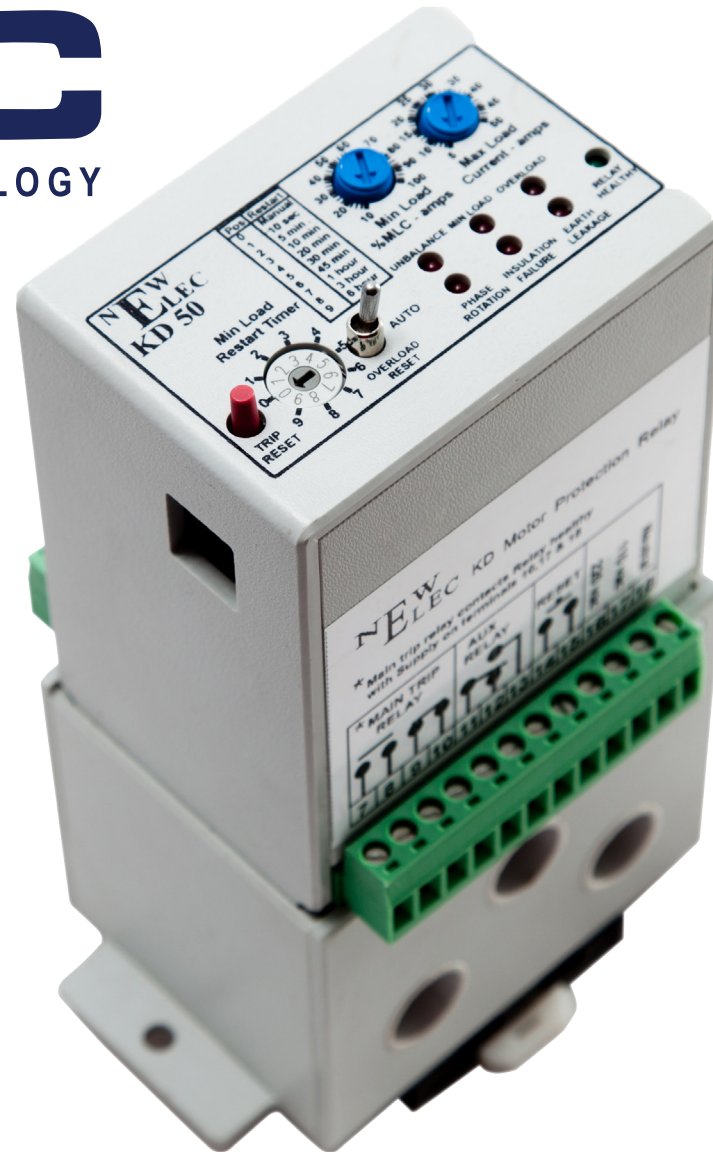


NEW ELEC



MOTOR PROTECTION & CONTROL TECHNOLOGY

KD Motor Protection Relay...



A South African Company to be Proud of



Certificate Number: 8707QM5001

Physical Address: 298 Soutter Street, Pretoria West
Tel: 083 454 6949, +27 12 327 1729 Fax: +27 (0)12 327 1733 Toll Assist: 0860 10 30 41
www.newelec.co.za sales@newelec.co.za

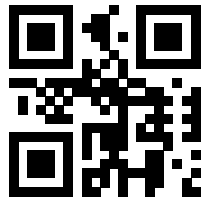


MOTOR PROTECTION & CONTROL TECHNOLOGY

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Toll Assist: 0860 10 30 41

 www.newelec.co.za

 GPS Coordinates:
-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.

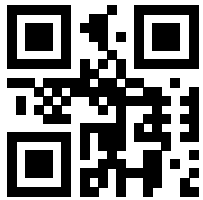
NewElec's electronic motor protection relays can be found in refineries, mining, steel, petrochemical, pulp and paper, sugar mills, agriculture and material handling industries to name a few, both locally and internationally. The NewElec product range includes software programmable LV motor protection 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

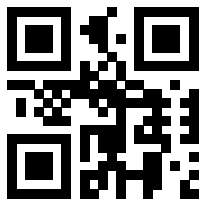




Providing protection and Control for

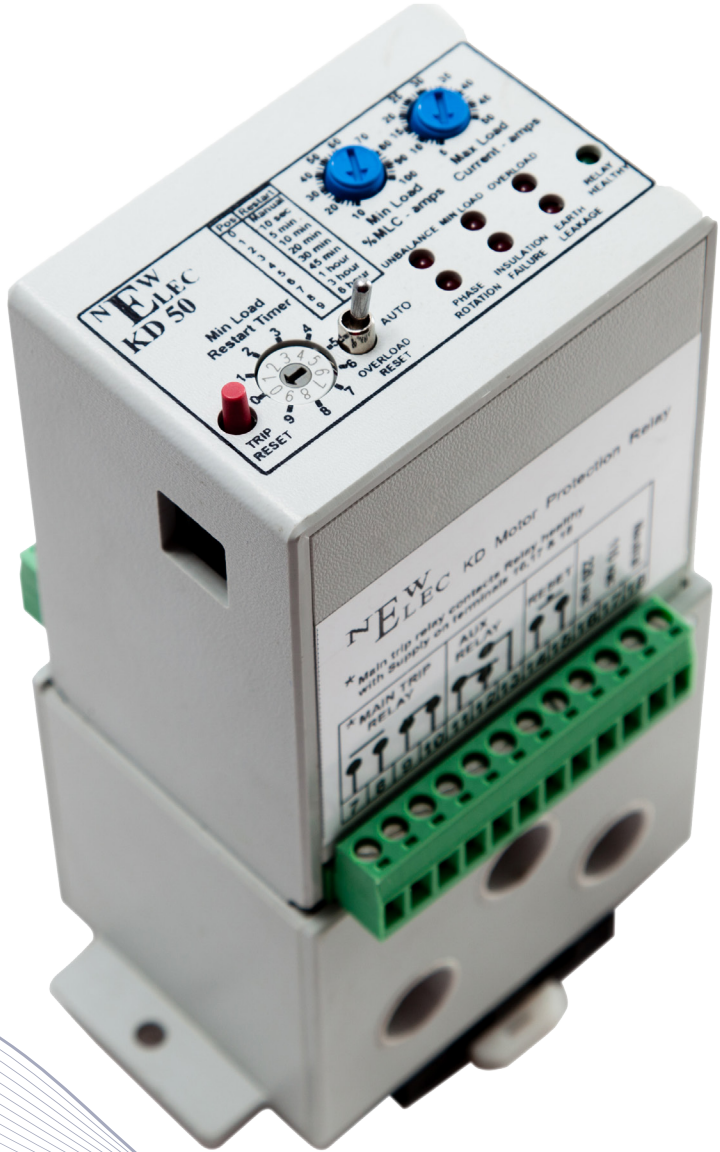
- *Conveyors*
- *Pumps*
- *Crushers*
- *Compressor*
- *Fans*





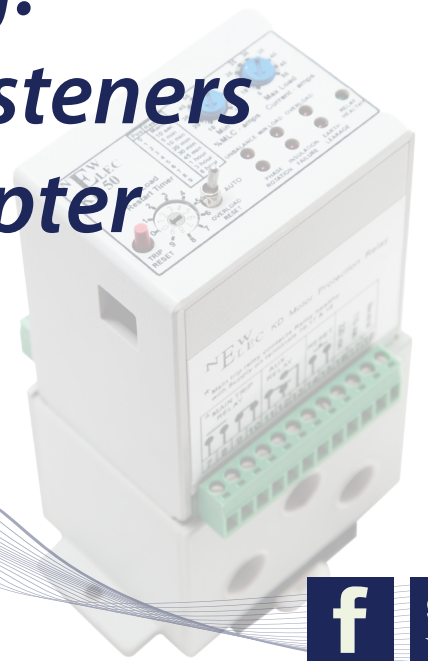
Innovative solutions from South Africa's Leading Motor Protection Specialists

