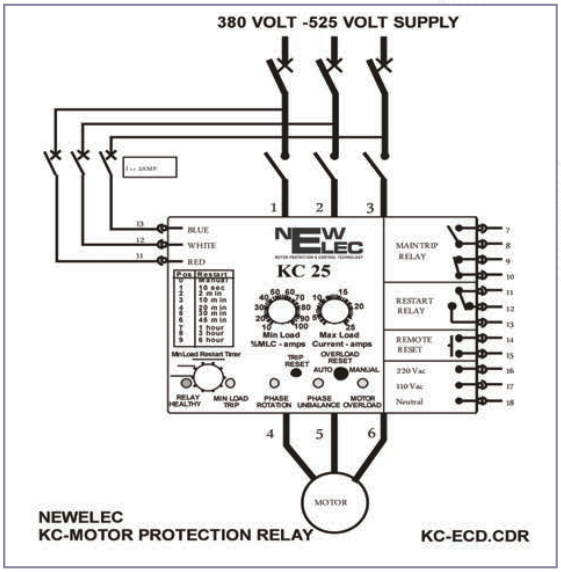
1kV for 1 minute to IEC 60255-5 C

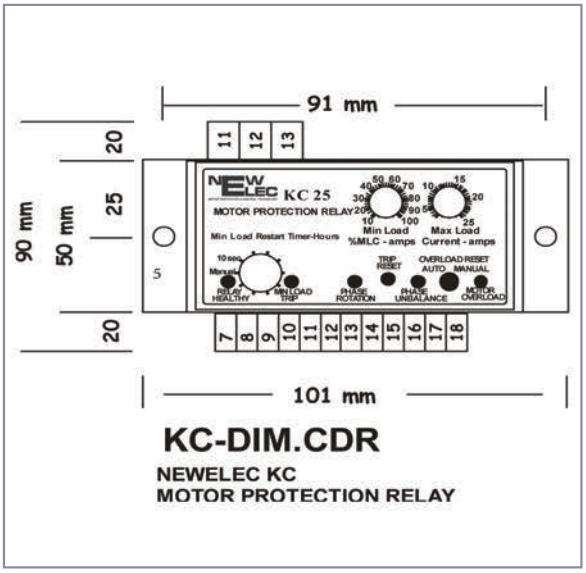
High Frequency

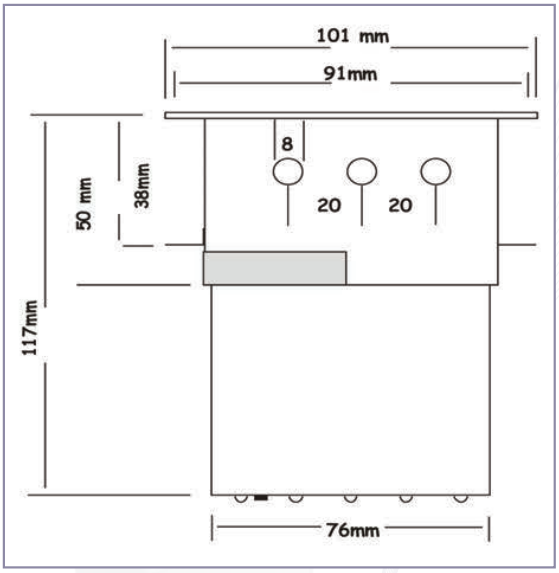
IEC 60255-4 C III

Connection Diagrams

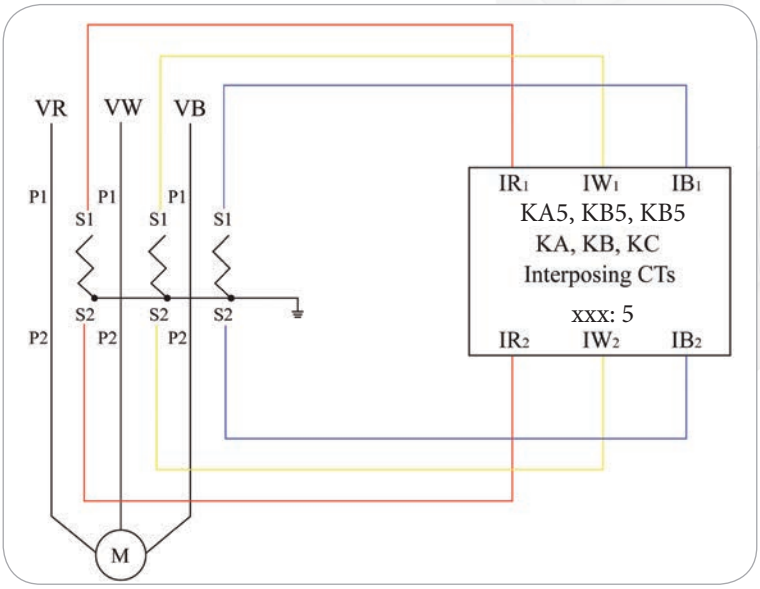








Interposing CTs



We Interposing CT's with 5amp Secondary to increased current range utilising KA5, KB5 or KB5 Relay

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