Kraus & Naimer

BLUE LINE switchgear

since 1907

LOCKOUT RELAY

APPLICATION

The Locout Relay is a high speed auxillary relay permitting simultaneous operations of up to 48 contacts. It is a vital componet for high voltage switchgear protection system. Lockout Relays are normally connected to the fault sensing contacts of the circuit breakers. If a fault should occur, the Lockout Relays will trip and lockout the circuit breaker, ensuring that all the critical circuits are isolated and would remain isolated so long as the fault is not cleared. It's positive Trip action ensures that all the contacts would perform as to requirement and it's multi-contact arrangement eliminates the need for several control relay contacts.

The Kraus & Naimer Lockout Relay offer high speed tripping by compressing the linear spring return mechanism of the relay. It can be locally Reset manually, Remotely Reset or Self Reset by means of DC Rotary Solenoid. Once the handle is in the Reset position, the handle is mechanically locked in place and cannot be manually turned back to Trip. When the Trip coil is energize, the Lockout Relay will automatically spring return to the Trip position. The device contains a totally encapsulated coil to protect against environmental, mechanical and thermal damage. Also an Interrupt contact is incorporated to open at trip position, prevent overheating of the coil.

Type L : Automatic Release
Manual Reset

Type M : Manual Release
Manual Reset

Type ER : Automatic Release Electrical / Self Reset.

TYPES OF LOCKOUT RELAY

The types of Lockout Relay available are:

Type	Trip	Reset	Additional Function
L	Automatic TRIP	Manual RESET	-
M	Automatic TRIP	Manual RESET	Manual TRIP test function
ER/SR	Automatic TRIP	Electrical / Self RESET	

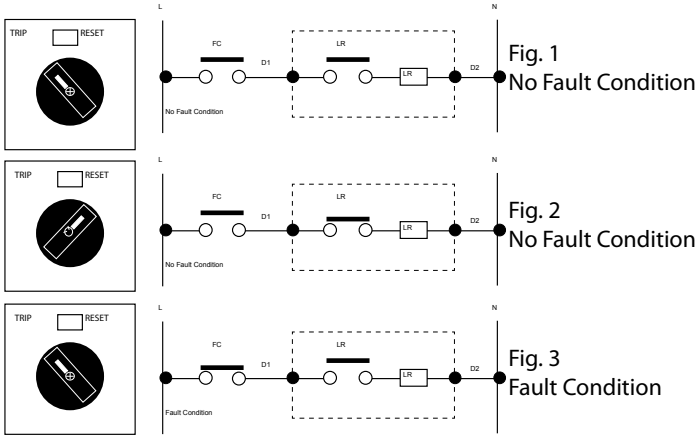


Fig. 1
No Fault Condition

Fig. 2
No Fault Condition

Fig. 3
Fault Condition

a. No Fault Condition - Fig. 1
- Handle at "TRIP" position
- LR contact open circuit because handle is at "TRIP" position
- FC contact open circuit because there is no fault condition

b. No Fault Condition - Fig. 2
- Handle turn to "RESET" position
- LR contact close circuit because handle is at "TRIP" position
- FC contact open circuit because there is no fault condition

c. Fault Condition - Fig. 3
- FC contact close circuit to energise Lockout Relay coil LR via the Lockout Relay contact LR

TECHNICAL DATA

	Switch Type		
AC Rating According to IEC60947-3	CHR16	C26	A14
Rated Insulation Voltage :	690V	690V	690V
Rated Impulse Withstanding Voltage Uimp	6KV	6KV	6KV
Rated Thermal Current Iu/Ith	25A	32A	25A
Rated Short time withstand Current	250A	350A	220A
Operational Current			
AC-21A/AC-22A	25A	32A	25A
AC-15 220 – 240V	8A	14A	8A
AC-15 380 – 440V	5A	6A	5A
DC Rating			
Resistive Load T<=1ms (1 Contact / 2 contact connected in series)			
24V,	25A/25A	32A /32A	16A/16A
48V,	20A/25A	32A;/32A	15A/16A
60V,	7.5A/20A	23A;/32A	5A /15A
110V,	1.5A/7.5A	6.5A/23A	1.2A/5A
220V	0.5A/1.5A	1.2A/6.5A	0.38A/1.2A
Inductive Load T=50ms			
24V,	20A/20A	32A / 32A	16A/16A
48V,	3A /20A	16A;/32A	2.5A/16A
60V,	1.5A/9A	11A;/25A	1A / 7A
110V,	0.5A/1.5A	3.2A/ 11A	0.4A/1A
220V	- /0.5A	- / 3.2A	- /0.4A
Termination	2X4mm2	2 X 6mm2	4mm2
Ambient Temperature	55ºduring 24hours operation, peak not more then at 60º,100% humility		

