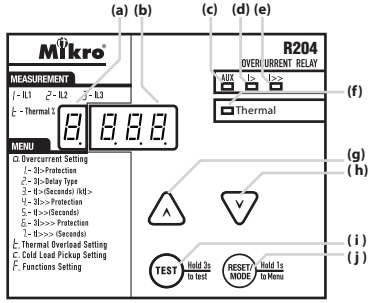
R204 Overcurrent Relay
User Guide

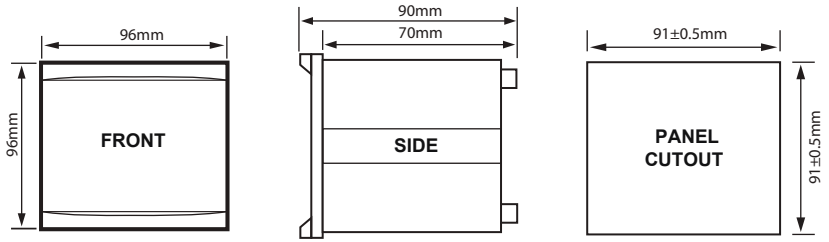


(a) Function indication
(b) Data indication
(c) Auxiliary power supply indicator
(d) Low-set start/trip status indicator
(e) High-set start/trip status indicator
(f) Thermal Overload start/trip status indicator
(g) Up button
(h) Down button
(i) Test button
(j) Reset/Mode button

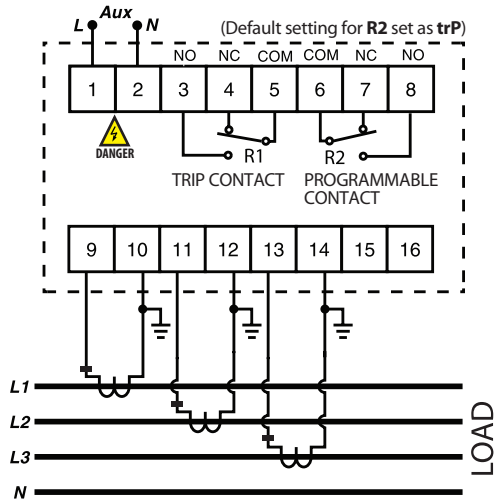
Features

- Three-phase, three stages setting for phase overcurrent
- IDMT and definite time
- Thermal overload protection
- Cold load pickup protection
- Circuit breaker failure protection
- Selectable fundamental or true RMS
- Selectable 50 or 60 Hz frequency
- Programmable output contacts
- Complies with IEC 60255 standard
- ANSI code: 50P, 51P, CLP, 50BF, 49RMS

Case Dimensions

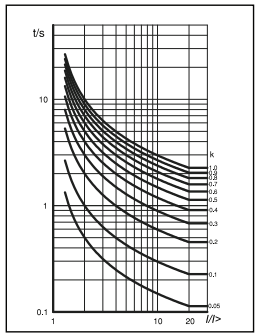


Typical Application Diagram

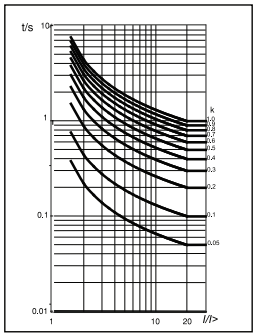


IDMT Curve

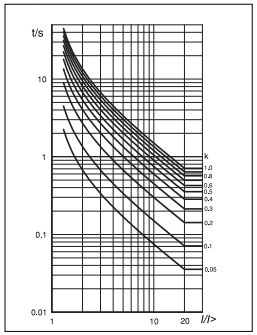
Normal Inverse 3/10



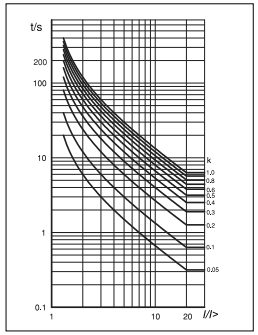
Normal Inverse 1.3/10



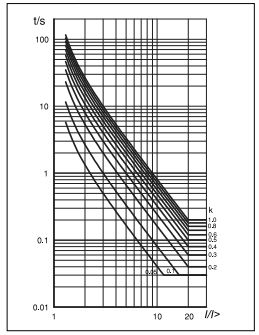
Very Inverse



Long-time Inverse



Extremely Inverse



Technical Data

Ratings
Rate Current In..... 5A
Frequency..... 50 or 60Hz
Burden..... <0.3VA at In
Thermal Withstand..... 4 x In Continuous

