



MOTOR PROTECTION & CONTROL TECHNOLOGY

# KA Motor Protection Relay...



*A South African Company to be Proud of*



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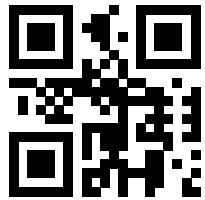


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-25.752984, 28.162957



*Innovative solutions from South Africa's Leading Motor Protection Specialists*

## **About NewElec**

*NewElec designs and manufactures a wide range of superior electronic motor protection relays for both local and International markets. NewElec's goal, for the past 38 years, has been to exceed the expectations of every client by OFFERING quality products, outstanding customer service and greater value, thus optimizing system functionality and improved operational efficiency.*

*As experts in motor protection, NewElec is involved in every stage of the client's selection of the required protection relay offering ongoing functional and technical support. Our R&D division is continually designing the most up to date motor protection products to meet customer requirements.*

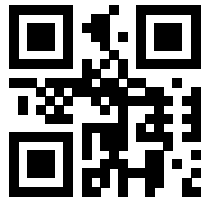
*NewElec's electronic motor protection relays can be found in refineries, mining, steel, petrochemical, pulp and paper, sugar mills, agriculture and material handling industries to name a few, both locally and internationally. The NewElec product range includes software programmable LV motor protection relays for process control applications, protection relays for LV and MV motors, relays for pump motor protection, as well as earth leakage protection relays.*

*NewElec is continually expanding and has recently installed a manufacturing division for its relay housings. This ensures that the final product meets NewElec's precise requirements.*

*With headquarters in Pretoria West, Gauteng, South Africa, NewElec was established in May 1978 and is accredited with ISO 9002.*

*A South African Company to be Proud of*





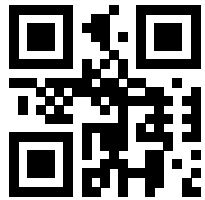
## *Why was it designed?*

*To provide a modern microprocessor based protection relay for motor pumping applications that would traditionally have used a combination of thermal bimetal, undercurrent and voltage sensing devices to achieve the same end while retaining a small footprint.*

*This microprocessor based thermal overload relay designed to IEC 60255-8 provides superior:*

- Overload protection for cyclic and stable loads*
- Unbalance current and single-phasing protection*
- Minimum load (under current) protection*
- Locked rotor protection*
- Phase rotation, overvoltage and undervoltage protection*
- Single feed through primary 8 mm aperture covers range 1 to 25 amps after which*
- secondary winding of interposing current transformer pass through the relay*

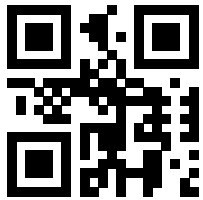




## Feature Highlights

- **Overload protection cyclic and sustained thermal curve Class 15 Cold – 5 Hot**
- **Thermal memory as per IEC 60255-8 with preloading**
- **Thermal memory decay caters for running and standstill conditions**
- **Auto / Manual reset selection (Auto change to manual after 3 trips in 1 hour)**
- **Locked rotor protection**
- **Unbalance current single phasing protection (30%)**
- **Underload protection with user-adjustable trip threshold (10% -100% I.e.)**
- **Phase rotation protection**
- **Over and under voltage protection**
- **Fail-safe trip relay configuration indicates relay healthy**
- **Panel mounted latched trip LED diagnosis**



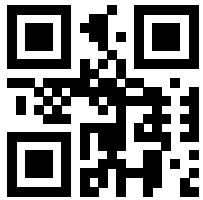


## Benefits

- *Accurate overload protection during any phase of operation*
- *Unbalance current protection*
- *Phase loss single phasing protection*
- *Phase rotation, overvoltage, undervoltage*
- *Descriptive fault / level monitoring indication LED's*
- *User-friendly calibration settings*
- *Compact design. Footprint (100 x 50 mm)*
- *Requires additional CTs for loads > 25 amps.*
- *Current range from 0,1 to 200 amps in 7 models*
- *Powered from 3 phase main circuit 400 volts or 525 volts*







