PROCOM®

NUMERICAL SELF POWER RELAY CBP-1

CBP-1

INDEX

• 1.0 Introduction

CBP-1 Is an micro processer 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 netural

• 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.
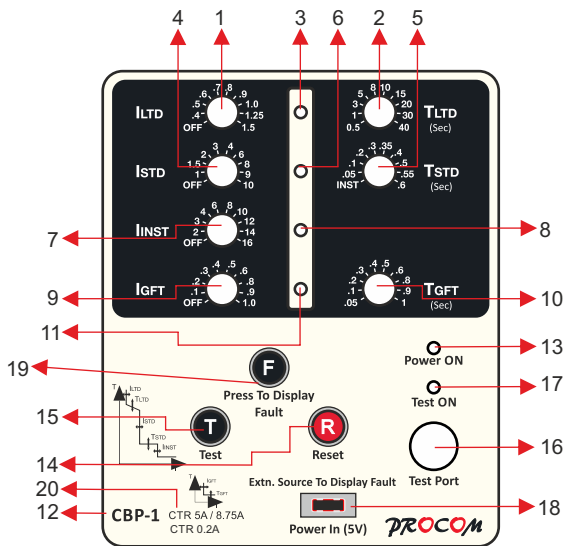
• **3.0 Switch & LED Description**

S.NO.	Description	S.NO.	Description
1	Rotary switch for setting LTD current	11	LED indication for GFT fault
2	Rotary switch for setting LTD Time	12	Product identification code
3	LED indication for LTD fault	13	LED for "Power ON"
4	Rotary switch for setting STD current	14	Reset push button
5	Rotary switch for setting STD time	15	Test switch (Push button)
6	LED indication for STD fault	16	Test port (Socket) for test supply
7	Rotary switch for setting INST current	17	LED for "Test ON"
8	LED indication for INST fault	18	External 5V power connection a view last fault indication
9	Rotary switch for setting GFT current		
		19	Last fault (Push button)
10	Rotary switch for setting GFT time	20	Current Rating

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	$T_1=0.5$Sec
0.4	$I_1 =0.4xI_{CT}$	1	$T_1=1$Sec
0.5	$I_1 =0.5xI_{CT}$	3	$T_1=3$Sec
0.6	$I_1 =0.6xI_{CT}$	5	$T_1=5$Sec
0.7	$I_1 =0.7xI_{CT}$	8	$T_1=8$Sec
0.8	$I_1 =0.8xI_{CT}$	10	$T_1=10$Sec
0.9	$I_1 =0.9xI_{CT}$	15	$T_1=15$Sec
1.0	$I_1 =1.0xI_{CT}$	20	$T_1=20$Sec
1.25	$I_1 =1.25xI_{CT}$	30	$T_1=30$Sec
1.5	$I_1 =1.5xI_{CT}$	40	$T_1=40$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	$I_2= 1xI_{CT}$	0.05	$T_2=0.05$Sec
1.5	$I_2 =1.5xI_{CT}$	0.1	$T_2=0.1$Sec
2	$I_2 =2xI_{CT}$	0.2	$T_2=0.2$Sec
3	$I_2 =3xI_{CT}$	0.3	$T_2=0.3$Sec
4	$I_2 =4xI_{CT}$	0.35	$T_2=0.35$Sec
6	$I_2 =6xI_{CT}$	0.4	$T_2=0.4$Sec
8	$I_2 =8xI_{CT}$	0.5	$T_2=0.5$Sec
9	$I_2 =9xI_{CT}$	0.55	$T_2=0.55$Sec
10	$I_2 =10xI_{CT}$	0.6	$T_2=0.6$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=0.05Sec
0.1	I_4= $1xI_{CT}$	0.1	T_4=0.1Sec
0.2	I_4 =$0.2xI_{CT}$	0.2	T_4=0.2Sec
0.3	I_4 =$0.3xI_{CT}$	0.3	T_4=0.3Sec
0.4	I_4 =$0.4xI_{CT}$	0.4	T_4=0.4Sec
0.5	I_4 =$0.5xI_{CT}$	0.5	T_4=0.5Sec
0.6	I_4 =$0.6xI_{CT}$	0.6	T_4=0.6Sec
0.8	I_4 =$0.8xI_{CT}$	0.8	T_4=0.8Sec
0.9	I_4 =$0.9xI_{CT}$	0.9	T_4=0.9Sec
1.0	I_4 =$1.0xI_{CT}$	1	T_4=1Sec

• 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.