Auxiliary Supply
Supply Voltage..... 198 ~ 265VAC
Supply Frequency..... 50 or 60Hz
VA Rating..... 3VA max

Accuracy
Protection Thresholds..... ±3% or ±20mA whichever is greater
Time Delay..... ±3% or ±40ms whichever is greater

Setting Ranges
(i)Overcurrent Setting
Low-set Setting 3I>..... 0.5A - 12.5A(10% - 250%)
Low-set time Multiplier ktI>..... 0.01 - 1.00
Low-set Definite Time tI>..... 0.03 - 100s
Delay Type..... DT, NI3/10, NI1.3/10, VI, LI, EI
High-set Setting 3I>>..... OFF/0.5 - 100A (10% - 2000%)
High-set Definite Time tI>>..... 0.03 - 100s
Highest-set Setting 3I>>>..... OFF/0.5 - 100A (10% - 2000%)
Highest-set Definite Time tI>>>... 0.03 - 100s

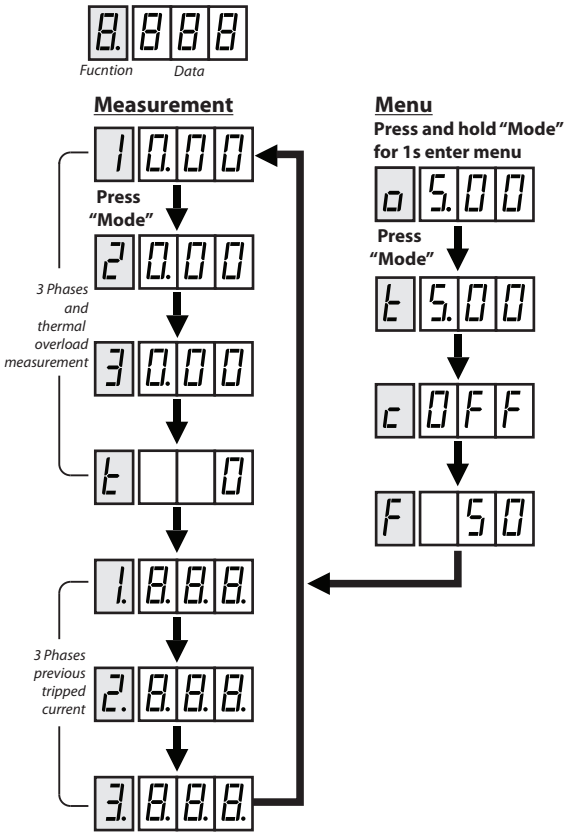
(ii)Thermal Overload Setting
Low-set Setting Iθ>..... OFF/0.5A - 10.0A(10% - 200%)
Low-set Tθ..... 1 to 200 minutes
Low-set time Multiplier ktIθ>..... 1.00 - 1.50
θ Trip..... 50 to 200%
θ Alarm..... 50 to 200%

Output Contacts
Rated Voltage..... 250VAC
Continuous Carry..... 5A(Cosφ = 1.0)
Expected Electrical Life..... 10^5 operations
Expected Mechanical Life..... 5 x 10^6 operations

Enviromental Conditions
Temperature..... -10°C to 55°C
Humidity..... 5% to 95% non-condensing

Mechanical
Mounting..... Panel mounting
Dimension (mm) ..... 96(w) x 96(h) x 90(d)
Enclosure Protection..... IP54 at the panel
IP20 at the body
Approximate Weight..... 0.8kg

