

THE **RX** SERIES





FEATURES

LCD display with back lighting
Modbus-RTU communication

MEASUREMENT PARAMETERS:

- Phase Voltage (L-N) & Line Voltage (L-L)
- Min & Max Phase and Line Voltage
- Phase Current and Neutral Current
- Min & Max Phase Current and Neutral Current
- Bidirectional kW (per phase & total)
- Bidirectional kvar (per phase & total)
- kVA (per phase & total)
- Min & Max kW, kvar and kVA
- Frequency
- True & Displacement Power Factor (per phase & total)
- Energy kWh, kvarh and kVAh
- THD Phase Voltage (L-N)
- THD Phase Current
- Power Demand (kW, kvar & kVA)
- Maximum Power Demand (kW, kvar & kVA)

SPECIFICATIONS

DISPLAY TYPE

LCD display

MEASUREMENTS

3-phase 4-wire system

3-phase 3-wire system

CURRENT MEASUREMENT (TRMS)

CT primary : 5 ~ 9995 A

CT secondary : 5 A

Minimum measurement : 5 mA

Accuracy : 0.5% from 1A to
6 A (secondary)

Burden : < 0.05 VA at 5 A

Sustained overload : 6 A

VOLTAGE MEASUREMENT (TRMS)

Nominal phase voltage : 20 ~ 300 V AC

Minimum measurement : 10 V

Accuracy : 0.5% at full scale

Phase voltage via VT : 60 ~ 33,000 V

POWER MEASUREMENT

Real power, apparent power, reactive power
measurement

Measuring updating period : 1 s

Accuracy : 1.0%

POWER DEMAND

Interval : 1 ~ 30 mins

POWER FACTOR MEASUREMENT

Total and displacement power factor

Accuracy : 1.0%

FREQUENCY MEASUREMENT

Measurement range : 45 ~ 65 Hz

Measurement updating period : 1 s

Accuracy : 0.5%

ENERGY ACCURACY

Active (according to IEC 62053-21) : class 1

Reactive (according to IEC 62053-23): class 2

AUXILIARY POWER SUPPLY

AC voltage : 90 ~ 415 V AC

Frequency : 50 / 60 Hz

DC voltage : 100 ~ 300 V DC

Power consumption : < 3 VA

COMMUNICATION

Hardware interface : Isolated RS485

Protocol : Modbus-RTU

Baud rate : 4800, 9600,
19200, 38400

ENVIRONMENTAL CONDITIONS

Temperature : -10°C to 55°C

Humidity : 5% to 95%,
non-condensing

MECHANICAL

Mounting : Panel mounting

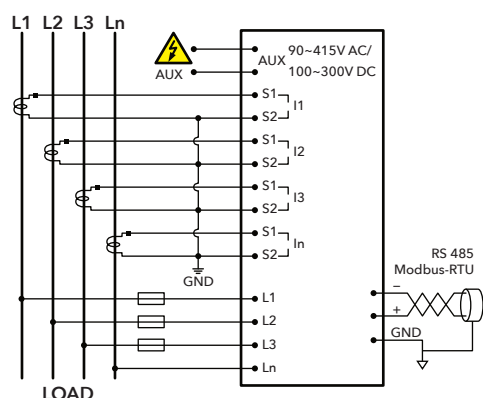
Dimension (mm) : 96(w) x 96(h) x
87.5(d)