Selection Of Switch Type

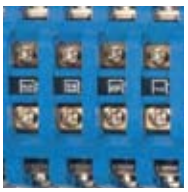
Type CHR16

2 contacts per stage
Accept Ring Terminal
Terminal Screw access from Side
Finger Proof terminal
Max. 12NO+12NC for Manual Reset
Max. 10No+10NC for Electrical Reset

Type C26

2 contacts per stage
Accept Ring Terminal
Terminal cover available upon request
High Electrical rating
Max. 12NO+12NC for Manual Reset
Max. 10No+10NC for Electrical Reset

Type A14



4 contacts per stage
Accept Ring Terminal
Terminal cover avail able upon request
Max. 24NO+24NC for Manual Reset
Max. 20No+20NC for Electrical Reset

Electromagnet Data :

Tripping Voltage	Minimum - Umin=0,6xUn(>=20V)			
Nominal Voltage -Un	24...600V -50/60Hz / 24 ...240VDC			
Average Tripping Speed	Opening of NO Contact	Closing of NC Contact		
- Type L and M (Manual Reset)	8.5 milli-seconds	14 milli-seconds		
- Type ER/SR (Electrical /Self Reset)	10 milli-seconds	15 milli-seconds		
Coil Specifications				
- Voltage (V)	24-28V	48V	110V/125V	220/240V
- Resistance (ohm)	2.72	7.53	43.2	171.5

DC Rotary Solenoid (ER/SR)	
- Operation Voltage	125VDC Nominal (83VDC...150VDC)
- Reset Speed	80milli-second @ 1.0 x Un
- Nominal Current	6.5A (50.6msec)
- Coil Burden	19.0 Ohm

To obtain maximum tripping speed, the Lockout Relay coils are rated for intermittent duty only. Continuous energisation of the coil may result in overheating of the coil. Monitor current is allowed <100mA (Temperature raise 15K, Shunt resistor >1.2KOhm)

ORDERING INFORMATION

C26	M	SGJ654	/	A	110	ER	125

Switch Type

Type
- M - With manual reset
- L - Without manual reset

Contact Configuration
Number of NO+NC contacts

Frequency
- A - 50hz/60hz/DC

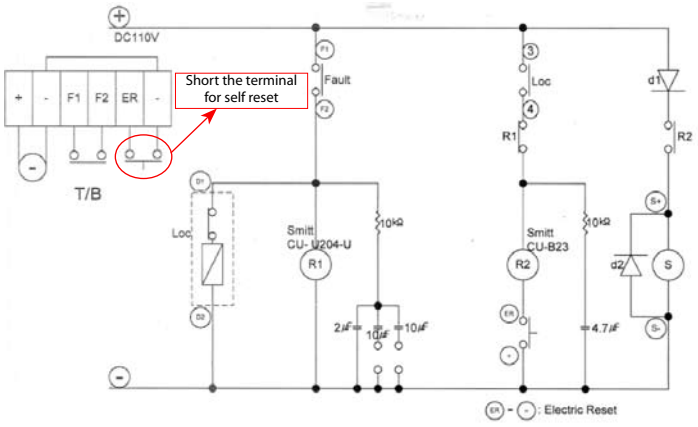
Coil Voltage
- 024 - 24v to 28v
- 038 - 32v to 40v
- 048 - 42v to 50v
- 060 - 60v
- 110 - 110v to 125v
- 220 - 220v to 240v
- 380 - 380v to 440v

Type Electrical Reset
- Blank - Manual Reset
- ER – Electrical Reset/Self Reset (5 holes mounting)

* ERA - Electrical Reset/Self Reset (4 holes mounting)

