

NEW ELEC

MOTOR PROTECTION & CONTROL TECHNOLOGY

N Series Flexible Protection for LV Motors



A South African Company to be Proud of

About

NewElec's N Series relays are designed to protect motors in various LV applications from 5 - 550A. If required, percentage calibration is available and the modular design permits door, chassis, or CT module block mounting.

The N Series relays provide user-selectable cold curves ranging from Class 2,5 to 32,5 on a single dial. The hot curve value is limited at 30% of the selected cold curve with full thermal memory and the preloading of the motor determining the thermal curve $> \text{hot} < \text{cold curve}$ protecting the motor at any given time during operation.

A control panel selector switch for auto or manual overcurrent reset after cooling is available for unbalance current or single phasing protection, independent of load current $> 20\% I_e$ with a 5s delay to overcome transient network disturbances.

Earth leakage protection 250mA 0,1s for load currents $< 800\% I_e$ above which NH, NJ models block trip and NI, NK models provide separate output relay to trip MCCB or upstream device.

Full restoration of fault indication LEDs and thermal capacity LED bargraph on restoration of auxiliary power supply in the event of auxiliary power being removed after trip.

The NJ and NK relays are fitted with a 4 to 20mA loop to indicate % motor load current as well as having potential free contact outputs to indicate status of the control panel mounted fault indication LEDs enabling interfacing to PLC or other control circuits.

The N Series relays have user-friendly control panel legends and a 1 year warranty.

Protection Features

- Overload protection for cyclic and sustained overload conditions
- Earth leakage protection is available if required
- Phase unbalance and phase loss protection
- Locked rotor protection as well as jam or running stall protection
- Retentive fault indications even on loss of auxiliary power supply. (Nonvolatile memory)
- Local LED and remote relay fault indication is available
- Fail safe main trip relay operation
- Overcurrent test facility



Features	RELAY MODEL				
	NE	NH	NI	NJ	NK
Thermal overload protection (selectable Class 2,5 to32,5)	●	●	●	●	●
Locked rotor protection	●	●	●	●	●
Jam protection (running stall)				●	●
Thermal memory	●	●	●	●	●
Phase unbalance / loss protection	●	●	●	●	●
250 mA earth leakage protection with blocking intelligence if fault current exceeds 800% motor full load*		●		●	
250 mA earth leakage protection with dedicated change over contact for shunt tripping facility for MCCB irrespective of fault current level*			●		●
Interface facility toPLC • % load current 4-20 mA loop • 4 potential free N.O. contacts for signalling purposes to remote control room in respect of overload, phase unbalance, earth leakage and thermal lockout • PLC reset facility (24-220V accordc)			● ● ●		● ● ●
Local reset facility	●	●	●	●	●
Remote reset facility	●	●	●	●	●
Thermal LED bar graph display	●	●	●	●	●
Fail safe with memorised thermal status of motor and trip fault condition	●	●	●	●	●
Outputcontacts MAIN trip consists of 2 changeover contacts for all faultcondi-tions	●	●		●	
Output contacts MAIN trip consists of 1 change over for; overload, unbalance, run stall, earth leakage and 1 changeover for shunt tripping MCCB			●		●

*This is to maintain Type 2 co-ordination ensuring that the main contactor is not used to interrupt a high-energy current which will exceed the contactor rupturing capacity.

Ordering Details

MODEL	RANGE	CURRENT TRANSFORMER SECONDARY	MOUNTING CONFIGURATION	S = User selectable
See above	050 = 5 to 55 Amp	1 AMPor 5AMP	F = flush door mounting	110or
	200 = 20 to 220 Amp		C = chassis mounting	220V
	500 = 50 to 550 Amp		M = current transformer module-mounted	AC
	100 = % calibration			auxiliary

EXAMPLE: NJ/ 200/ 1/ F/S

INPUT CURRENT

From NewElec CTMB xxx/1/CBCT or separate suitably rated ring C.Ts

SECONDARY RATING

1 Amp (5 Amp on request)

NOMINAL OUTPUT

2,5 VA ACCURACY CLASS 5 P 10 at 0,1 VA

OUTPUT RELAY

Contacts : 2 x Changeover
Rating : 6 Amp at 250 Volt
Isolation : 2 kV between circuits : 1 kV across n.o contacts
Auxiliary supply : 110 or 220 Volt a.c
Operating range : 85 to 120% of specified voltage
Burden : 3 VA
Frequency range : 45 to 65 Hz
Operating temp : -10°C to + 50°C