Enclosure protection : IP54 at the panel
IP20 at the body

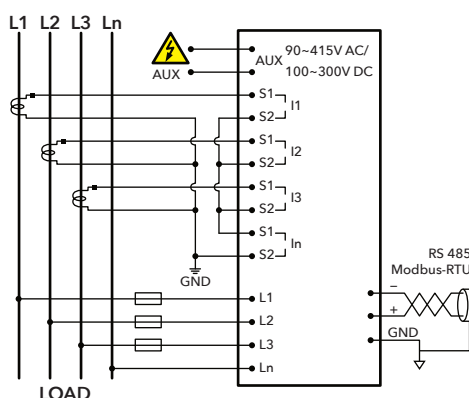
Approximate weight : 0.40kg

TYPICAL APPLICATION DIAGRAM

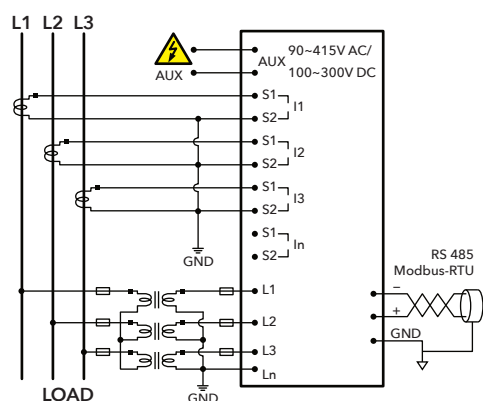
3-PHASE 4-WIRE SYSTEM: 4CTs, direct V input



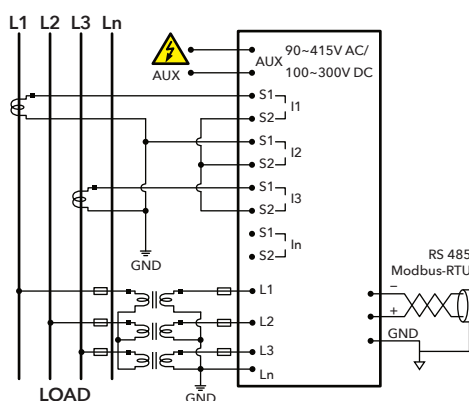
3-PHASE 4-WIRE SYSTEM: 3CTs, direct V input



3-PHASE 3-WIRE SYSTEM: 3CTs, 3VTs



3-PHASE 3-WIRE SYSTEM: 2CTs, 3VTs



ELECTROMAGNETIC COMPATIBILITY (EMC)

Part 6-2: Generic Standards IEC61000-6-2

Immunity for industrial environments.

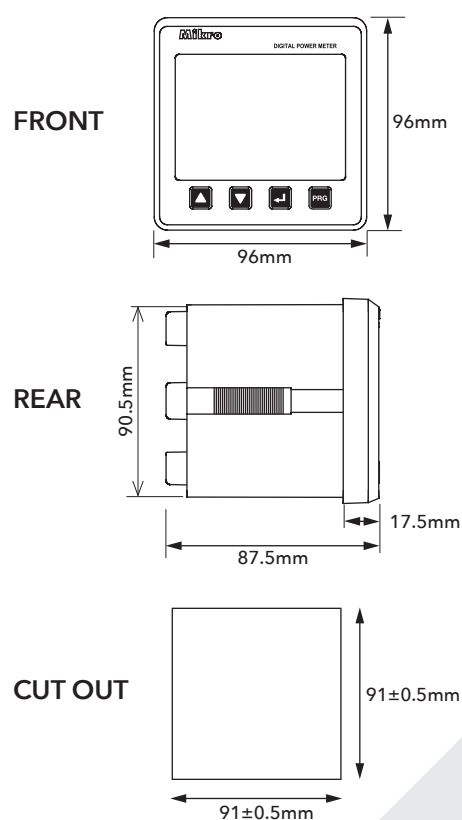
Part 6-4: Generic Standards IEC61000-6-4

Emission standard for industrial environments

ORDERING INFORMATION

MODEL	DESCRIPTION
RX 380-415AD	Auxiliary Voltage 90~415 V AC or 100~300 V DC, with RS 485