DC Motor Reset Voltage
- 125 - 125v

CONNECTION

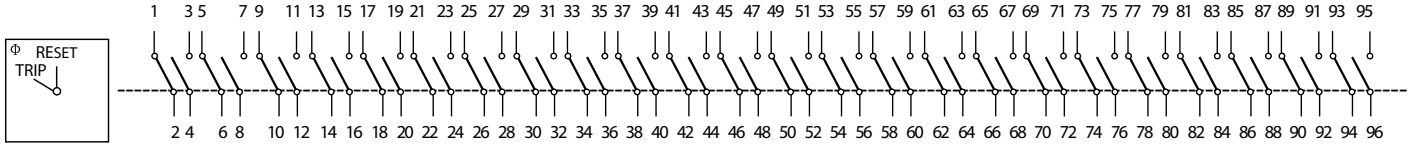


CONTACT CONFIGURATION

CONFIGURATION CODING		NUMBER OF POLES										
TYPE OF OPERATION	SWITCH TYPE	4	6	8	10	12	14	16	18	20	22	24
MANUAL RESET	CHR10 / C26	SGN004	SGN006	SGN008	SGN010	SGN012						
	A14	SGN004	SGN006	SGN008	SGN010	SGN012	SGN014	SGN016	SGN018	SGN020	SGN022	SGN024
ELECTRICAL RESET	CHR10 / C26	SGN005	SGN007	SGN009	SGN011							
	A14	SGN005	SGN007	SGN009	SGN011	SGN013	SGN015	SGN017	SGN019	SGN021	SGN023	

MANUAL RESET

4 POLES	6 POLES	8 POLES	10 POLES	12 POLES	14 POLES	16 POLES	18 POLES	20 POLES	22 POLES	24 POLES



ELECTRICAL RESET

4 POLES	6 POLES	8 POLES	10 POLES	12 POLES	14 POLES	16 POLES	18 POLES	20 POLES	22 POLES

ADDITIONAL INFORMATION

In selecting the coil voltage of the Lockout Relay, it is important to verify if additional coils e.g. protective relay coils etc. would be connected in series with the Lockout Relay coil. In order to ensure that the Lockout Relay can trip should a fault occurs, it is important:

- To adjust the setting of the protective relay T61 coil so that the Lockout Relay can trip when the coil is energise - refer to Fig. 5b.
- If the protective relay T61 coil is not adjustable, it is important that the coil voltage of the Lockout Relay is properly selected to match with the series coil T61 so the Lockout Relay coil can trip when energise. In such a case, the rated coil voltage of the Lockout Relay should be lower that the DC bus voltage. It is important to ensure that the volatge V1 across the Lockout Relay coil 86 should not be lower than the Pull-in voltage as specified above.
- The current flowing in the circuit is sufficient to energise and trip the Lockout Relay coil.

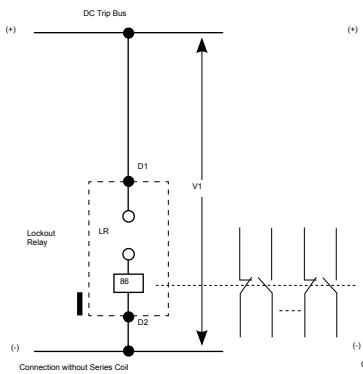


Fig. 5a Lockout Relay without series relay coil

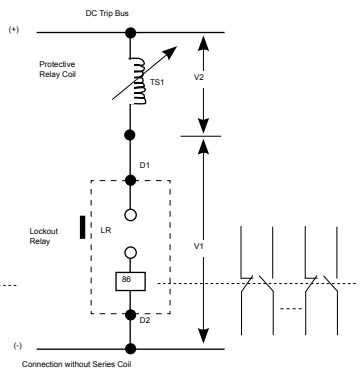
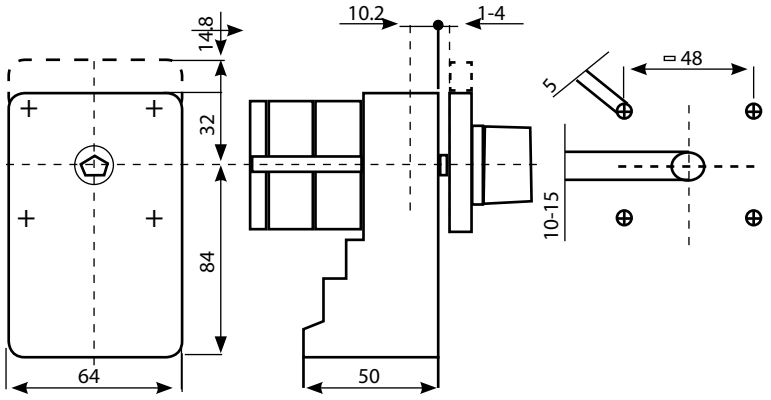