Overview



Size:
L 80 X W 55 X H 136 mm

Mounting:
Chassis with fasteners
DIN rail adapter



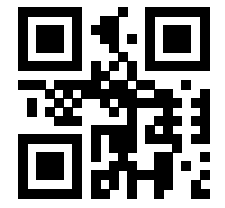
NEW ELEC

MOTOR PROTECTION & CONTROL TECHNOLOGY

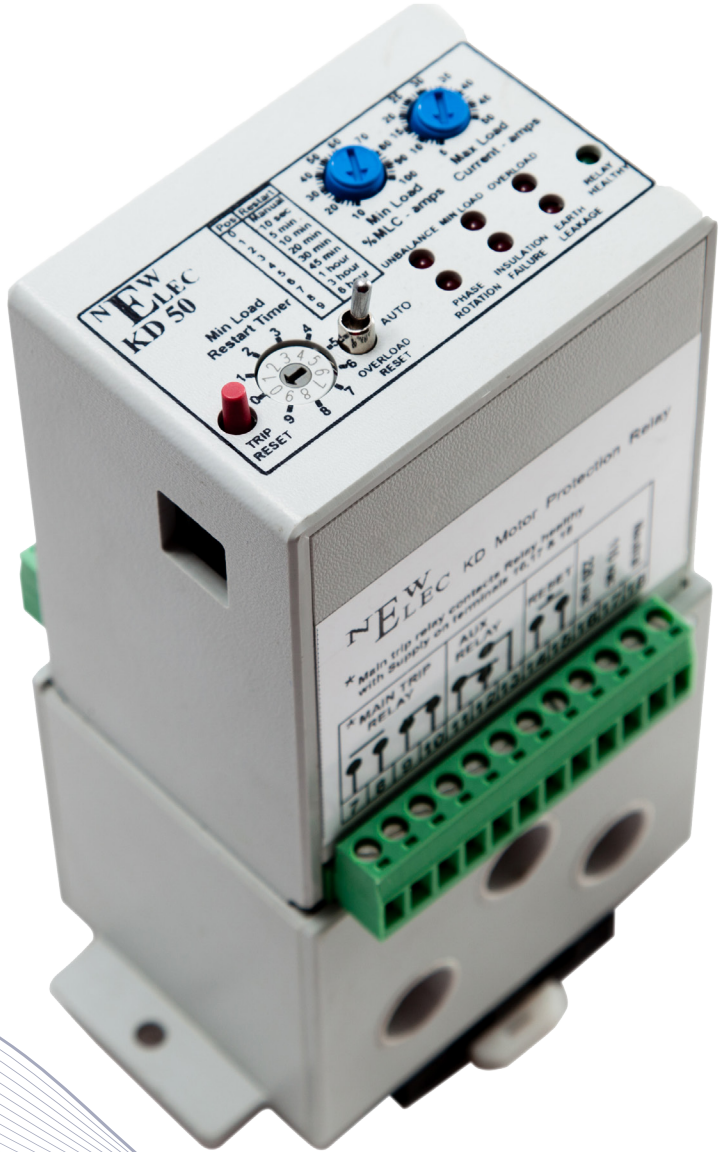
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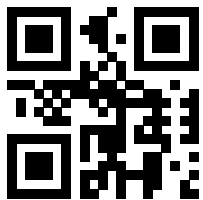
- Current**
- KD 5**
- KD 10**
- KD 50**
- KD 100**
- KD 200**
- KD 400**

- Range**
- 0.5 to 5 amp**
- 1 to 10 Amp**
- 5 to 50 Amp**
- 10 to 100 Amp**
- 20 to 200 Amp**
- 40 to 400 Amp**



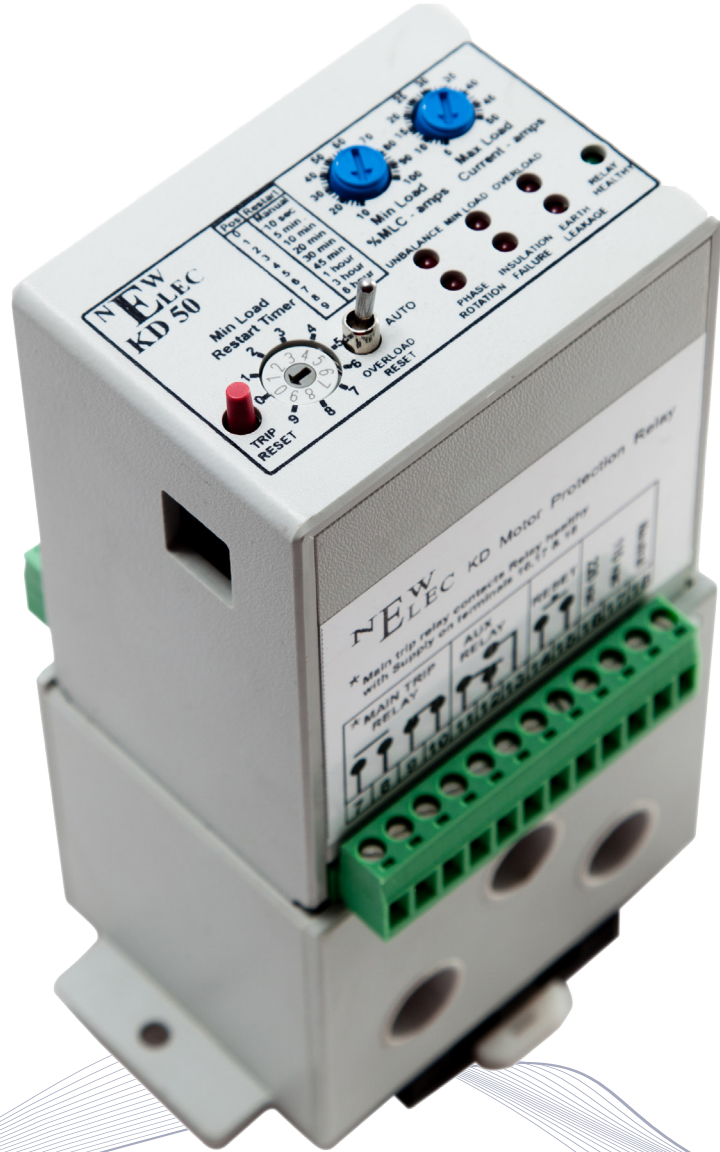
A South African Company to be Proud of

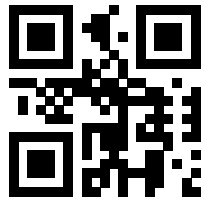




Innovative solutions from South Africa's Leading Motor Protection Specialists

- Home
- Protection Features
- Management Tools
- Recording Utility
- Statistical Data
- Training





Home

► *Protection Features*

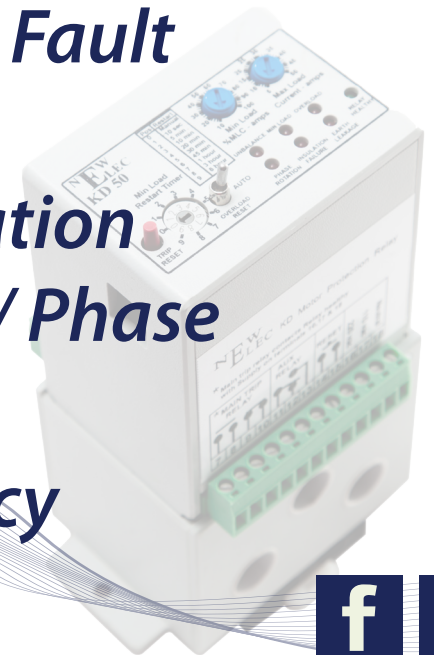
Management Tools

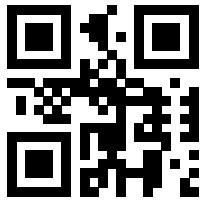
Recording Utility

Statistical Data

Training

- *Thermal Overload*
- *Locked Rotor*
- *Running Stall / Jam*
- *Unbalance Current / Single Phasing*
- *Minimum Load / Under Power*
- *Earth Leakage / Earth Fault*
- *Short Circuit*
- *Starts Per Hour Limitation*
- *Over / Under Voltage / Phase Rotation*
- *Over / Under Frequency*

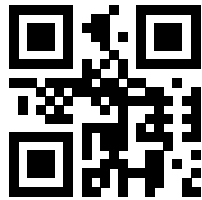




Overload Protection

- ***Class 3 to Class 40 Thermal curve selection [Factory Default 15s]***
- ***Cold & hot thermal curves to IEC 60255-8***
- ***Sustained & cyclic overloading protection***
- ***Full thermal memory with 2 cooling models***
- ***Dynamic Thermal Reset Threshold***
- ***Auto set Thermal Reset Threshold***
- ***Allow next Start to have highest Thermal capacity used in last 10 start ups available for next Start up attempt***