CASE DIMENSION





FEATURES

- Built-in NFC for reading and setting parameters through mobile app
- Real-time monitoring of system condition
- Built-in self test and soft recovery watchdog
- Internal relay failure (IRF) alarm for system abnormalities
- Time-stamp event record of power failure and setting changes up to 120 events.
- Time-stamp record of up to 30 faults and 30 pickups
- Three-phase, three-stage setting for phase overcurrent
- Two-stage setting for earth fault
- 5 selectable IDMT and definite times
- Thermal overload protection
- Cold load pickup protection
- Circuit breaker failure protection
- Selectable fundamental or true RMS measurement
- Selectable 50 or 60 Hz frequency
- 2 Programmable LEDs linked to alarm
- Programmable contact outputs
- Complies with IEC 60255 standard
- ANSI code: 50G, 50P, 50N, 51G, 51P, 51N, CLP, 50BF, 49RMS

SPECIFICATIONS

RATING

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	: $\pm 3\%$ or $\pm 20\text{mA}$
Time Delay	: $\pm 3\%$ or $\pm 40\text{ms}$

NFC COMMUNICATION

Operation System	: Android OS
Software Version	: Version 10 and above
App Name	: Mikro RX



SETTING RANGES

(i) Overcurrent Setting

3I>	: 0.5A -12.5A(10% -250%), *(Variable steps 1)
ktI>	: 0.01 -1.00, *(Variable steps 2)
tl>	: 0.03 -100s, *(Variable steps 2)
3I>Delay Type	: DT, NI3/10, NI1.3/10, VI, LI, EI
3I>>	: OFF/0.5 -100A (10% -2000%), *(Variable steps 1)
tl>>	: 0.03 -100s, *(Variable steps 2)
3I>>>	: OFF/0.5 -100A (10% -2000%), *(Variable steps 1)
tl>>>	: 0.03 -100s, *(Variable steps 2)

(ii) Earth-fault Setting

Io>	: 0.1A -10.0A(2% -200%), *(Variable steps 1)
ktIo>	: 0.01 -1.00, *(Variable steps 2)
tIo>	: 0.03 -100s, *(Variable steps 2)
Io>Delay Type	: DT, NI3/10, NI1.3/10, VI, LI, EI
Io>>	: OFF/0.1 -50A (10% -1000%), *(Variable steps 1)
tIo>>	: 0.03 -100s, *(Variable steps 2)

(iii) Thermal Overload Setting

$\Theta>$	: OFF/0.5A -10.0A(10% -200%), (step 0.05A)
T Θ	: 1 to 200 minutes, (step 1min)
ktI $\Theta>$	: 1.00 -1.50, (step 0.01)
Θ Trip	: 50 to 200%, (step 1%)
Θ Alarm	: 50 to 200%, (step 1%)

OUTPUT CONTACTS

Rated Voltage	: 250VAC
Continuous Carry	: 5A (Cos ϕ =1.0)
Expected Electrical Life	: 10 ⁵ operations
Expected Mechanical Life	: 5 x 10 ⁶ operations
No of Output Contact	: 2

ENVIRONMENTAL CONDITIONS

Operating Temperature	: -10°C to 55°C
Humidity	: 5% to 95%, non-condensing

MECHANICAL

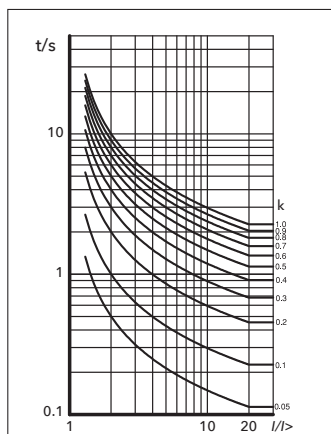
Mounting	: Panel mounting
Dimension (mm)	: 96(w) x 96(h) x 90(d)
Enclosure protection	: IP54 at the panel IP20 at the body
Approximate weight	: 0.80kg

*Variable Steps 1: step 0.05 (<10), step 0.1 (<100)

