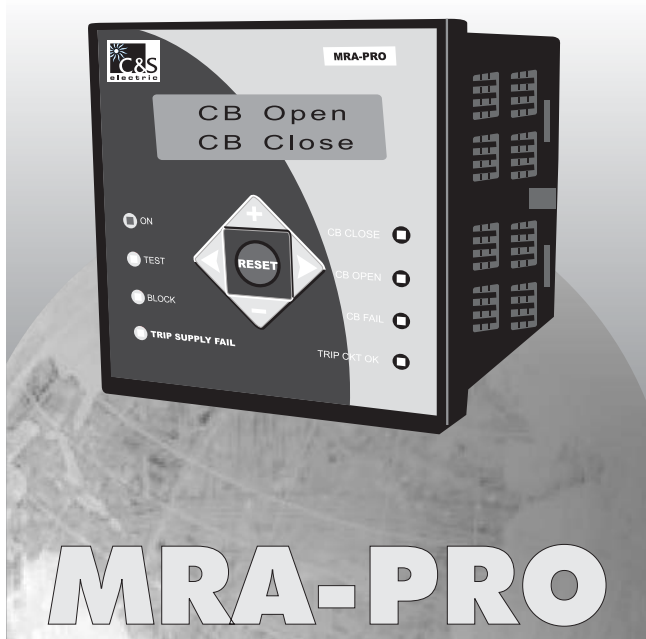


# MRA Pro

## Trip Circuit Supervisory Relay



### PROTECTION RELAY NEW SERIES Trip Circuit Supervisory Relay:MRA-PRO

#### Features :

- Continuous Trip circuit supervision of both pre closing and post closing conditions in circuit breaker.
- Detection and alarm of trip circuit supply failure and of circuit breaker tripping mechanism failure such as loss of voltage, circuit breakage, contact degeneration in wires, contacts and coils
- Single-phase CB monitoring
- Flush mounting enclosure
- Indication of relay operation with LED indicator on the front panel and output relay
- Operation delay to avoid spurious signals for instance, on circuit breaker operations
- Operation indication by 8 LED's
- CB trip count with non volatile memory
- LCD display with keypad for Trip count status as well as for fine setting/Blocking
- TEST function for Self Test facilitates routine maintenance checkSelf Supervision with NC contact
- Wide range Auxillary Supply(SMPS)

#### Control and Indications:

ON	: TRIP SUPPLY INDICATOR/SELF SUPERVISION
CB FAIL	: TRIP CIRCUIT FAULTY INDICATORS
TEST	: SELF TEST OF RELAY
CB OPEN	: CIRCUIT BREAKER STATUS
CB CLOSE	: CIRCUIT BREAKER STATUS

#### Operation:

The trip circuit of circuit breaker is normally wired through the protection relay contacts, interlocked with C.B auxilliary contacts, and other interlocks (like spring charging full etc.) and then connected to Trip solenoid coil of circuit breaker and control voltage source through fuse links. MRA-PRO Continuously relay senses the voltage at these junction points. Absence of the required voltage (as per the logic), immediately triggers the internal timer (0.03-2sec time delay). After time delay if the faulty condition persists then it is reported as fault by relay operation.

MRA-PRO maintains a counter for running count of the number of times a circuit breaker has been tripped. Relay permanently stores this number in its EEPROM and can maintain maximum upto 65535 trip counts in its internal memory after that counter gets automatically reset. Similarly one can also reset this count through keypad.

#### OUTPUT:

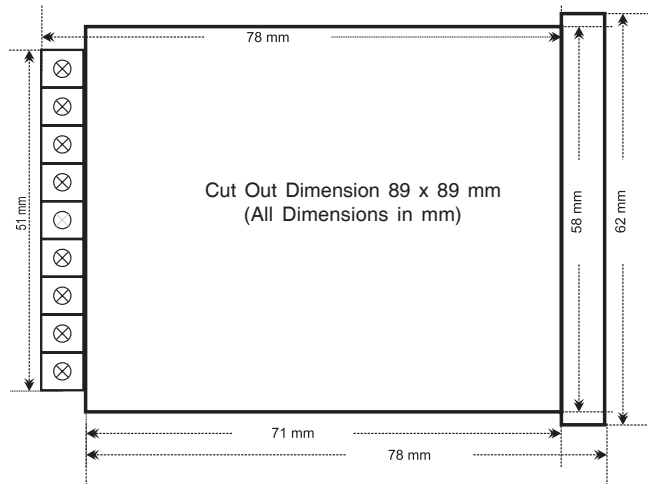
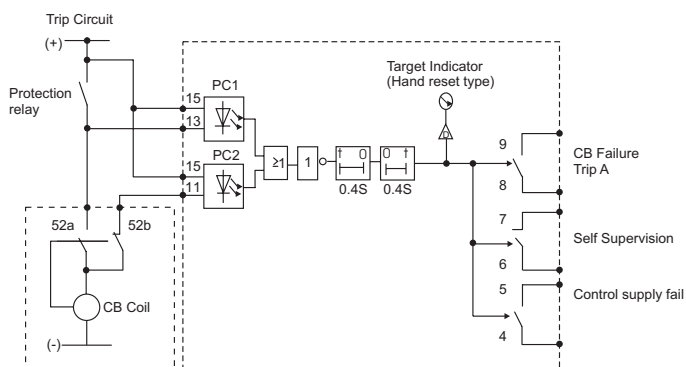
Three Output contacts are available in MRA-PRO. NC contact is reserved for self supervision. One NO contact is available for CB Failure & other NO contact is available for Control Supply failure.

#### FAULT RECORD:

MRA PRO can store last three faults with CB status in its non volatile memory. Fault 1 will be latest fault & Fault 3 will be oldest fault.

#### Trip Circuit Faulty Condition:

- Link between Protection Relay NO and CB Aux Contact is open
- TC coil is open or short
- Control supply is less than 50%



**Function**

Trip circuit supervision	24V (Operative range:< 48V) 110V (Operative range:< 180V) 220V (Operative range:< 280 V)
Power supply fail	Detection voltage: lesser than +16V
<b>Output Contacts</b>	
Quantity	1: Trip contact 2: Trip circuit fail alarm(2NO) 1: Self supervision(1NC)
Max Breaking capacity	AC: 1250 VA(AC) DC(Resistive load ) 0.4A, 200VDC
Max.Continuous Current for self supervision & control supply fail contacts	4A at 230 VAC/24VDC
Max.continuous Current for CB failure trip coil contacts	6A at 230 VAC/24VDC
Aux supply	SMPS (24V-270V)AC (24V-300V)DC
Operating Time delay	(0.03-2s)in steps of 0.01

Terminal Description	
1.	Aux. Supply
2.	Aux. Supply
3.	x
4.	NO Contact for Control Supply Failure Relay
5.	COMM for Control Supply Failure Relay
6.	NC Self Supervision
7.	COMM Self Supervision
8.	COMM Contact for CB Failure Relay
9.	NO Contact for CB Failure Relay
10.	x
11.	DI Open
12.	x
13.	DI Close
14.	x
15.	DI COMM
16.	x
17.	x
18.	Earth

**Ordering Information**

MODEL	Trip Circuit Voltage
MRA-PRO	24VDC 110VDC 220VDC



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