

## PTD-BRK/FF-2A

### Powered Current Sensing Trip Amplifier (field settable) for Brake Motors



#### GENERAL DESCRIPTION

The PTD-BRK/FF is a fully isolated dual trip amplifier/alarm module that accepts an AC/DC current input from 0 Amp up to 2 Amps from up to a 415V supply line. \*\*\* A separate 1 Amp version is also available.

The PTD-BRK/FF provides an adjustable trip relay output. The relay is normally energised and trips on both Hi and Lo alarm conditions. The 'Base' current is set by two front panel adjustment switches with the standard unit having set points fixed at +50% and -50% of the Base current.

The PTD-BRK/FF is a stand-alone alarm unit and operates as a window comparator where the relay de-energises if the signal goes outside either the Lo or Hi settings. The relay has a fixed dead-band of 20%.

#### FEATURES

- ◆ Wide Operating Voltage Range
- ◆ Set Point Trip Status LED's
- ◆ Trip window set by the 2 front panel selector switches and status LED's
- ◆ Very small footprint area
- ◆ DIN & G rail mounting style
- ◆ Low power consumption
- ◆ 600V HBC 3.15A Input Protection Fuse

**Power Supply.**  
 Nominal Supply 22V - 60Vac/dc  
 VA Rating Typically 1.2VA  
 Max Power Typically 1.3VA with relay energised.

**Input (Internally Fuse Protected 3.15A SIBA 189-020)**  
 Amps AC or DC 0 Amp to 2Amps (Terms 1-2)

**Base Current (2A)** 120mA to 1000mA

Volts (max) 500Vac/300Vdc on terms 1 & 3  
 Input Resistance < 0.1 Ohm

**Output (Single relay c/o output)**  
 Set Point Relay c/o contact  
 Under Current and/or Over Current fixed set points.  
 For 0 – 2Amp 0– 10Vdc (2A = 10V)

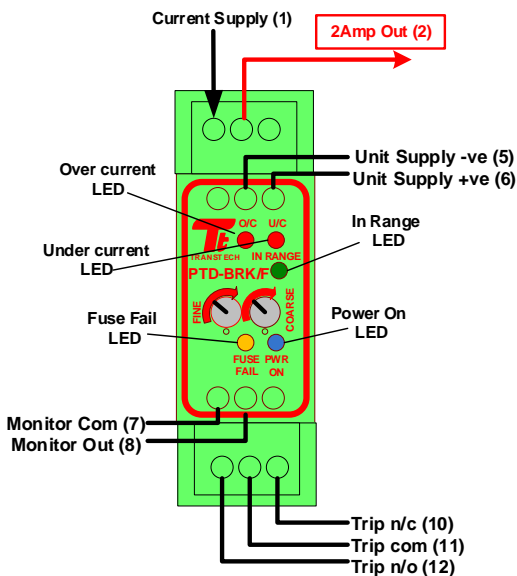
#### GENERAL SPECIFICATION

Accuracy 2.5% of span  
 Linearity 1% of span  
 Response time 0 to 110% step in 1.5 sec  
 Drift 0.25% per Deg C  
 Isolation level Greater than 500Vrms  
 Dead Band Fixed at 20% of relay set.  
 Trip Settings Under Current - 50% of Base  
 Over Current + 50% of Base

Trip Status 2 x Red, 1 x Green LEDs  
 Fuse Status 1 x Yellow LED  
 Power Status 1 x Blue LED

**Output Relay**  
 Contact Configuration 1 Form C (SPDT)  
 Max Voltage Up to 220 Vdc or 250 Vac  
 Max Power Rating 30 Watts or 62.5 VA  
 Max Cont. Current 2 Amps (non-inductive)  
 Vibration 20G  
 Shock 75G  
 Life Expectancy Mechanical 10 x 10<sup>6</sup>

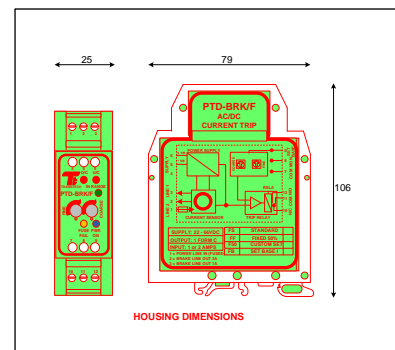
**Mechanical**  
 Operating Temp 0 to 60 Deg C  
 Store Temp -25 to +75 Deg C  
 Mounting Style DIN & G Rail  
 Terminals 2.5mm<sup>2</sup> / 12AWG  
 Housing Material KRILEN  
 Dimensions 79 x 106 x 25mm wide  
 Weight 110 grams



CONNECTION DIAGRAM

#### RELAY OPERATION

The relay is set to be “normally energised”, that is when DC power is applied to the PTD and the signal is above the lower trip point and below upper trip point; the relay is energised. If the power supply goes off or the signal is above or below the set points (fault) the relay will de-energise.