ISOLATION

2 kV between all separate circuits to IEC 255-5 Appendix A.
1 kV across n.o contacts in accordance to IEC 255-5 Appendix A

OVERLOAD RESET DELAY

Two stage thermal memory matched to overload curve selection

IMPULSE WITHSTAND

Transient 5 kV to IEC 255-5 Appendix D

HIGH FREQUENCY DISTURBANCE

1 MHz modulated 400 Hz 1 kV to IEC 255-8 Appendix E (Class III)

OVERLOAD WITHSTAND RATINGS

10 x rated current : Continuous
100 x rated current : 1s
Burden : <0,1 VA
Current setting range : 10 to 110% I_n
Calibration : Amperes R.M.S
Response : Filtered peak value output 3 phase rectifier
Current detection level : 102% of set value (I_e)
Current operation level : 104% of set value (I_e) Repeatability : 1% of detection level
Current setting accuracy : ± 3% of rated current
Overload curve accuracy : ± 5% 120% I_e to 800% I_e : ± 10% 105% I_e to 119% I_e

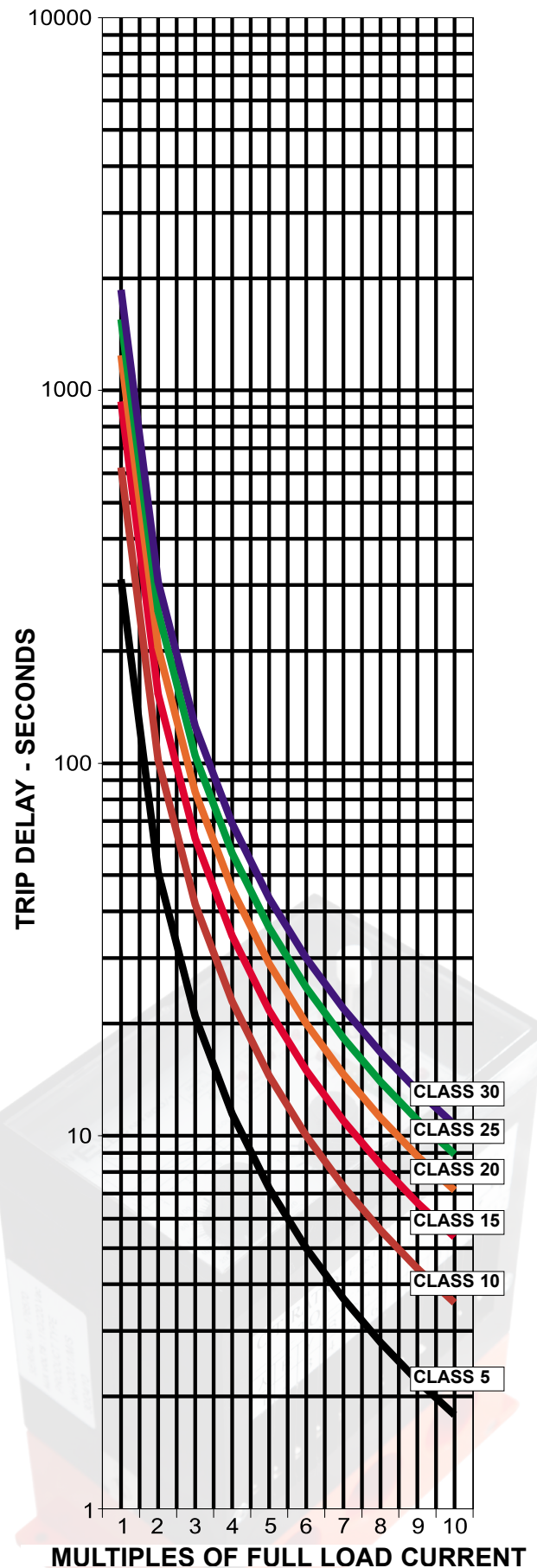
EARTH LEAKAGE

Level : 250mA
Trip Delay : 100ms Operation : Block I_{act} > 800% I_e for NH & NJ