## *Typical Applications*

*Pump motors requiring minimum load protection*

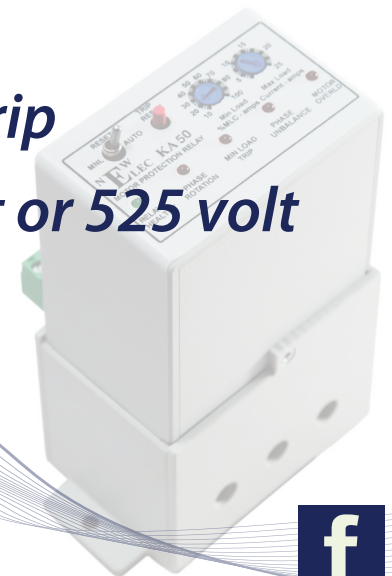
*Pump motor impeller efficiency with minimum load*

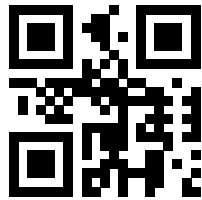
*General motor protection requiring small footprint and Hot start < 5 sec*

*Compressor motors with cyclic loading*

*Minimum load protection for V belt breakage trip*

*MCC applications with control voltage supply of 400 volt or 525 volt*





## Specifications

### Input Converter

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

### Overload Trip Delay Curves

Cold  
 $T_{Trip} = 15 (35,49) I_n \left[ \frac{(I/I_e)^2 - (I_p/I_e)^2}{((I/I_e)^2 - 1)} \right]$

Hot  
 $T_{Trip} = 5 (35,49) I_n \left[ \frac{(I/I_e)^2 - (I_p/I_e)^2}{((I/I_e)^2 - 1)} \right]$

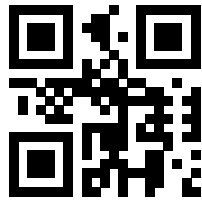
### Accuracy

: ± 5% 1,2 x I<sub>e</sub> to 6 x I<sub>e</sub>  
: ± 10% 1,01 x I<sub>e</sub> to 1,2 x I<sub>e</sub>