Start Locked Rotor Protection

Thermal Class Curve

or

***Vectorial Stall based on NewElec Patent tracking
Motor***

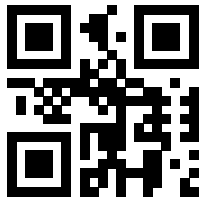
Cos \emptyset / Speed / Torque Curve

Locked Rotor Trip within 50% Selected Class Curve

or

***3 sec after motor speed / Cos \emptyset fails to increase
during acceleration***

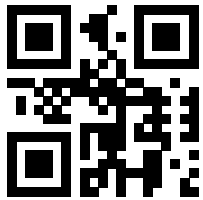




Running Stall / Jam Protection

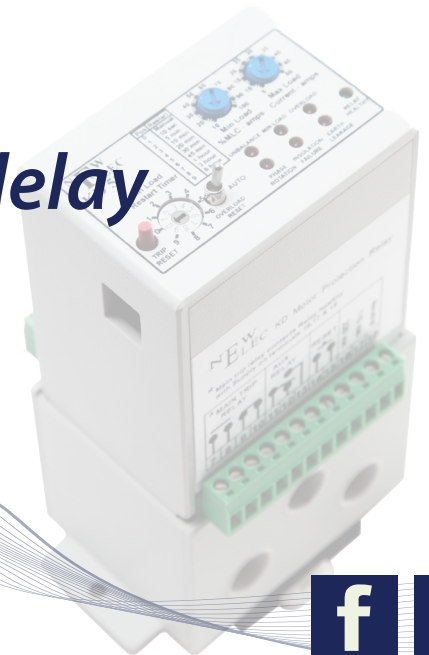
- *User selectable trip thresholds*
- *Range 110 to 300 % of motor full load current [Factory Default 300%]*
- *Trip Delay 1 second to maintain coordination*

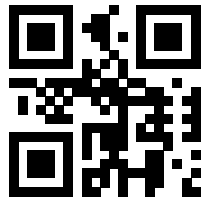




Unbalanced Current / Phase Loss Protection

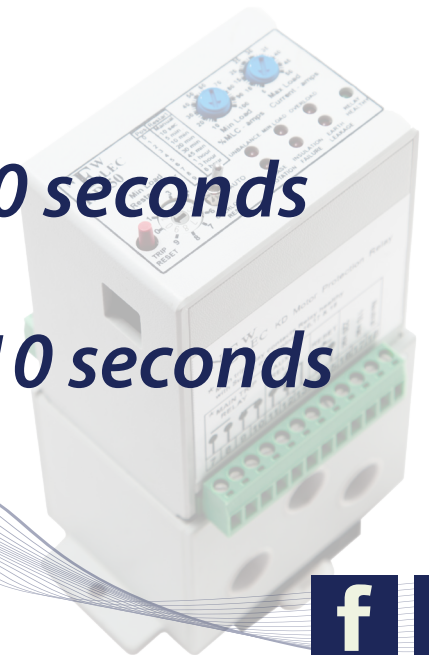
- ***User Selectable:***
 - 3 – 50 % unbalance trip threshold***
[Factory Default 15 %]
 - 1 – 10 seconds trip delay***
[Factory Default 10 seconds]
- ***Single Phasing Factory set – 1 second trip delay***

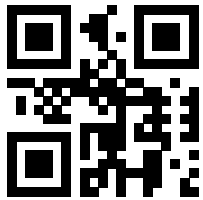




Minimum Load / Under Power Protection

- *User Selectable Load Measurement Method:-*
 - *Current Level detection*
[This is the factory default]
 - *Power factor based (Cos Ø 0,1 to 1)*
- *User Selectable:-*
 - *Optional Priming Time trip delay 1 to 200 seconds*
[Default 1 second]
 - *Minimum Load trip delay* **Up to 10 seconds**
[Default 10 seconds]

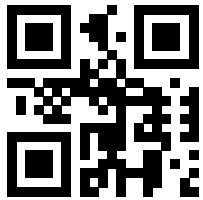




Earth Leakage / Fault & Insulation Lock out

- *User Selectable tripping curves*
 - *DMT 0,1 to 1 Second*
 - *[Factory Default 150ms]*
 - *IDMT - SI Curve 0,1 TMS*
- *Sensitivity Range 30 to 1000 mA*
[Default 250 mA]
- *Harmonic Suppression Stability Filter*
- *Earth Insulation lock out < 20 K Ohm*

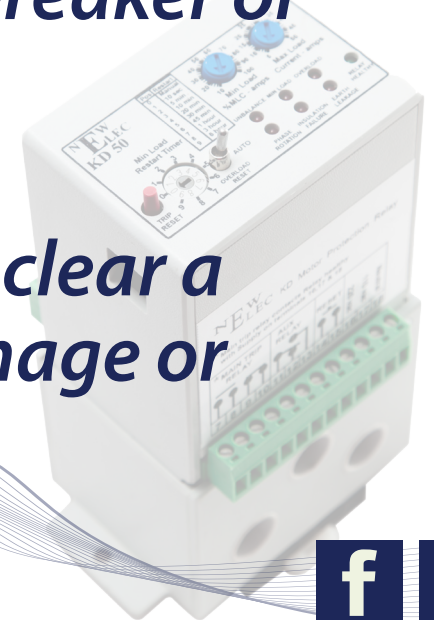


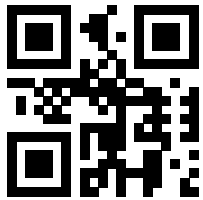


Short Circuit Protection

- *Trip threshold High Impedance 950% Is (Cos \emptyset < 0,85)*
- *Trip Threshold Low Impedance 350% Is (Cos \emptyset > 0,85)*
- *High speed Back Trip Option Relay 2*
- *Minimum 1 second trip delay time on short circuit Trip on Main Trip Relay allows upstream circuit breaker or fuses ample time to clear the fault*

Thus ensuring the contactor is not used to clear a high energy fault with possible severe damage or loss of life





Starts Per Hour / Consecutive Start Attempts

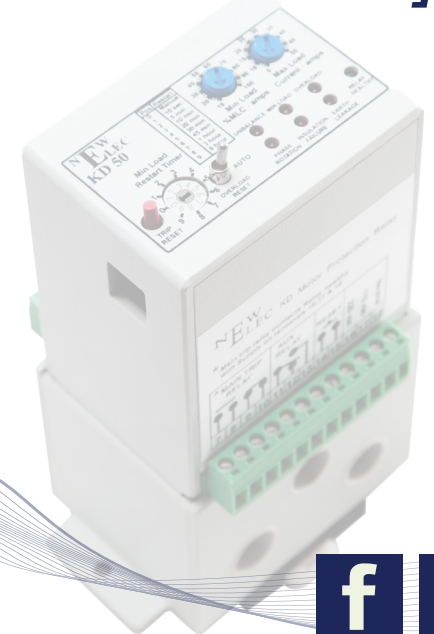
- User Selectable:*

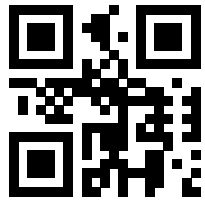
1 to 30 starts per hour

*1 to 3 consecutive start attempts within the selected
start per hour window*

[Factory Default = 6]

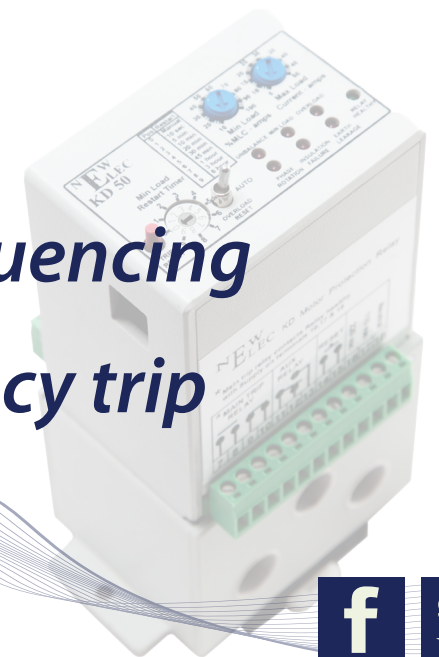
[Factory Default = 3]

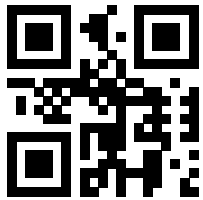




Over / Under Voltage – Phase Rotation and Frequency Protection

- *User Selectable Upper & Lower limits for:*
 - *Over voltage*
 - *Under voltage*
 - *Asymmetry (unbalance)*
- *Phase reversal protection*
 - *With user selectable RWB or BWR sequencing*
- *User Selectable Over and Under Frequency trip*