$\overset{T}{\bigcirc}$ Test Switch	Activate Test Condition
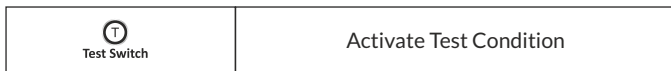
⚠ **Caution:** While performing the Field Test Function Check, only one protection function should be turned ON at a time, other wise random tripping may occur.

• 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.
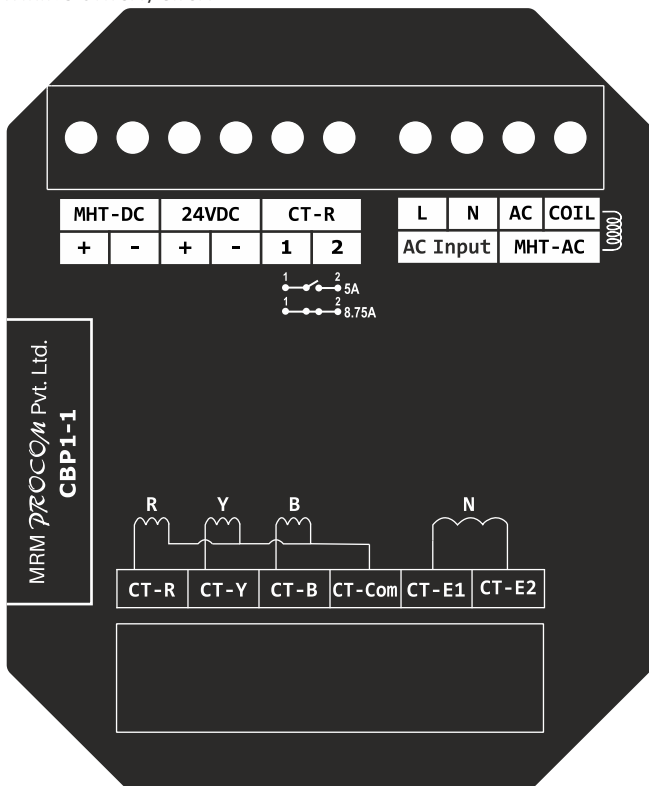
• **5.0 Reset Function**

When the breaker trips, the corrosponding fault LED indication will continue to glow in case the external auxilliary supply is present. Pressing "Reset" button will reset the fault LED indication.
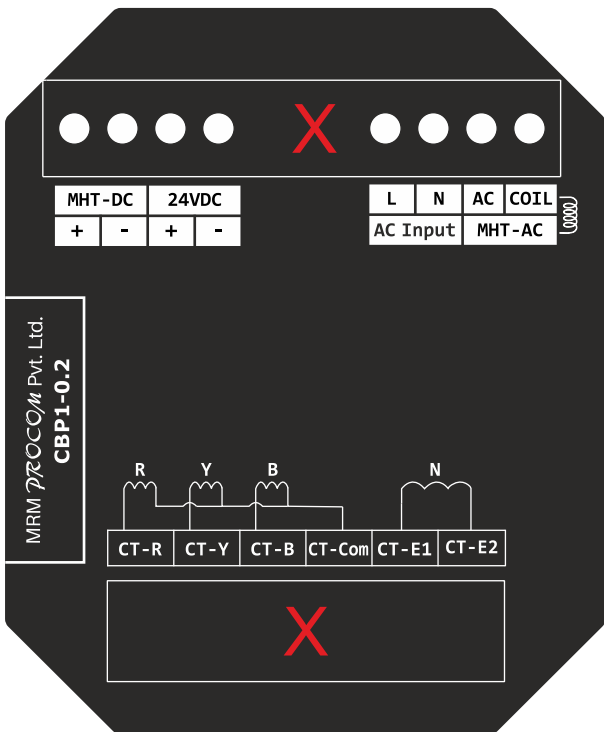
Ⓡ Reset	Reset Function