### Underload Detection

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





## Specifications Contd.

### Fault Indication

Operation : Latch on trip

Resetting Fault Indication : Latch

### Environmental Specifications

Reference Standards IEC 255

#### Isolation N/O contact

1kV for 1 minute to IEC 255-5 C

#### Impulse Withstand

5kV to IEC 255-4 EIII

#### Isolation Separate Contacts

1kV for 1 minute to IEC 255-5 C

#### High Frequency

IEC 255-4 C III

### Maximum Load Current Setting

Level Setting Accuracy :  $\pm 2\%$

Linearity :  $\pm 2\%$

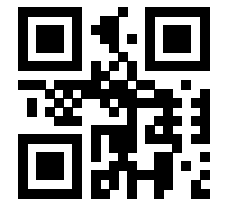
Repeatability :  $\pm 1\%$

Detection Level :  $\pm 2\%$

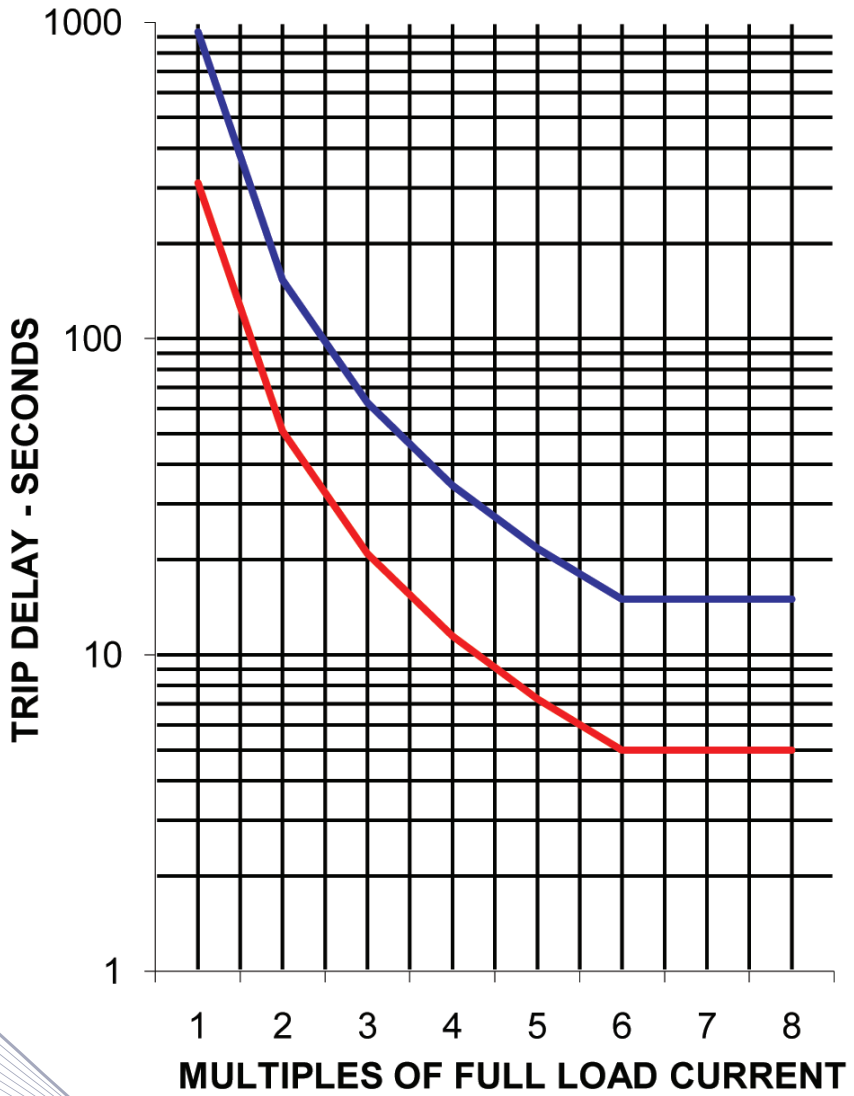
Calibration : Amps







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## Specifications Contd.

### Overload Thermal Lock-out Time to Recover 33% Capacity

Example shown for a 15 sec curve selection :  $T_{reset} = \text{Curve} [2.33 (35,49 \times 2) 15 \log (100/70)] - \text{Motor Running}$