Management Tools

Home

Protection Features

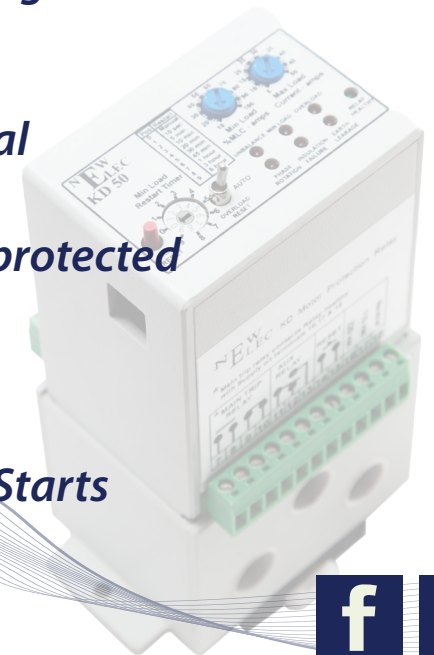
► *Management Tools*

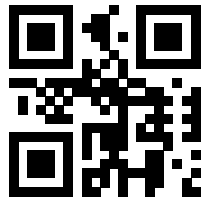
Recording Utility

Statistical Data

Training

- *Event Record -2000 events*
 - *Non Volatile Password protected Time and Date Stamped with I act, V act, Running Hours as well as Circuit Interruption time*
- *Fault Record – Last 60 Faults*
 - *Non Volatile Password protected Time and Date Stamped with I act, V act, Running Hours as well as Circuit Interruption time*
- *3 Phase Recorder [V, I, Cos Ø , thermal Capacity]*
- *Statistical Data : Editable Password protected*
 - *Running Hours*
 - *Start up counter*
 - *Trip Fault Counter*
 - *Thermal Capacity used Last 10 Starts*





Recording Utility

Home

Protection Features

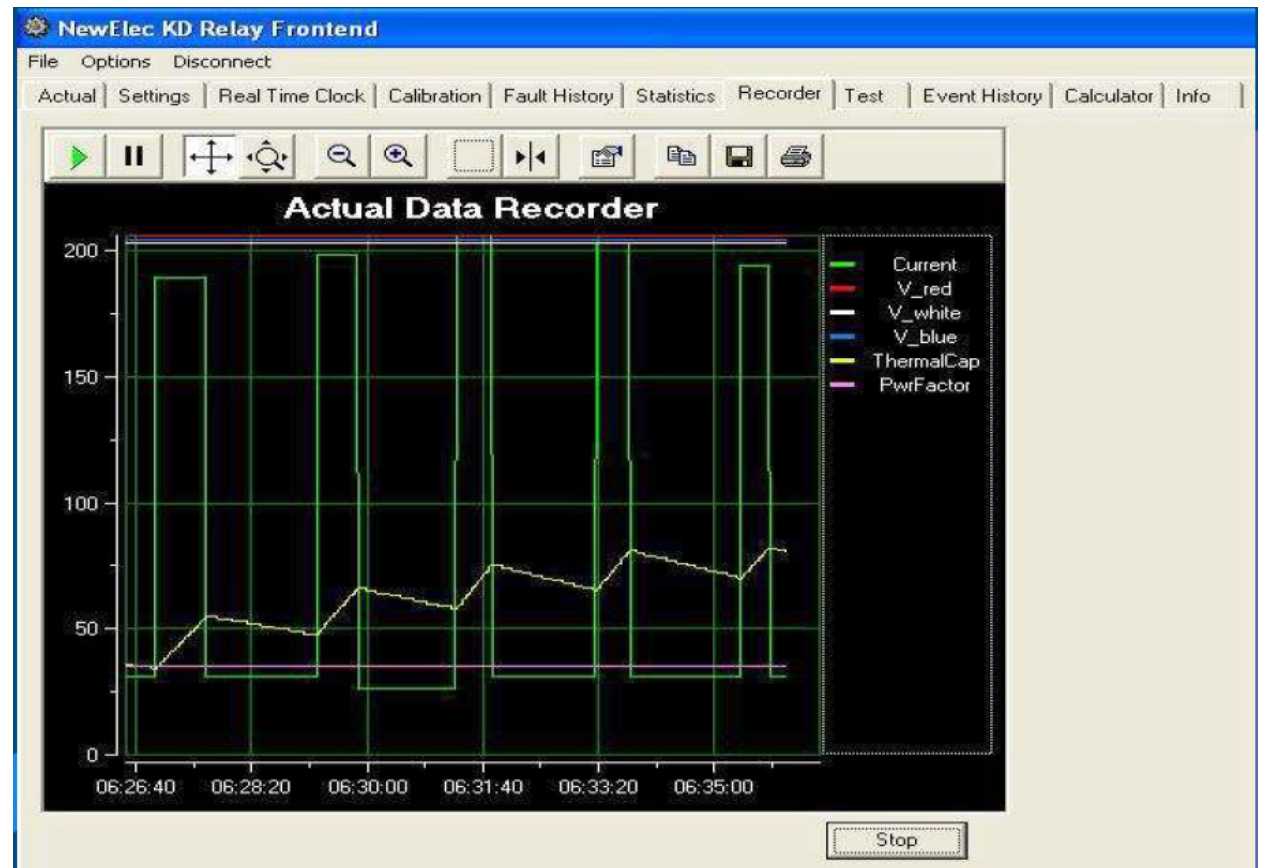
Management Tools

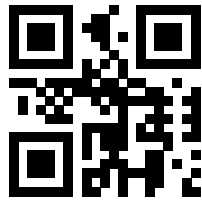
► Recording Utility

Statistical Data

Training

- Integrated 3 Phase Recorder





Statistic Data

Home

Protection Features

Management Tools

Recording Utility

► Statistical Data

Training

NewElec KD Relay Frontend

File Options Disconnect

Actual Settings Real Time Clock Calibration Fault History **Statistics** Recorder Test Event History Calculator Info

User Defined Data

Drive ID :

Description of drive unit :

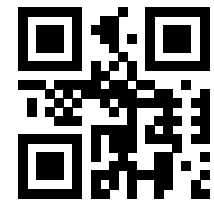
Startup Counter

Trip Counter

Running Hours Counter

Thermal Capacity required to start Drive

Latest	0	24
	1	20
	2	20
	3	28
	4	20
	5	25
	6	18
	7	17
	8	23
Oldest	9	15



Innovative solutions from South Africa's Leading Motor Protection Specialists

Training Actual Performance Window

- Home
- Protection Features
- Management Tools
- Recording Utility
- Statistical Data
- ▶ Training

NewElec KD Relay Frontend

File Options Disconnect

Actual Settings Real Time Clock Calibration Fault History Statistics Recorder Test Event History Calculator Info

Drive ID : MCC 2 C4 Drive Description : 3.7 Kw Aerator

Thermal Capacity Used	39 %	In Service (Motor Running)	<input type="checkbox"/>
Thermal Curve Class Setting	15 sec	Phase Voltages Present	<input type="checkbox"/>
Thermal Trip Time Remainder	Infinite sec	Line Voltage Selection	400 V
Actual Current Level	88 %	Line Voltage (max)	364 V
Actual Current Unbalance	4 %	Supply Frequency	49 Hz
Earth Leakage Current	0 mA	Running Hours	8
Phase Voltage (red) Level	210 V	Main Trip Relay	<input checked="" type="checkbox"/> On
Phase Voltage (white) Level	209 V	Restart Relay	<input type="checkbox"/> Off
Phase Voltage (blue) Level	208 V	Date	2000/01/03
Voltage Symmetry	99 %	Time	23h37m58s
Power Factor	74 %	Software Revision	1a
Minimum Load Trip Level Setting	50 %	Serial Number	00378945

Alarm and Trip Flags

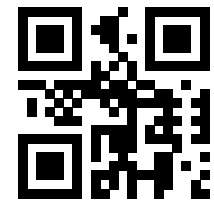
Overcurrent	<input type="checkbox"/>	Short Circuit	<input type="checkbox"/>
Vectorial / Run Stall	<input type="checkbox"/>	Overvoltage	<input type="checkbox"/>
Current Unbalance	<input type="checkbox"/>	Undervoltage	<input type="checkbox"/>
Single Phasing	<input type="checkbox"/>	Voltage Symmetry	<input type="checkbox"/>
Minimum Load	<input type="checkbox"/>	Isolation Lockout	<input type="checkbox"/>
Low Frequency	<input type="checkbox"/>	Earth Leakage	<input type="checkbox"/>
High Frequency	<input type="checkbox"/>	Earth Fault	<input type="checkbox"/>
Phase Rotation Error	<input type="checkbox"/>	Starts per Hour Limit	<input type="checkbox"/>

Reset Relay

Thermal Capacity

Reset





Innovative solutions from South Africa's Leading Motor Protection Specialists

Home

Training Simulator

Protection Features

Management Tools

Recording Utility

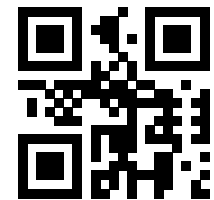
Statistical Data

▶ *Training*

The screenshot shows the 'NewElec KD Relay Frontend' software interface. At the top, there are menu options: File, Options, Disconnect, Actual, Settings, Real Time Clock, Calibration, Fault History, Statistics, Recorder, Test, Event History, Calculator, and Info. The main section is titled 'Simulated Injection Test' and contains several vertical sliders and digital readouts for various parameters:

- Three Voltage sliders (V red, V white, V blue) with values 206, 205, and 204 respectively.
- Max Phase Current (%) slider at 97.
- Unbalance Current (%) slider at 0.
- Frequency (Hz) slider at 48.
- Power Factor (%) slider at 61.
- Earth Leak (mA) slider at 0.
- A 'Thermal Capacity Used' bar at 79%.