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### IMPORTANT

1. THERE ARE NO INTERNAL SETTINGS REQUIRED IN THE FIELD.
2. THE BASE CURRENT HI AND LO TRIPS ARE BY “FRONT OF PANEL” 9 POSITION DECADE SWITCHES ALLOWING FOR SETTINGS TO BE RECORDED.
3. AT VERY LOW CURRENT SETTINGS THE PTD-BRK/F MAY BE AFFECTED BY NOISE INTERFERENCE.
4. If supply is removed to the PTD-BRK the Fuse Fail LED will be reset.

SETPOINT OUTPUT IS MSD + LSD

EXAMPLES:-

FF UNIT SET CURRENT 270mA FOR 0-1A RANGE  
MSD = 2 (0.2A) & LSD = 7 (0.07A) ⇒ 270mA  
LOWER THRESHOLD = 135mA (-50%) & UPPER THRESHOLD = 405mA

FF UNIT SET CURRENT 1.15A FOR 0-2A RANGE  
NEAREST SETTABLE VALUE EITHER 1.14A OR 1.16A  
MSD = 5 (1.0A) & LSD = 7 (0.14A) ⇒ 1.14A  
LOWER THRESHOLD = 0.57A (-50%) & UPPER THRESHOLD = 1.71A  
OR  
MSD = 5 (1.0A) & LSD = 8 (0.16A) ⇒ 1.16A  
LOWER THRESHOLD = 0.58A (-50%) & UPPER THRESHOLD = 1.74A

### CALIBRATION & SET-UP INSTRUCTIONS: -

The PTD-BRK/F comes in five (5) versions as listed below: -

#### PTD-BRK/FF 1A & PTD-BRK/FF 2A (Fixed threshold set to +/- 50% of base I)

Turn the fine decade switch to zero (0) and coarse switch to nine (9) Link terminals 7 – 9

With a load connected and the “In Range” Green LED on adjust the coarse decade switch slowly down (anti-clock) until the LED goes off. Now adjust the fine decade switch slowly up (clockwise) until the Green LED comes on – the base current is now set.

Remove the link between terminals 7 – 9

NOTE: The Over Current setting is link selectable internally and can be disconnected.

#### Other PTD-BRK/FS versions are:

PTD-BRK/FS-1A or PTD-BRK/FS-2A (Standard fixed version – factory set to 100mA or 120mA).

Low set to 100mA / High set to 500mA (for 1Amp connection)

NOTE: If the 2Amp version is selected then it is 120mA and 1000mA

Top decade switches masked off – DO NOT ADJUST

PTD-BRK/FS-LR (Standard fixed version - factory set to 50mA)

Low set to 50mA / High set to 250mA (for 1Amp connection)

NOTE: If the 2Amp connection is selected then it is 200mA and 1000mA

Top decade switches masked off – DO NOT ADJUST

#### NOTES:-

1. The sensed current can be measured by connecting a DVM ranged 0 – 10VDC between terminals 7 and 8.
2. The base current is set by a combination of:  
Input current (either 0-1 or 0-2 amp)  
Top of panel switches (coarse and fine) where:  
Coarse = 10% of range | Fine = 1% of range.

SWITCH SETTING		CALCULATED NOMINAL (APPROXIMATE) VALUES					
MSB	LSB	1 Amp Range			2 Amp Range		
		UNDER	NOMINAL	OVER	UNDER	NOMINAL	OVER
2	0	100	200	300	200	400	600
2	1	105	210	315	210	420	630
2	2	110	220	330	220	440	660
2	3	115	230	345	230	460	690
2	4	120	240	360	240	480	720
2	5	125	250	375	250	500	750
2	6	130	260	390	260	520	780
2	7	135	270	405	270	540	810
2	8	140	280	420	280	560	840
2	9	145	290	435	290	580	870
3	0	150	300	450	300	600	900
3	1	155	310	465	310	620	930
3	2	160	320	480	320	640	960
3	3	165	330	495	330	660	990
3	4	170	340	510	340	680	1020
3	5	175	350	525	350	700	1050
3	6	180	360	540	360	720	1080
3	7	185	370	555	370	740	1110
3	8	190	380	570	380	760	1140
3	9	195	390	585	390	780	1170
4	0	200	400	600	400	800	1200
4	1	205	410	615	410	820	1230
4	2	210	420	630	420	840	1260
4	3	215	430	645	430	860	1290
4	4	220	440	660	440	880	1320
4	5	225	450	675	450	900	1350
4	6	230	460	690	460	920	1380
4	7	235	470	705	470	940	1410
4	8	240	480	720	480	960	1440
4	9	245	490	735	490	980	1470
5	0	250	500	750	500	1000	1500
5	1	255	510	765	510	1020	1530
5	2	260	520	780	520	1040	1560
5	3	265	530	795	530	1060	1590
5	4	270	540	810	540	1080	1620
5	5	275	550	825	550	1100	1650
5	6	280	560	840	560	1120	1680
5	7	285	570	855	570	1140	1710
5	8	290	580	870	580	1160	1740
5	9	295	590	885	590	1180	1770
6	0	300	600	900	600	1200	1800
6	1	305	610	915	610	1220	1830
6	2	310	620	930	620	1240	1860
6	3	315	630	945	630	1260	1890
6	4	320	640	960	640	1280	1920
6	5	325	650	975	650	1300	1950
6	6	330	660	990	660	1320	1980

LIMIT OF SETTINGS