### Main Trip Relay

Configuration  
Terminals

- : 5 Amps 220V A.C.
- : 1 n/o + 1 n/c
- : n/c 7 and 8
- : n/o 9 and 10

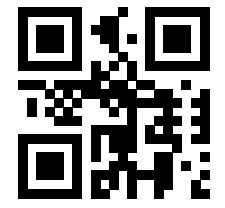
### Underload Detection

Range

Trip Delay

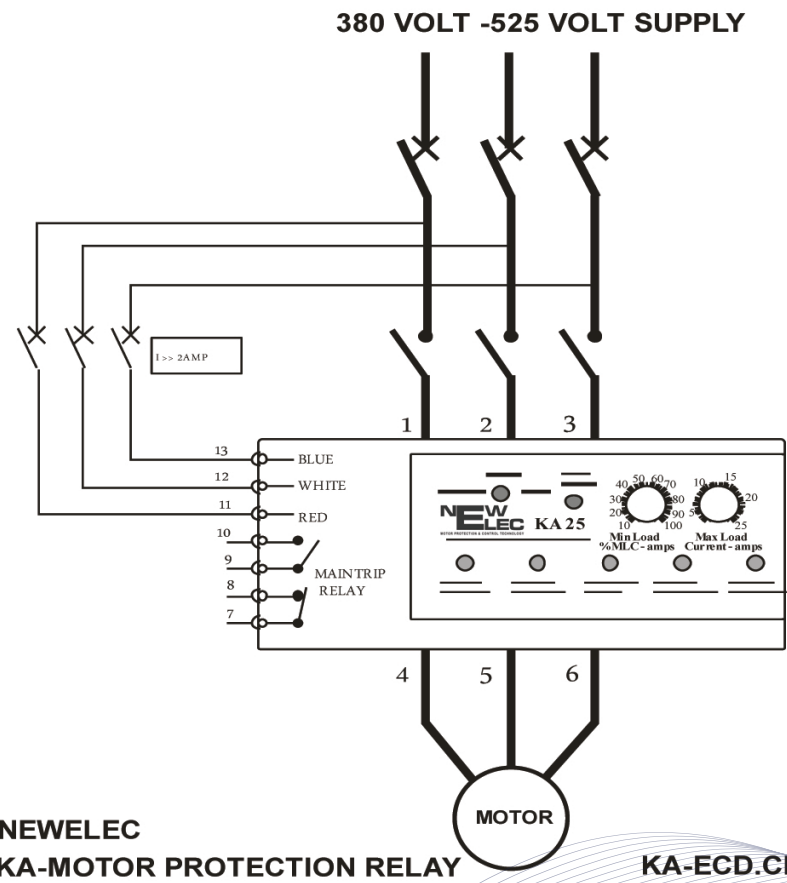
- : 10 to 100% of Maximum Load Dial
- : 1 to 10 seconds





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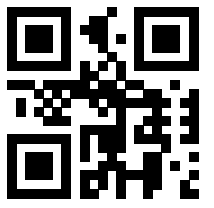
## Electrical Connection Diagram