Below the sliders is a 'Simulation Control' section with buttons for 'Simulation in Progress', 'Start Simulation', and 'Stop Simulation'. There are also 'Alarm' and 'In Service' status indicators, and 'Reset Relay' and 'Reset Thermal Capacity' buttons. A 'Timer: Alarm to Trip Time' is set to 7.5 sec. A 'Please note!' box at the bottom right states: 'The sole purpose of this simulation facility is to provide a quick test for some of the protection features of the relay. It is not suitable for calibration purposes due to processing speed variances of the different personal and laptop computers.'



Innovative solutions from South Africa's Leading Motor Protection Specialists

Home

Calculator

Protection Features

Management Tools

Recording Utility

Statistical Data

▶ *Training*

NewElec KD Relay Frontend

File Options Disconnect

Actual Settings Real Time Clock Calibration Fault History Statistics Recorder Test Event History Calculator Info

Thermal Calculator

Trip Time Calculation

Motor load current : 127 %
Thermal time constant : 15 sec
Thermal capacity used : 078 %

Calculate trip time 113 sec

Cooling Time Calculation

Initial thermal capacity used : 99 %
Required thermal capacity : 60 %
Thermal time constant : 15 sec
Forced cooling :

Calculate cooling time 1079.04 sec

Current Calculator (Delta Connection)

Full Load Power Rating : 0 kWatt
Line voltage : 400 Volt
Power factor : 85 %
Efficiency : 90 %

Calculate current

Phase current : 0 A
Line current : 0 A

Earth Leakage IDMT Calculator

Actual leak current : 250 mA
Leak current trip setting : 30 mA
Time multiplier : 0.1

Calculate trip time 0.323197 sec

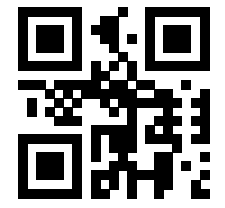
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MOTOR PROTECTION & CONTROL TECHNOLOGY

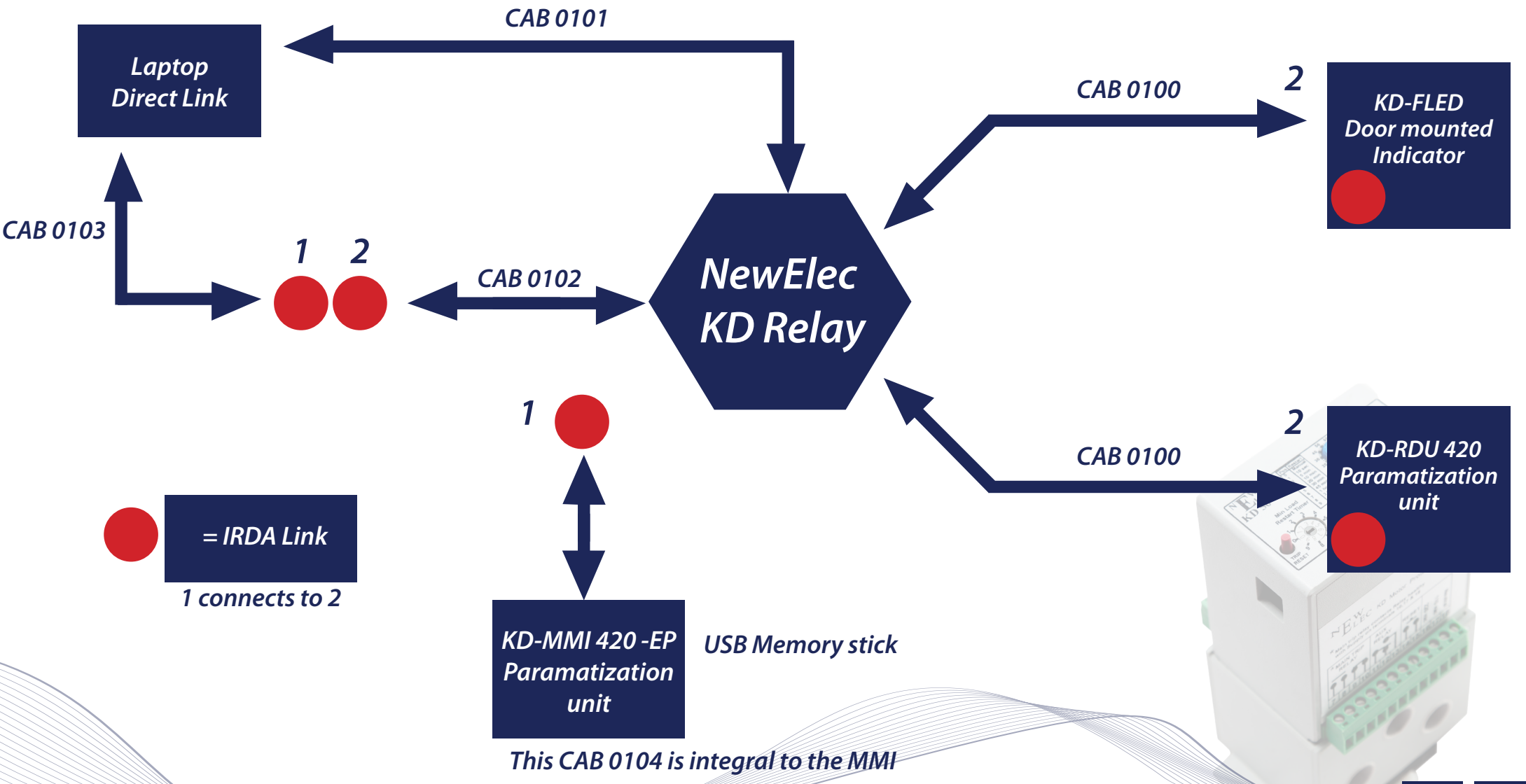
+27 12 327 1729
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GPS Coordinates:
-25.752984, 28.162957

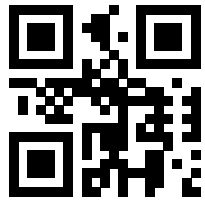


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A South African Company to be Proud of



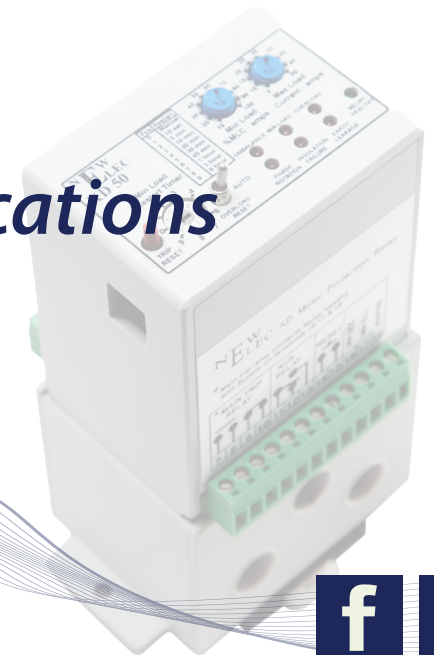


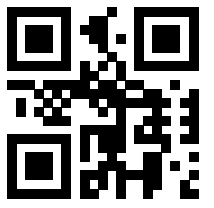
Laptop Direct Link

*Option 1 is by having a physical connection to the relay
Option 2 is by means of an infra red link to the relay*

*You will need to have installed the Free Front End
Software on your laptop*

*And be in Possession of the necessary communications
cables*





Innovative solutions from South Africa's Leading Motor Protection Specialists

KD – FLED Door Mounted Indicator

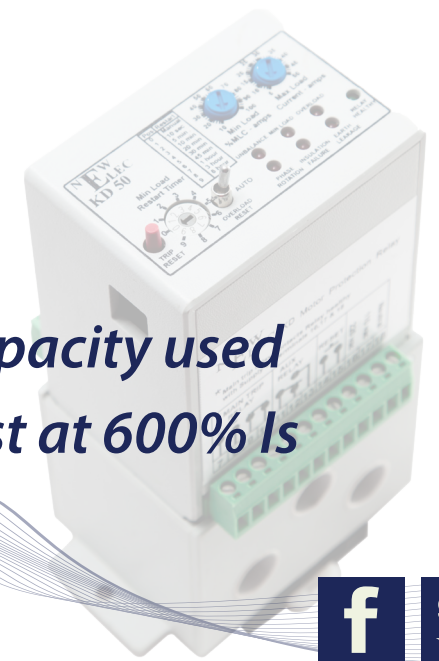


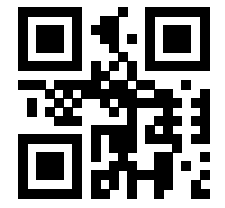
*Infra red connection
To Laptop or MMI*



*Latched LED fault indications
"Last Fault" button will display
previous fault*

*Displays % thermal capacity used
Thermal Curve Trip Test at 600% Is
Reset facility*





