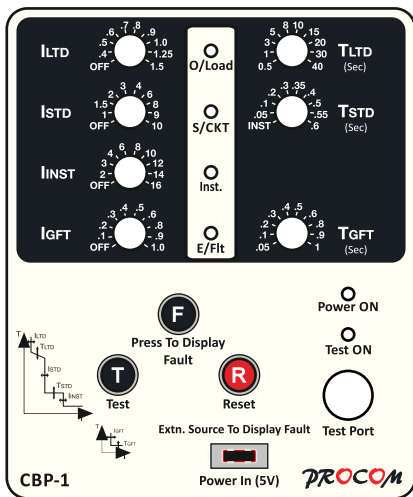




PROCOM®

## NUMERICAL SELF POWER RELAY CBP-1



# INDEX

- **1.0 Introduction**
- **2.0 Setting Range & Front Facia**
- **3.0 Switch & LED Description**
- **4.0 Field Test**
  - A LTD Test
  - B STD Test
  - C INST Test
  - D GFT Test
- **5.0 Reset Function**
- **6.0 Wiring Terminal Details**
- **7.0 Model Selection**
- **8.0 Dimensional Diagram**

## • 1.0 Introduction

CBP-1 Is an micro processor based numerical self powered circuit breaker release relay fast Fourier transformation is performed

CBP-1 provides protection for

- 1 (LTD) over current protection with long time delay setting with independent timer
- 2 (STD) short circuit protection with long time delay setting with independent timer
- 3 Ground fault protection with independent timer
- 4 fault protection

If instantaneous Follow  $I^2T$  Time Characteristics For Ltd Protection

Last tripping Fault is stored which can be views on by connecting 5VDC voltage on USB port.

It should be noted that the reference current for this release is  $I_{ct}$  (i.e. rated current of the CT) mounted in the circuit breaker and not the  $I_n$  (the rated current of the circuit breaker). CBP-1 release is self powered meaning it does not require any external power supply for its basic protection functioning.

Note: Min. power required to power up the device is 30% of  $I_{CT}$  in phase or 10% of  $I_{CT}$  in neutral

## • 2.0 Setting Range & Front Facia

CBP-1 unit can be installed on 3-pole with external neutral or 4-pole circuit breakers.

### • Overload function (LTD)

LTD Current	OFF, 40% to 150% of $I_{CT}$
LTD Time	0.5 sec to 40 sec.

### • Short Circuit function (STD)

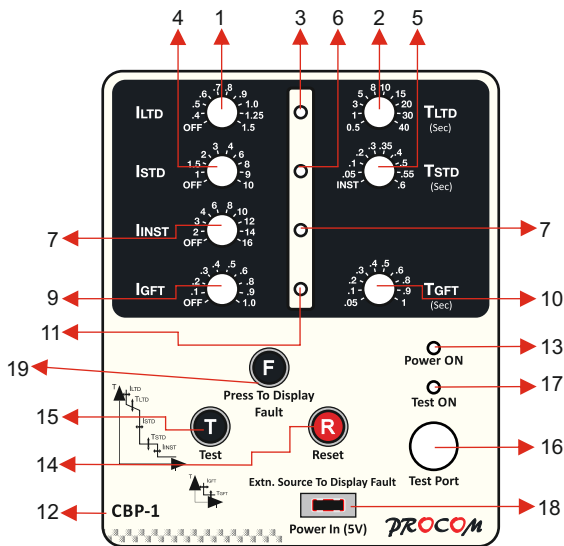
STD Current	OFF, 100% to 1000% of $I_{CT}$
STD Time	50ms to 600ms.

### • Instantaneous function (INST)

INST Current	OFF, 200% to 1600% $I_{CT}$
--------------	-----------------------------

### • Ground fault function (GFT)

GFT Current	OFF, 10% to 100% $I_{CT}$
GFT Time	50ms to 1000ms.



### • 3.0 Switch & LED Description

S.NO.	Description	S.NO.	Description
1	Rotary switch for setting LTD current	10	Rotary switch for setting GFT time
2	Rotary switch for setting LTD Time	11	LED indication for GFT fault
3	LED indication for LTD fault	12	Product identification code
4	Rotary switch for setting STD current	13	LED for "Power ON"
5	Rotary switch for setting STD time	14	Reset push button
6	LED indication for STD fault	15	Test switch (Push button)
7	Rotary switch for setting INST current	16	Test port (Socket) for test supply
8	LED indication for INST fault	17	LED for "Test ON"
9	Rotary switch for setting GFT current	18	External 5V power connection a view last fault indication
		19	Last fault (Push button)