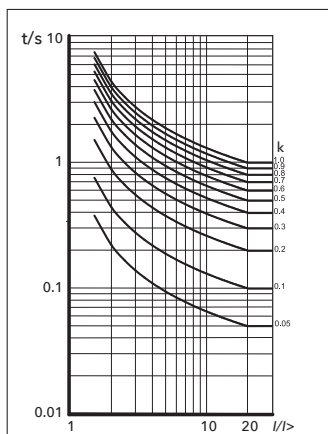
*Variable Steps 2: step 0.01 (<1), step 0.1 (<10), step 0.5 (<100)

IDMT CURVE

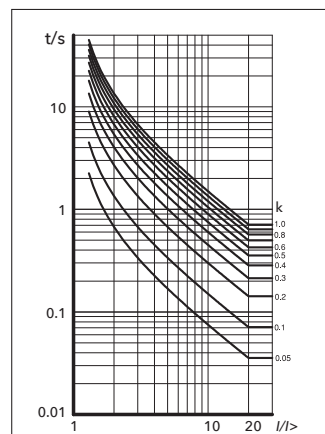
NORMAL INVERSE 3/10



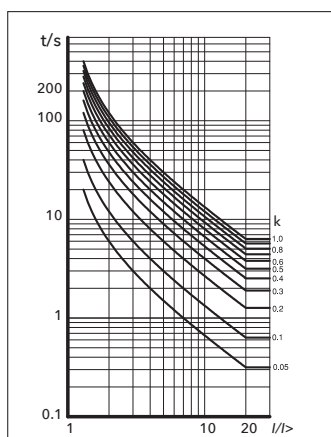
NORMAL INVERSE 1.3/10



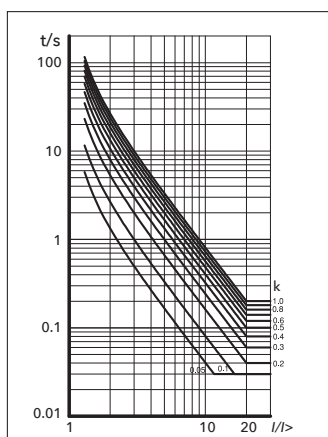
VERY INVERSE



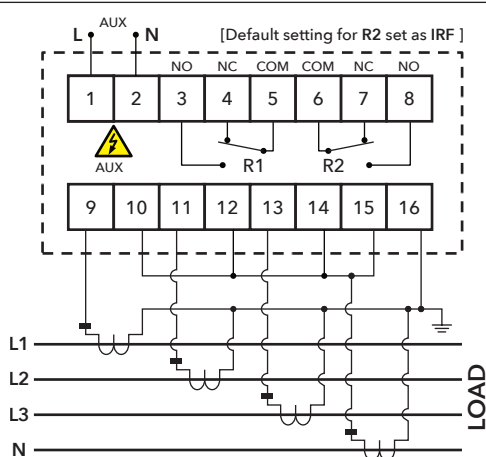
LONG-TIME INVERSE



EXTREMELY INVERSE



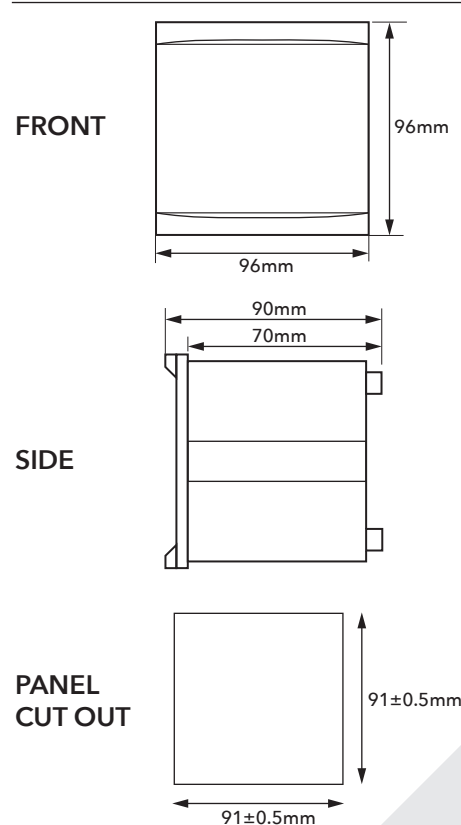
TYPICAL APPLICATION DIAGRAM



ORDERING INFORMATION

MODEL	DESCRIPTION
RX1000-230A	Auxiliary Voltage 198~265 V AC, frequency 50 or 60Hz