NEW ELEC  
KA-MOTOR PROTECTION RELAY

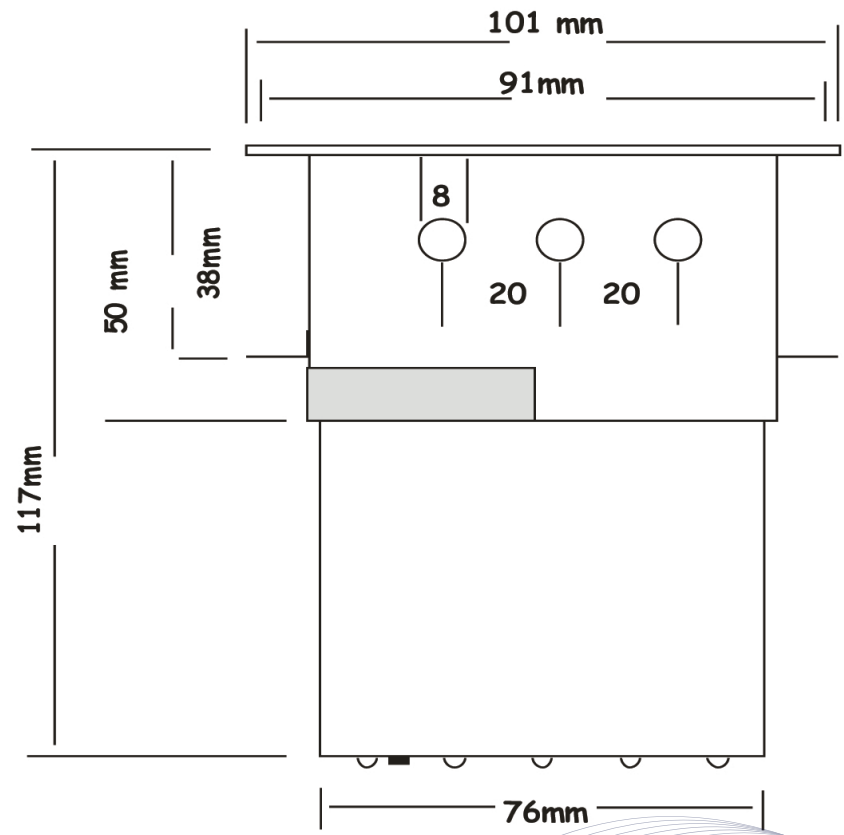
KA-ECD.CDR

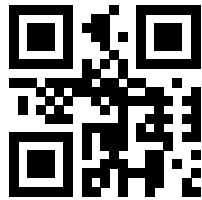




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## Dimensional Diagram





## Ordering Information

Model or relay type	Current setting range	Interposing secondary current transformer ratio where required
KA 1	0,1 to 1 Amp	Not required
KA 5	0,5 to 5 Amp	Not required
KA 10	1 to 10 Amp	Not required
KA 25	2,5 to 25 Amp	Not required
KA 50	5 to 50 Amp	50:5 Class 12,5 VA
KA 100	10 to 100 Amp	100:5 Class 12,5 VA
KA 200	25 to 200 Amp	200:5 Class 12,5 VA

### Example 1

Protection for 3kW 380V three-phase motor

Motor full load = 6,5A

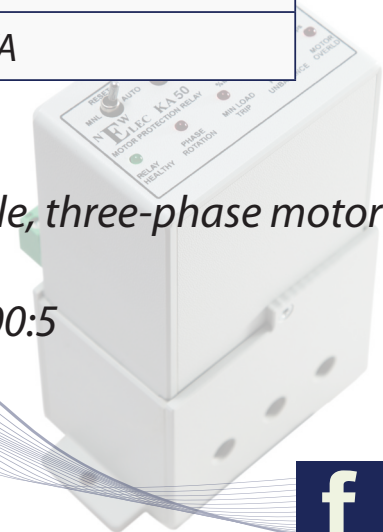
Suggestion: KA10 / 380V

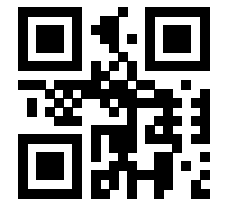
### Example 2

Protection for 132kW 525V 4-pole, three-phase motor

Motor full load = 175A

Suggestion: KA200 / 525 / 200:5





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*We provide a 1 year renewable guarantee*

*We repair products out of guarantee for 50% of their list price and renew the guarantee*

*Local support*





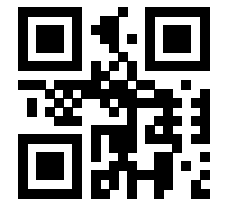
# NEW ELEC

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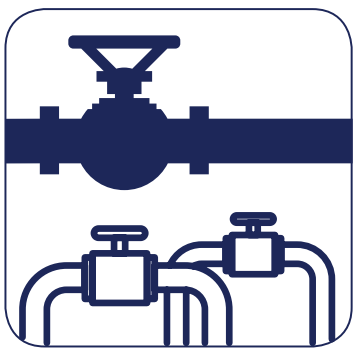


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*Applications particularly well suited for use in conjunction with the NewElec range of electronic motor protection relays.*



*Mining*



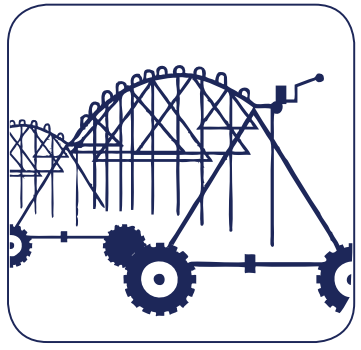
*Water Affairs*



*Petro Chemical*



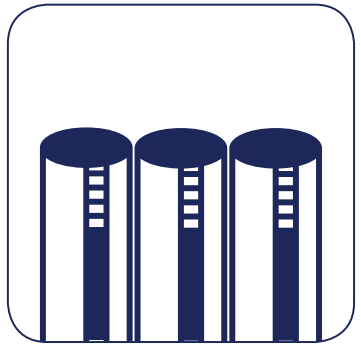
*Refineries*



*Agriculture*



*Material Handling*



*Mills*



*Cable Theft Detection*



*Pulp & Paper*

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