## A) LTD Settings



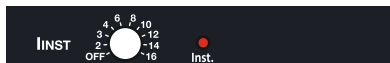
Rotary Switch Position ILTD	Current Setting ( $I_1$ or $I_{LTD}$ )	Rotary Switch Position TLTD	Time Setting ( $T_1$ or $T_{LTD}$ ) Time Multiplier
OFF	LTD OFF	0.5	$T_1=0.5\text{Sec}$
0.4	$I_1=0.4I_{CT}$	1	$T_1=1\text{Sec}$
0.5	$I_1=0.5I_{CT}$	3	$T_1=3\text{Sec}$
0.6	$I_1=0.6I_{CT}$	5	$T_1=5\text{Sec}$
0.7	$I_1=0.7I_{CT}$	8	$T_1=8\text{Sec}$
0.8	$I_1=0.8I_{CT}$	10	$T_1=10\text{Sec}$
0.9	$I_1=0.9I_{CT}$	15	$T_1=15\text{Sec}$
1.0	$I_1=1.0I_{CT}$	20	$T_1=20\text{Sec}$
1.25	$I_1=1.25I_{CT}$	30	$T_1=30\text{Sec}$
1.5	$I_1=1.5I_{CT}$	40	$T_1=40\text{Sec}$

## B) STD Settings



Rotary Switch Position ISTD	Current Setting ( $I_2$ or $I_{STD}$ )	Rotary Switch Position TSTD	Time Setting ( $T_2$ or $T_{LTD}$ )
OFF	STD OFF	INST	$T_2=INST$
1	$I_2=1I_{CT}$	0.05	$T_2=0.05\text{Sec}$
1.5	$I_2=1.5I_{CT}$	0.1	$T_2=0.1\text{Sec}$
2	$I_2=2I_{CT}$	0.2	$T_2=0.2\text{Sec}$
3	$I_2=3I_{CT}$	0.3	$T_2=0.3\text{Sec}$
4	$I_2=4I_{CT}$	0.35	$T_2=0.35\text{Sec}$
6	$I_2=6I_{CT}$	0.4	$T_2=0.4\text{Sec}$
8	$I_2=8I_{CT}$	0.5	$T_2=0.5\text{Sec}$
9	$I_2=9I_{CT}$	0.55	$T_2=0.55\text{Sec}$
10	$I_2=10I_{CT}$	0.6	$T_2=0.6\text{Sec}$

### C) INST Settings



Rotary Switch Position IINST	Current Setting ( $I_3$ or $I_{INST}$ )
OFF	STD OFF
2	$I_3 = 2xI_{CT}$
3	$I_3 = 3xI_{CT}$
4	$I_3 = 4xI_{CT}$
6	$I_3 = 6xI_{CT}$
8	$I_3 = 8xI_{CT}$
10	$I_3 = 10xI_{CT}$
12	$I_3 = 12xI_{CT}$
14	$I_3 = 14xI_{CT}$
16	$I_3 = 16xI_{CT}$

### D) GFT Settings



Rotary Switch Position	Current Setting ( $I_4$ or $I_{GFT}$ )	Rotary Switch Position	Time Setting ( $T_4$ or $T_{GFT}$ )
OFF	STD OFF	0.05	$T_4=0.05\text{Sec}$
0.1	$I_4 = 1xI_{CT}$	0.1	$T_4=0.1\text{Sec}$
0.2	$I_4 = 0.2xI_{CT}$	0.2	$T_4=0.2\text{Sec}$
0.3	$I_4 = 0.3xI_{CT}$	0.3	$T_4=0.3\text{Sec}$
0.4	$I_4 = 0.4xI_{CT}$	0.4	$T_4=0.4\text{Sec}$
0.5	$I_4 = 0.5xI_{CT}$	0.5	$T_4=0.5\text{Sec}$
0.6	$I_4 = 0.6xI_{CT}$	0.6	$T_4=0.6\text{Sec}$
0.8	$I_4 = 0.8xI_{CT}$	0.8	$T_4=0.8\text{Sec}$
0.9	$I_4 = 0.9xI_{CT}$	0.9	$T_4=0.9\text{Sec}$
1.0	$I_4 = 1.0xI_{CT}$	1	$T_4=1\text{Sec}$

- **4.0 Field Test**

- **LTD Function**

Connect 24VDC Voltage to test port (socket) on over current release

For checking overload function (LTD), set the rotary switches ( $I_{LTD}$  and  $T_{LTD}$ ) any value except off and put the other rotary switches (STD, INST and GFT) in OFF position.

Press the “Test switch” button and the breaker will trip as per the time setting done for LTD time function.



**▲ Caution:** While performing the Field Test Function Check, only one protection function should be turned ON at a time, other wise random tripping may occur.

- **STD Function**

Connect 24VDC Voltage to test port (socket) on over current release

For checking short circuit protection function (STD), set the rotary switches

( $I_{STD}$  and  $T_{STD}$ ) to any value except off and put the other rotary switches (LTD, INST and GFT) in OFF position. Press the “Test switch” button and the breaker will trip as per the time setting done for STD time function.