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

• 6.0 Wiring Terminal Details

WIRING CTR 5A / 8.75A

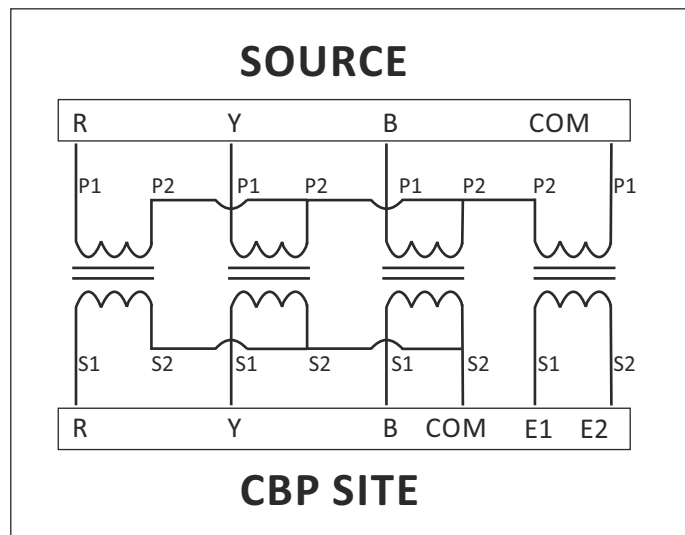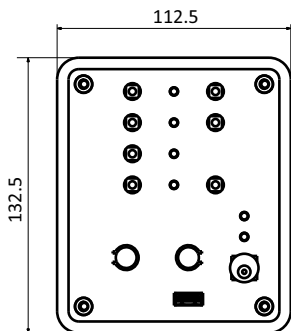| MHT-DC		24VDC		CT-R	
+	-	+	-	1	2

L	N	AC	COIL
AC Input		MHT-AC	

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CBP1-1

CT-R	CT-Y	CT-B	CT-Com	CT-E1	CT-E2

MHT-DC		24VDC	
+	-	+	-

L	N	AC	COIL
AC Input		MHT-AC	

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CBP1-0.2

CT-R	CT-Y	CT-B	CT-Com	CT-E1	CT-E2
R	Y	B		N	

• 7.0 Model Selection

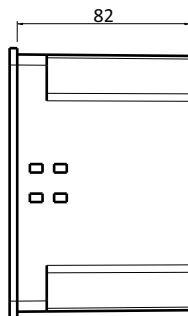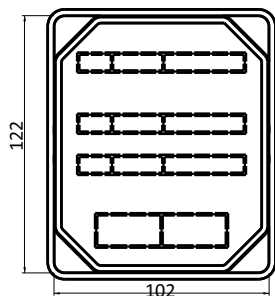| Model	Protection	Power Supply	Comm	Rating
CBP1-111	LTD, STD, INST, GFT	Self Power, DC Aux	No	5A / 8.75A
CBP1-121	LTD, STD, INST, GFT	Self Power, DC / AC Aux	No	5A / 8.75A
CBP1-221	LTD, STD, INST, GFT	Self Power, DC / AC Aux	No	0.2A

• 8.0 REF Connection Diagram
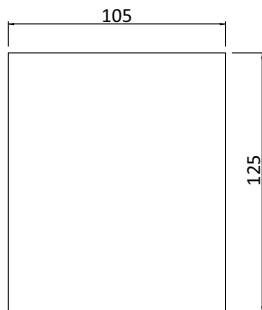
• 9.0 Dimensional Diagram

112.5

132.5

Front view

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Right view

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Back View

105

125

Cut Out