Innovative solutions from South Africa's Leading Motor Protection Specialists

KD RDU 420 Door Mounted Paramatization Unit



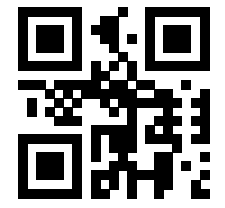
*Infra red connection
To Laptop or MMI*

**Security
Dongle Protected**

- Upload Event records*
- Upload Fault records*
- Set KD Relay Parameters*

- Display Actual Values*
- Displays Faults*





Innovative solutions from South Africa's Leading Motor Protection Specialists

KD MMI 420 –EP Paramatization Unit

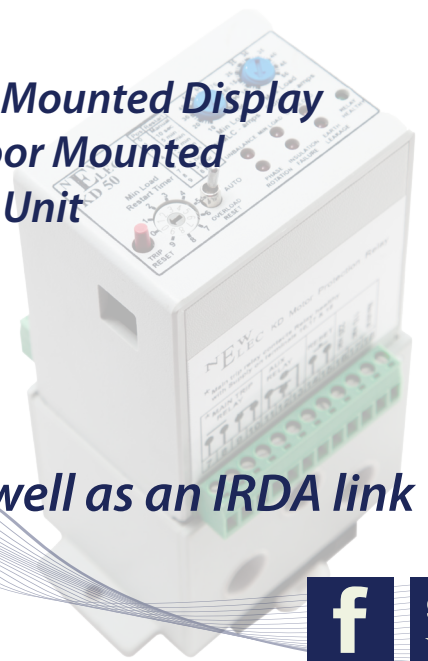


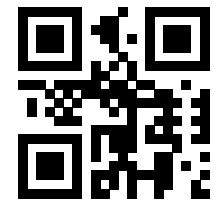
This unit is able to connect Via Infra Red to:

- Laptop*
- KD – FLED Door Mounted Display*
- KD- RDU 420 Door Mounted Paramatization Unit*

- Upload Events*
- Upload Fault Records*
- Set KD Relay Parameters*

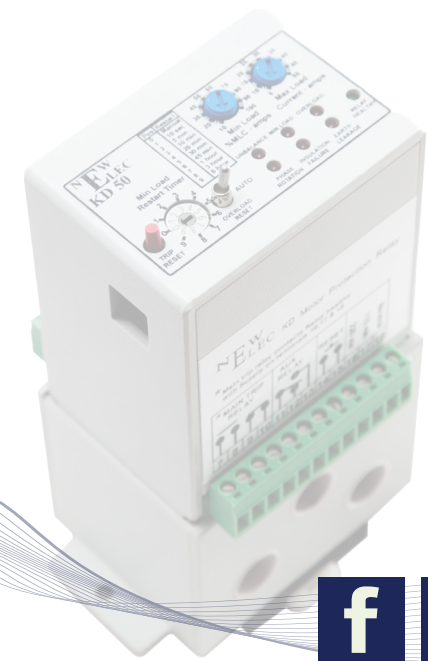
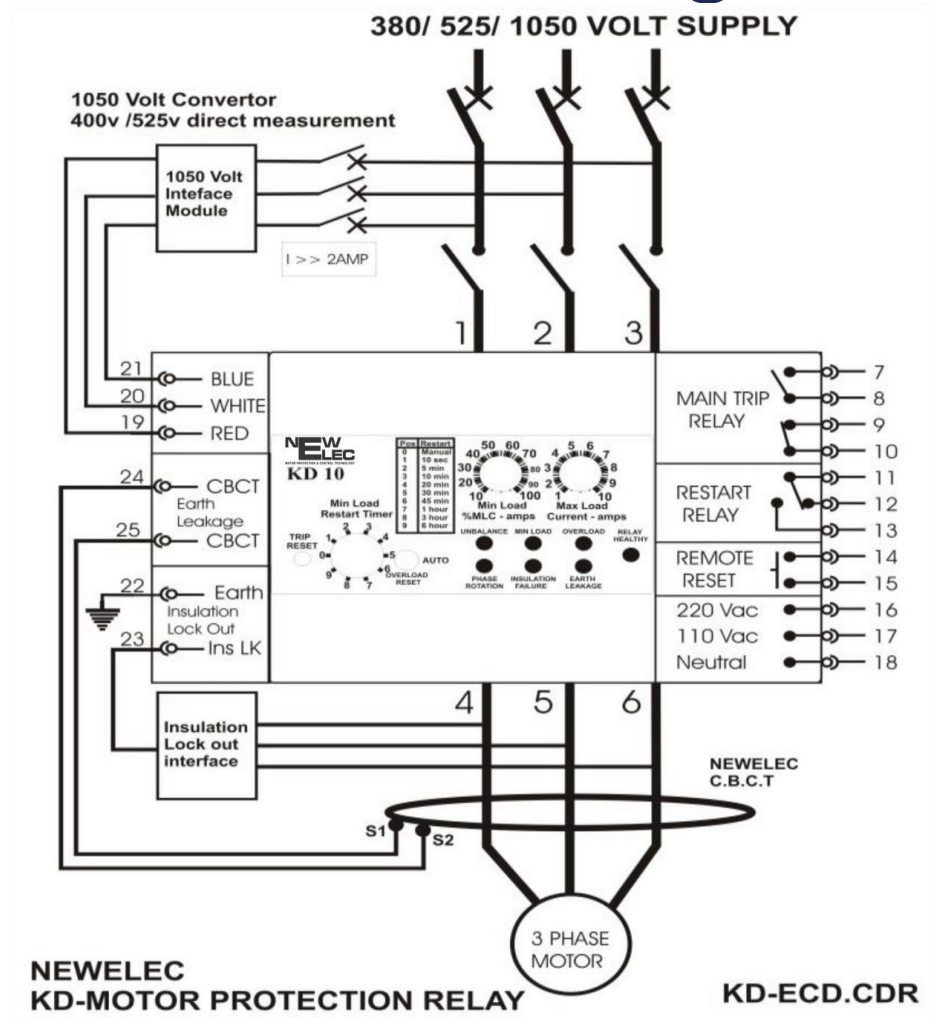
- Display Actual Values*
- Displays Faults*
- Fitted with a USB port as well as an IRDA link*