Fig. 5b Lockout Relay with series relay coil

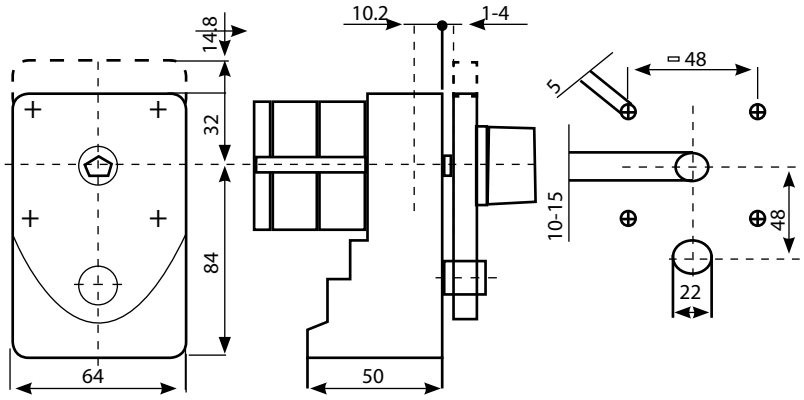
Switch Dimension & Mounting

Automatic Release Manual Reset



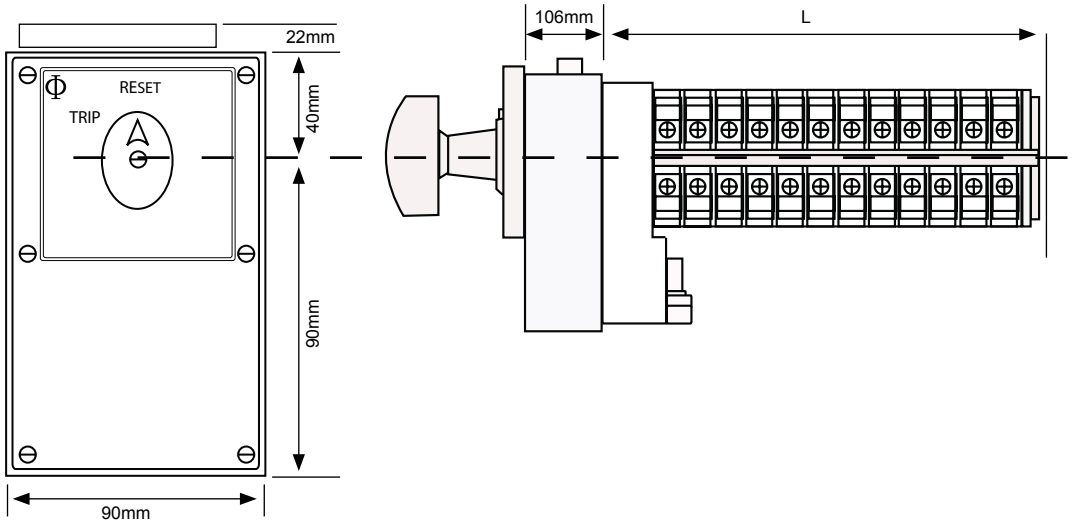
Switch Length L	First 4NO+4NC	Next 2NO+2NC
Type CHR16	107mm	28mm
Type C26	91mm	26mm
Type A14	66mm	13mm

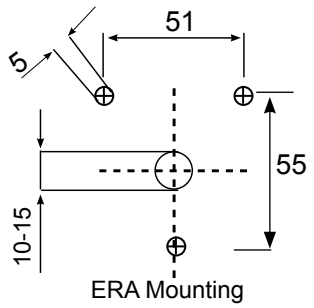
Automatic & Manual Release Manual Reset



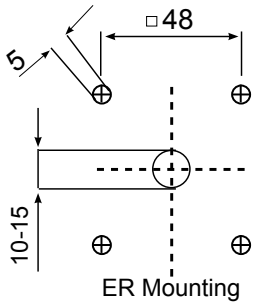
Switch Length L	First 4NO+4NC	Next 2NO+2NC
Type CHR16	107mm	28mm
Type C26	91mm	26mm
Type A14	66mm	13mm

Automatic & Manual Release Electrical Reset





ERA Mounting



ER Mounting

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Switch Length L	First 4NO+4NC	Next 2NO+2NC
Type CHR10	227mm	28mm
Type C26	210mm	26mm
Type A14	185mm* *First 5NO+5NC	13mm