

## PTD-BRK/FF-3A

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



#### GENERAL DESCRIPTION

The PTD-BRK/FF-3A is a fully isolated dual trip amplifier/alarm module that accepts an AC/DC current input from 0 Amp up to 3 Amps from up to a 415V supply line.

The PTD-BRK/FF-3A 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-3A 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 1.5Amps (Terms 1-3) 0 Amp to 3.0Amps (Terms 1-2)
Base Current (max) (1500mA)	1000mA
Base Current (max) (3000mA)	2000mA
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 – 3Amp	0 – 10Vdc

#### 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

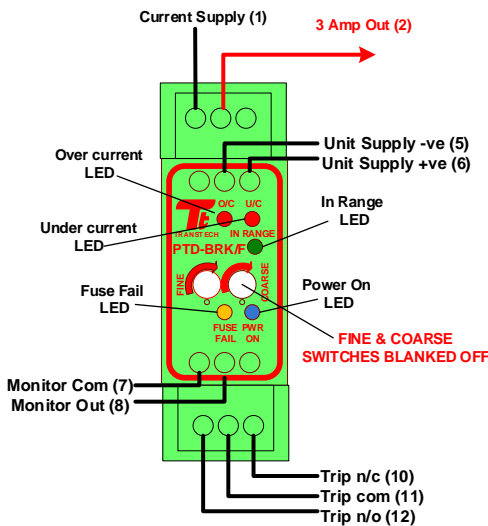
Trip Status	2 x Red, 1 x Green LEDs
Fuse Status	1 x Yellow LED
Power Status	1 x Blue LED

#### 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

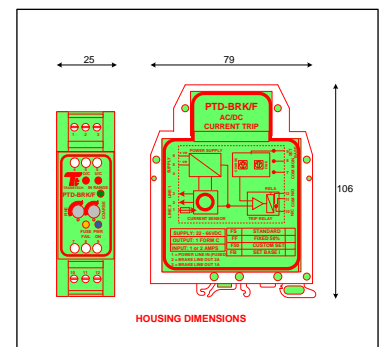
Operating Temp	0 to 60 Deg C
Store Temp	-25 to +75 Deg C
Mounting Style	DIN & G Rail
Terminals	2.5mm <sup>2</sup> / 12AWG
Housing Material	KRILEN
Dimensions	79 x 106 x 25mm wide
Weight	110 grams



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 SETABLE 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.

For other modes of operation consult factory.

CALCULATED NOMINAL (APPROXIMATE) VALUES									
SWITCH SETTING		1.5 Amp Range			3 Amp Range				
MSB	LSB	UNDER	NOMINAL	OVER	UNDER	NOMINAL	OVER		
0	6	90	180	270	180	360	540		
0	7	105	210	315	210	420	630		
0	8	120	240	360	240	480	720		
0	9	135	270	405	270	540	810		
1	0	150	300	450	300	600	900		
1	1	165	330	495	330	660	990		
1	2	180	360	540	360	720	1080		
1	3	195	390	585	390	780	1170		
1	4	210	420	630	420	840	1260		
1	5	225	450	675	450	900	1350		
1	6	240	480	720	480	960	1440		
1	7	255	510	765	510	1020	1530		
1	8	270	540	810	540	1080	1620		
1	9	285	570	855	570	1140	1710		
2	0	300	600	900	600	1200	1800		
2	1	315	630	945	630	1260	1890		
2	2	330	660	990	660	1320	1980		
2	3	345	690	1035	690	1380	2070		
2	4	360	720	1080	720	1440	2160		
2	5	375	750	1125	750	1500	2250		
2	6	390	780	1170	780	1560	2340		
2	7	405	810	1215	810	1620	2430		
2	8	420	840	1260	840	1680	2520		
2	9	435	870	1305	870	1740	2610		
3	0	450	900	1350	900	1800	2700		
3	1	465	930	1395	930	1860	2790		
3	2	480	960	1440	960	1920	2880		
3	3	495	990	1485	990	1980	2970		
				LIMIT OF SETTINGS					LIMIT OF SETTINGS