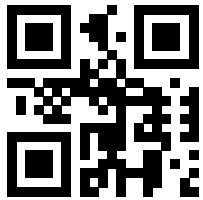




Innovative solutions from South Africa's Leading Motor Protection Specialists

Connection Diagram





Main Menu Structure

1. Actual Values

2. Relay Settings

3. Faults

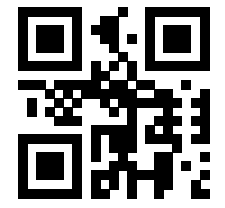
4. Events

5. MMI Settings

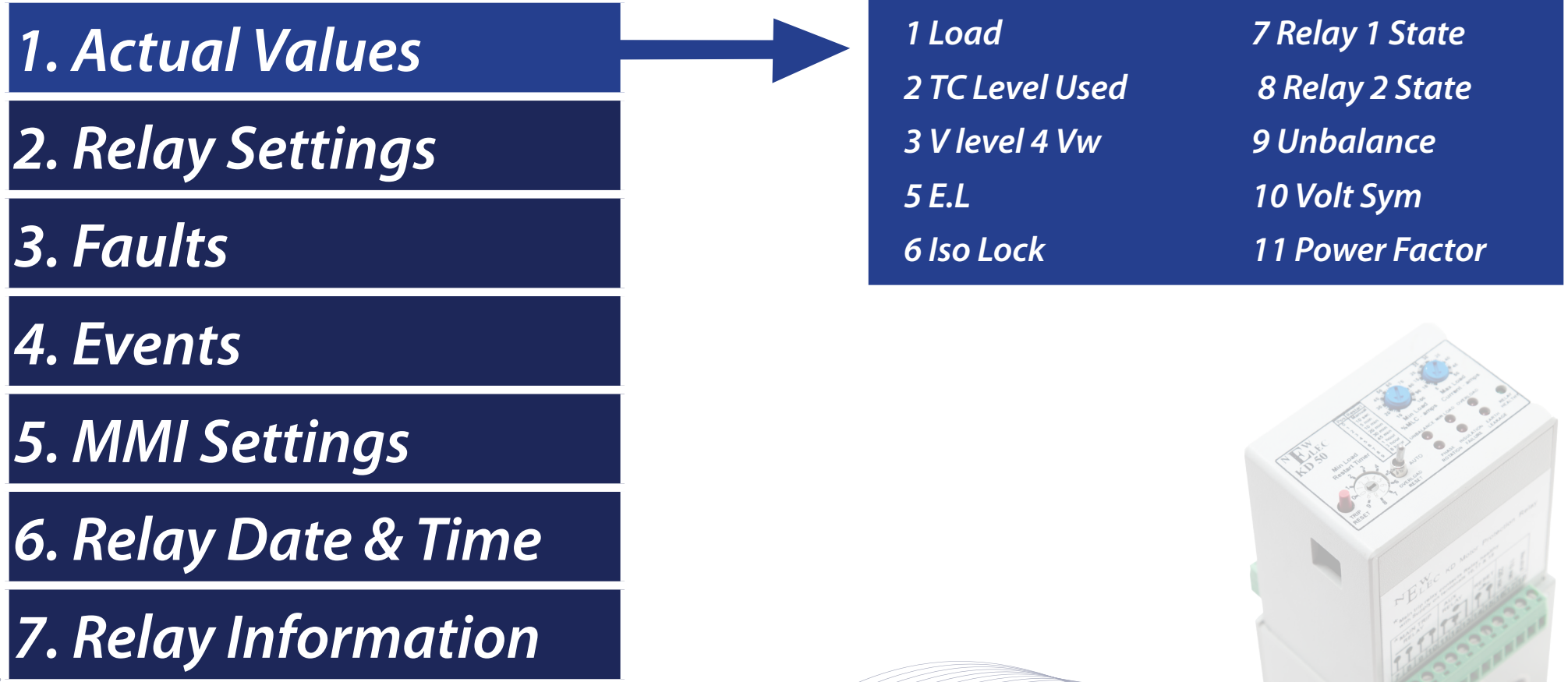
6. Relay Date & Time

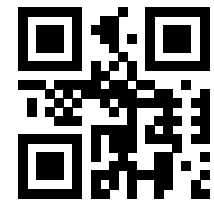
7. Relay Information



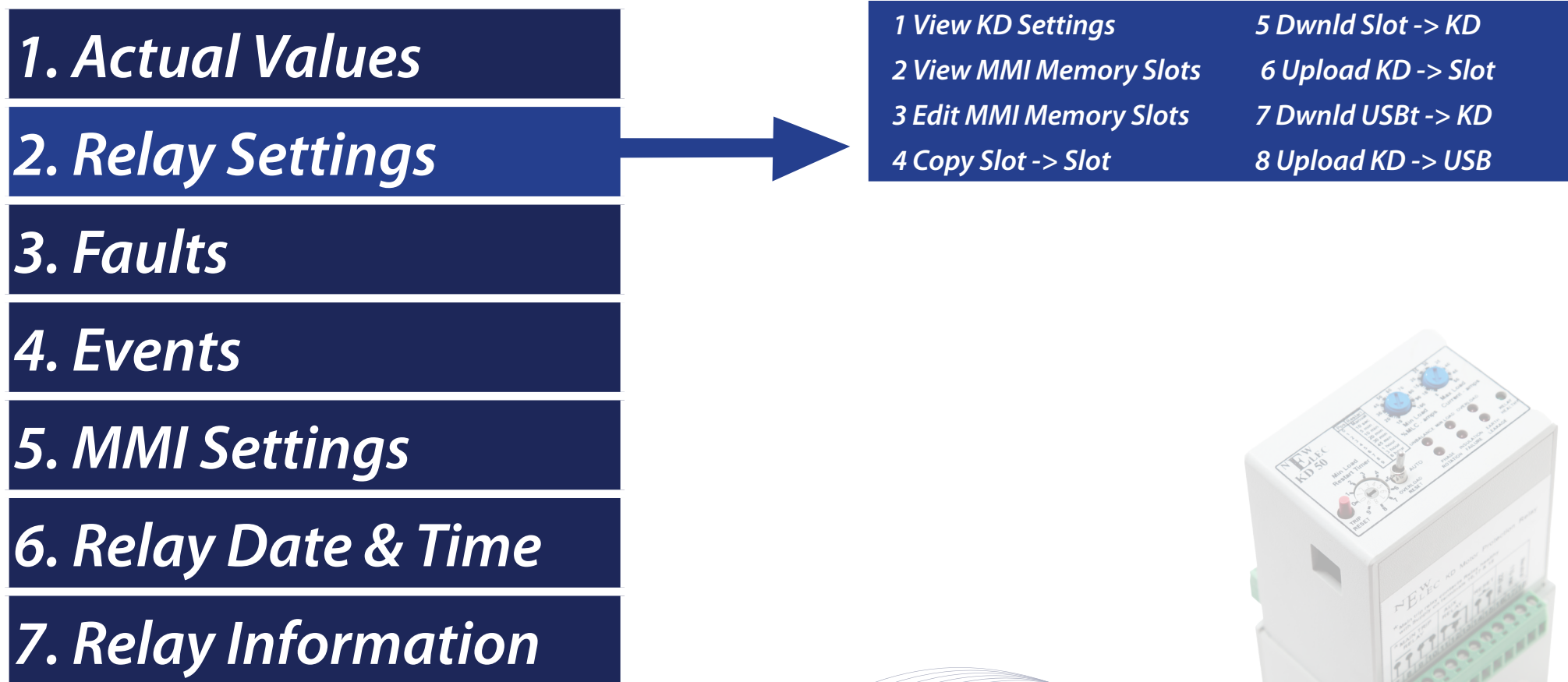


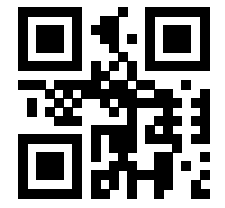
Sub-Menu Structure





Sub-Menu Structure





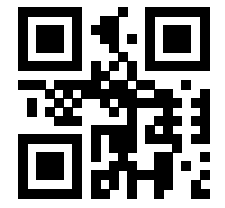
Sub-Menu Structure

- 1. Actual Values
- 2. Relay Settings
- 3. Faults
- 4. Events
- 5. MMI Settings
- 6. Relay Date & Time
- 7. Relay Information



View KD faults [xx]
Uploading KD Faults
Upload progress [xx %]





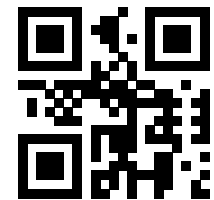
Sub-Menu Structure

- 1. Actual Values
- 2. Relay Settings
- 3. Faults
- 4. Events
- 5. MMI Settings
- 6. Relay Date & Time
- 7. Relay Information



View KD Events
Uploading KD Events





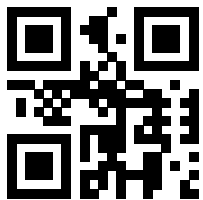
Sub-Menu Structure

- 1. Actual Values
- 2. Relay Settings
- 3. Faults
- 4. Events
- 5. MMI Settings
- 6. Relay Date & Time
- 7. Relay Information



MMI Settings
Auto Scroll Enable / Disable
Backlite Auto On / Off
Contrast to 100%
Brightness to 100%





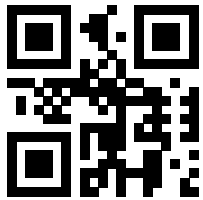
Sub-Menu Structure

- 1. Actual Values
- 2. Relay Settings
- 3. Faults
- 4. Events
- 5. MMI Settings
- 6. Relay Date & Time
- 7. Relay Information



KD Clock
Date:
Time:





Sub-Menu Structure

1. Actual Values

2. Relay Settings

3. Faults

4. Events

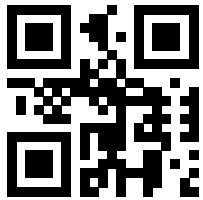
5. MMI Settings

6. Relay Date & Time

7. Relay Information

Start Up Counter
Trip Counter
Running Hours
Drive Description
Drive File I.D





Menu Structure

1. Actual Values

2. Relay Settings

3. Faults

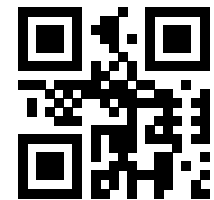
4. Events

5. MMI Settings

6. Relay Date & Time

7. Relay Information





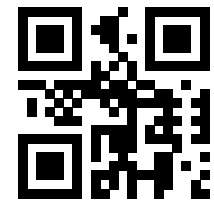
Innovative solutions from South Africa's Leading Motor Protection Specialists