- **INST Function**

Connect 24VDC Voltage to test port (socket) on over current release any value except off

For checking instantaneous function (IINST), set the rotary switches (IINST) any value except off and put the other rotary switches (STD, LTD and GFT) in OFF position.

Press the “Test switch” button and the breaker will trip as per the time setting done for (IINST) time function.

- **GFT Function**

Connect 24VDC Voltage to test port (socket) on over current release any value except off

For checking overload function (GFT), set the rotary switches ( $I_{GFT}$  and  $T_{GFT}$ ) to any value except off and put the other rotary switches (LTD STD and INST) in OFF position. Press the “Test switch” button and the breaker will trip as per the time setting done for GFT time function.

- **5.0 Reset Function**

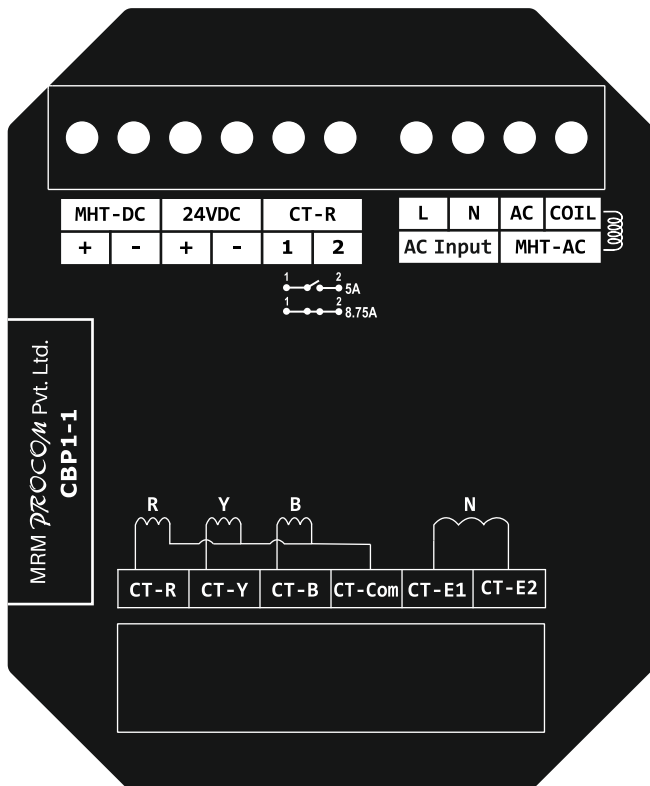
When the breaker trips, the corresponding fault LED indication will continue to glow in case the external auxiliary supply is present. Pressing “Reset” button will reset the fault LED indication.



**Note:** if you will sort pin CT-R (1 & 2) , The ICT current is 8.7 Amp



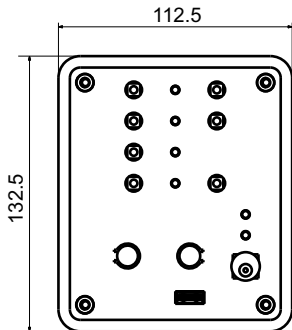
## • 6.0 Wiring Terminal Details



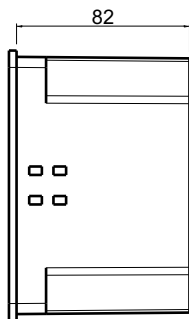
• 7.0 Model Selection

Model	Protection	Power Supply	Comm
CBP1-111	LTD, STD, INST, GFT	Self Power, DC Aux	No
CBP1-121	LTD, STD, INST, GFT	Self Power, DC / AC Aux	No

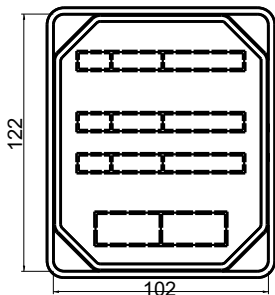
• 8.0 Dimensional Diagram



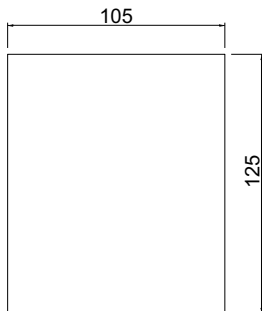
Front view



Right view



Back View



Cut Out



---

MRM *PROCOM*<sup>®</sup> Pvt. Ltd.  
Plot No. 20-21, Industrial Estate  
Sector-59 (II), HUDA, Faridabad-121004, Haryana  
Phone: 0129-4700400 (10 Lines), E-mail : [info@mrmprom.com](mailto:info@mrmprom.com)  
Website : [www.mrmprom.com](http://www.mrmprom.com)