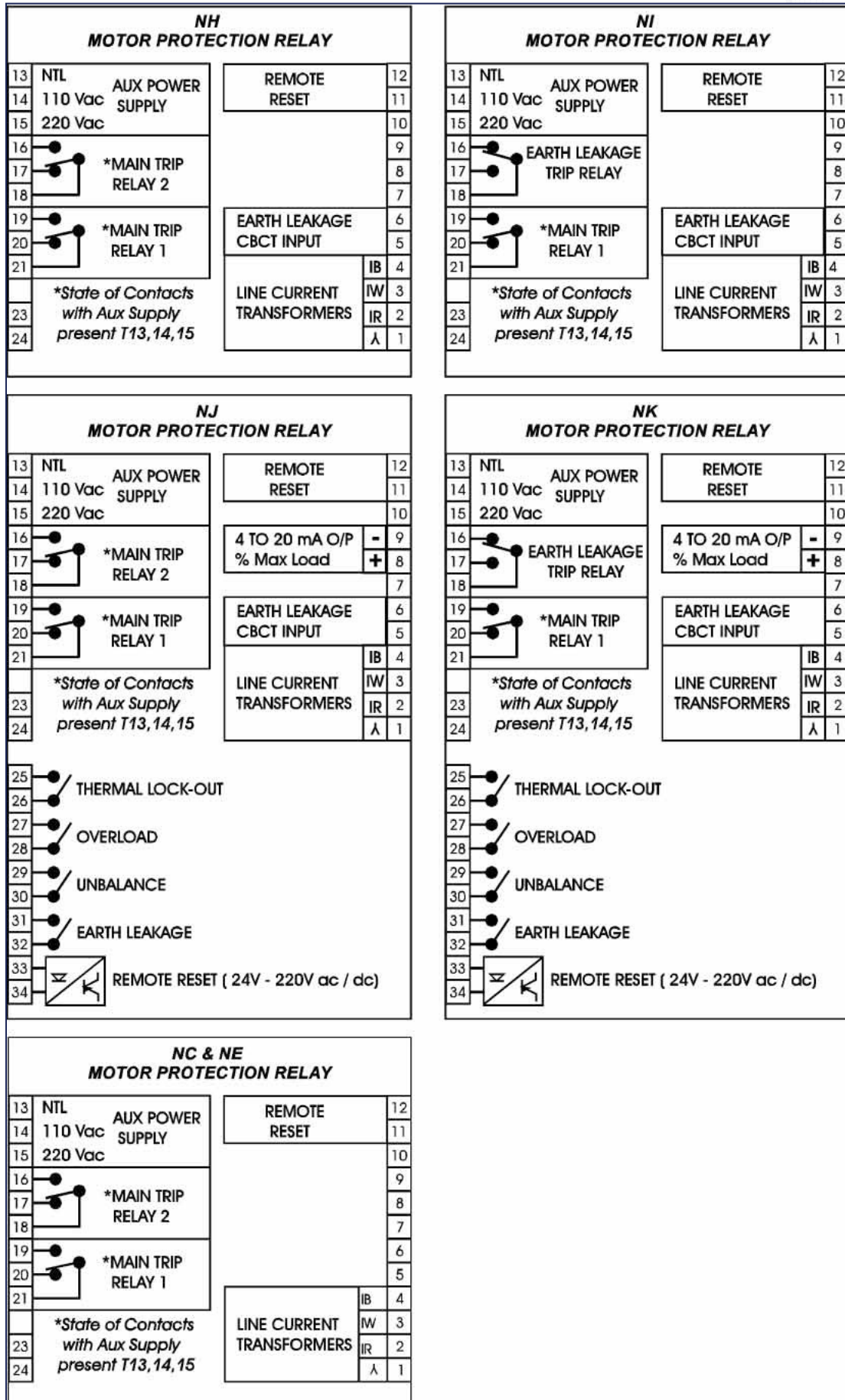
UNBALANCE

Level (I₂) : 30% I_{act}
Trip Delay : 5s
Operation : Block I_{act} < 20% I_e

NH-NI-NJ- NK RELAY THERMAL CURVES



Electrical Connection Diagrams



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