MOTOR PROTECTION & CONTROL TECHNOLOGY

Event Records Example

Rec Nr	Status	Date	Time	ALARM CONDITION	TRIP CONDITION	RUN HRS	Imax (%)	Vmin	
1	Drive Name .. : MCC 2 D4								
2	Drive I.D...: 3.7 kW Aerator								
3	Serial Number : 0389628								
4									
5	147	Settings A	2009/02/10	10h56			40000	0	0
6	146	Sim Start	2009/02/10	10h56			40000	736	220
7	145	Sim Alarm	2009/02/10	10h56	OC SC		40000	736	220
8	144	Sim Trip	2009/02/10	10h56		Short Circuit	40000	736	220
9	143	Sim Stop	2009/02/10	10h56			40000	0	0
10	142	Sim Alarm	2009/02/10	11h03	LF		40000	76	220
11	141	Sim Trip	2009/02/10	11h03		Low Frequency	40000	76	220
12	140	Settings A	2009/02/10	11h04			40000	0	0
13	139	Settings A	2009/02/10	11h05			40000	0	0
14	138	Settings A	2009/02/10	11h05			40000	0	0
15	137	Sim Start	2009/02/10	11h05			40000	132	220
16	136	Sim Alarm	2009/02/10	11h05	OC		40000	132	220
17	135	Sim Start	2009/02/10	11h05			40000	96	220
18	134	Sim Alarm	2009/02/10	11h06	OC RS		40000	440	220
19	133	Sim Trip	2009/02/10	11h06		Run-Stall	40000	440	220
20	132	Sim Stop	2009/02/10	11h06			40000	0	0
21	131	Settings A	2009/02/10	11h07			40000	0	0
22	130	Settings A	2009/02/10	11h07			40000	0	0
23	129	Sim Start	2009/02/10	11h07			40000	636	220
24	128	Sim Alarm	2009/02/10	11h07	OC		40000	636	220
25	127	Sim Start	2009/02/10	11h07			40000	84	220
26	126	Power Up	2009/02/10	11h08			40000	576	0
27	125	Sim Start	2009/02/10	11h08			40000	784	220
28	124	Sim Alarm	2009/02/10	11h08	OC		40000	784	220
29	123	Sim Start	2009/02/10	11h08			40000	76	220
30	122	Sim Alarm	2009/02/10	11h08	UV		40000	68	185
31	121	Sim Trip	2009/02/10	11h09		Undervoltage	40000	68	185
32	120	Sim Stop	2009/02/10	11h09			40000	0	0
33									





Fault Records Example

NewElec KD Relay Frontend

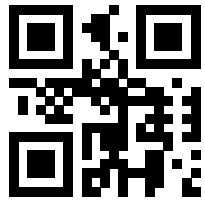
File Options Disconnect

Actual Settings Real Time Clock Calibration Fault History Statistics Recorder Test Event History Calculator Info

Update faults from relay Save fault records on disk Clear fault history in relay

Grp	Status	Date	Time	Fault Description	Run Hrs	Imax %	Vmin
1	Sim	2009/02/22	00h17	Vectorial-Stall	8	700	200
2	Sim	2009/02/22	00h16	Vectorial-Stall	8	104	200
3	Sim	2009/02/22	00h16	Vectorial-Stall	8	620	200
4	Sim	2009/02/22	00h15	Vectorial-Stall	8	100	200
5	Sim	2009/02/22	00h14	Vectorial-Stall	8	100	200
6	Sim	2009/02/22	00h13	Vectorial-Stall	8	648	200
7	Sim	2009/02/22	00h12	Vectorial-Stall	8	636	200
8	Sim	2009/02/22	00h11	Vectorial-Stall	8	612	200
9	Sim	2009/02/22	00h11	Vectorial-Stall	8	656	200
10	Sim	2009/02/22	00h10	Vectorial-Stall	8	628	200
11	Sim	2009/02/22	00h08	Minimum Load	8	40	200
12	Sim	2009/02/22	00h07	Vectorial-Stall	8	596	200
13	Sim	2009/02/22	00h03	Low Frequency	8	84	200
14	Sim	2009/02/22	00h02	Low Frequency	8	96	200
15	Sim	2009/02/22	00h00	Undervoltage	8	92	180
16	Sim	2009/02/21	23h59	Vectorial-Stall	8	596	210
17	Sim	2009/02/21	23h58	Vectorial-Stall	8	612	210
18	Sim	2009/02/21	23h51	Overcurrent	8	176	210
19	Sim	2009/02/21	23h47	Run-Stall	8	668	210
20	Sim	2009/02/21	23h46	Earth Leakage	8	88	210
21	Sim	2009/02/21	23h44	Unbal Phase Currents	8	92	210
22	Act	2000/01/02	23h29	Minimum Load	0	48	230
23	Sim	2000/01/00	10h40	Starts/Hour Limit	0	0	0



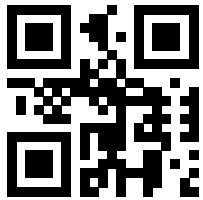


Innovative solutions from South Africa's Leading Motor Protection Specialists

KD Approvals

- *Profibus Certification Pending*
- *ISO 9001 Accreditation since November 2001*
- *Eskom approval GGS0852 (List of approved devices)*





Innovative solutions from South Africa's Leading Motor Protection Specialists

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



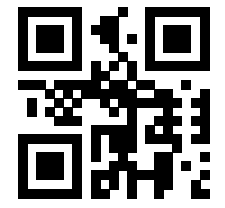
NEW ELEC

MOTOR PROTECTION & CONTROL TECHNOLOGY

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Toll Assist: 0860 10 30 41

 www.newelec.co.za

 GPS Coordinates:
-25.752984, 28.162957

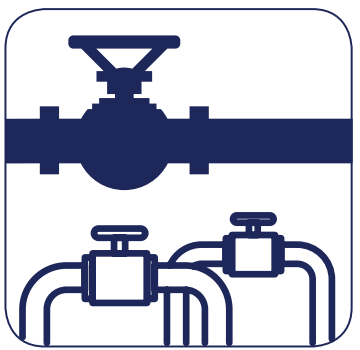


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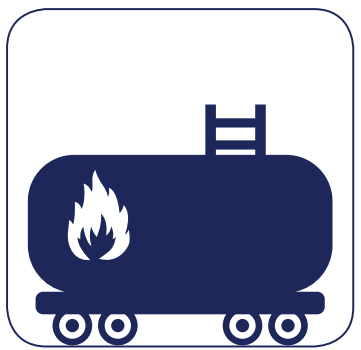
Applications particularly well suited for use in conjunction with the NewElec range of electronic motor protection relays.



Mining



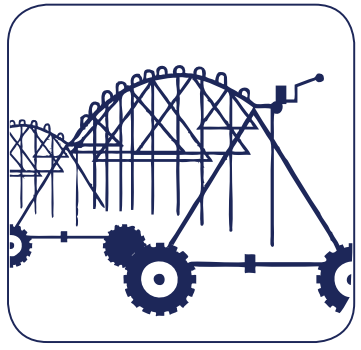
Water Affairs



Petro Chemical



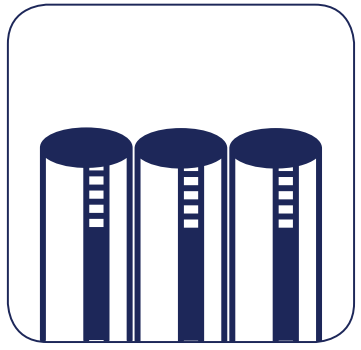
Refineries



Agriculture



Material Handling



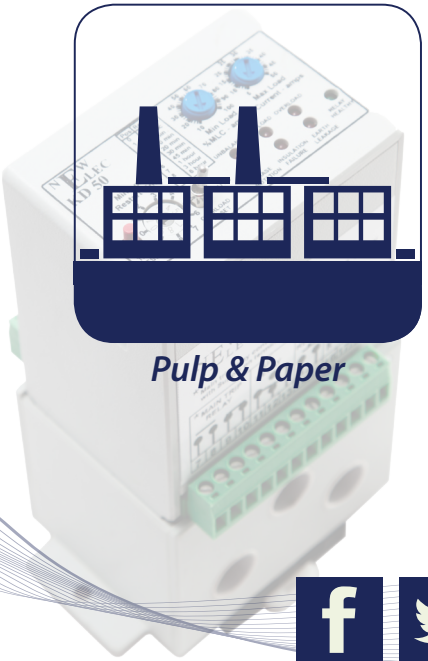
Mills



Cable Theft Detection



Pulp & Paper



A South African Company to be Proud of