System Operation



Parameter Settings

o	Overcurrent Setting
1	3I> Protection (A) [DEF=5.00]
2	3I> Delay type [DEF=NI]
3	tI> (Seconds)/ktI> [DEF=0.1]
4	3I>> Protection (A) [DEF=50.0]
5	tI>> (Seconds) [DEF=0.05]
6	3I>>> Protection (A) [DEF=100]
7	tI>>> (Seconds) [DEF=0.03]

t	Thermal Overload Setting
1	IΘ> Protection (A) [DEF=OFF]
2	tIΘ> (Minutes) [DEF=10]
3	ktIΘ> [DEF=1.10]
4	Θ Trip (%) [DEF=100]
5	Θ Alarm (%) [DEF=100]

c	Cold Load Setting
1	3I> [DEF=OFF]
2	3I>> [DEF=OFF]
3	3I>>> [DEF=OFF]
4	IΘ> [DEF=OFF]

F	Functions Setting
1	Frequency [50Hz/60Hz [DEF=50]]
2	Measurement display [Fn= Fundametal, RnS= RMS][DEF=Fn]
3	Output R1 reset type [n-A= Manual, AUt= Auto] [DEF=n-A]
4	Output R2 reset type [n-A= Manual, AUt= Auto] [DEF=AUt]
5	Output R2 function [DEF=trp] [Str= Start, trp= Trip, cbF=Circuit breaker failure]
6	Output R1 link element [Refer figure 1][DEF=Fh]
7	Output R2 link element [Refer figure 1][DEF=Fh]
8	CBFP Delay [0.05s - 10.0s] [DEF=0.1]

Digit1

F _ _ 8

	Digit1			
HEX	IΘ>	3I>>>	3I>>	3I>
0	0	0	0	0
1	0	0	0	1
2	0	0	1	0
3	0	0	1	1
4	0	1	0	0
5	0	1	0	1
6	0	1	1	0
7	0	1	1	1
8	1	0	0	0
9	1	0	0	1
A	1	0	1	0
B	1	0	1	1
C	1	1	0	0
D	1	1	0	1
E	1	1	1	0
F	1	1	1	1

Figure 1: Link element in Hexadecimal value

0= Off,
1= On

	Digit1			
User's setting				
User's setting hexadecimal value				

* Not applicable when output R2 function set as cbF

Push Button Operation

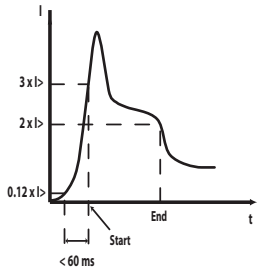
Trip Test	Press and hold "TEST" button for 3.5 seconds
Trip Reset	Press "RESET" button
Scroll Display	Press "MODE" button
Enter Menu Mode	Press and hold "MODE" button for 1second
Set/Save Setting	Press "UP" and "DOWN" button simultaneously
Adjust Setting	Press "UP" or "DOWN" button
Auto Scroll Reading	Press and hold "UP" and "DOWN" button simultaneously for 2 seconds on Measurement mode
Clear Thermal %	Press and hold "UP" and "DOWN" button simultaneously for 1.5 seconds on Thermal page
Display Off Mode	Press "RESET" button for 10 seconds to toggle display off mode. The display will switch off after 6 minutes if no key is pressed.

LED Indicator

LED				Status
AUX	I>	I>>	Thermal	
0	0	0	0	No Auxiliary power suppply
1	0	0	0	Normal condition, no tripping
1	1	0	X	Low-set pickup
1	0	1	X	High-set pickup
1	B	0	X	Low-set tripped
1	X	B	X	High-set tripped
1	X	X	1	Thermal overload pickup
1	X	X	B	Thermal overload tripped

1 = ON 0 = OFF B = Blinking X = don't care

Cold Load Pick-up



When current rises from **0.12 x I>** to **3 x I>** within 60 msec., **I>** actual is temporarily doubled until current falls to below **2 I>**.

Thermal Overload Curve