CASE DIMENSION





FEATURES

- Built-in NFC for reading and setting parameters through mobile app
- Real-time monitoring of system condition
- Built-in self test and soft recovery watchdog
- Internal relay failure (IRF) alarm for system abnormalities
- Time-stamp event record of power failure and setting changes up to 120 events.
- Time-stamp record of up to 30 faults and 30 pickups
- Two-stage setting for earth fault
- 5 selectable IDMT and definite times
- Circuit breaker failure protection
- Selectable fundamental or true RMS measurement
- Selectable 50 or 60 Hz frequency
- Programmable output contacts
- Complies with IEC 60255 standard
- ANSI code: 50G, 50N, 51N, 50BF

SPECIFICATIONS

RATING

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	: $\pm 3\%$ or $\pm 20\text{mA}$
Time Delay	: $\pm 3\%$ or $\pm 40\text{ms}$

NFC COMMUNICATION

Operation System	: Android OS
Software Version	: Version 10 and above
App Name	: Mikro RX



SETTING RANGES

Earth-fault Setting

lo>	: 0.1A -10.0A(2% -200%), *(Variable steps 1)
ktlo>	: 0.01 -1.00, *(Variable steps 2)
tlo>	: 0.03 -100s, *(Variable steps 2)
lo>Delay Type	: DT, NI3/10, NI1.3/10, VI, LI, EI
lo>>	: OFF/0.1 -50A(10% -1000%), *(Variable steps 1)
tlo>>	: 0.03 -100s, *(Variable steps 2)

OUTPUT CONTACTS

Rated Voltage	: 250VAC
Continuous Carry	: 5A (Cos ϕ =1.0)
Expected Electrical Life	: 10 ⁵ operations
Expected Mechanical Life	: 5 x 10 ⁶ operations
No of Output Contact	: 2

ENVIRONMENTAL CONDITIONS

Operating Temperature	: -10°C to 55°C
Humidity	: 5% to 95%, non-condensing

MECHANICAL

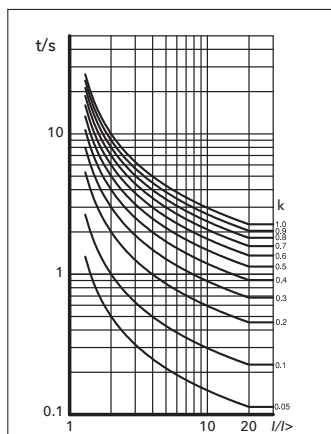
Mounting	: Panel mounting
Dimension (mm)	: 96(w) x 96(h) x 90(d)
Enclosure protection	: IP54 at the panel IP20 at the body
Approximate weight	: 0.65kg

*Variable Steps 1: step 0.05 (<10), step 0.1 (<100)

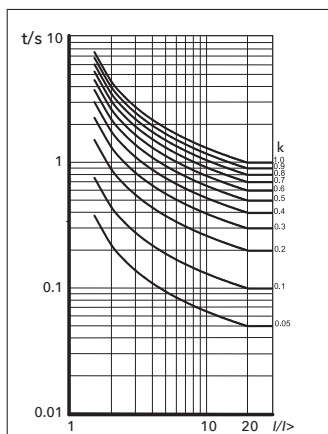
*Variable Steps 2: step 0.01 (<1), step 0.1 (<10), step 0.5 (<100)

IDMT CURVE

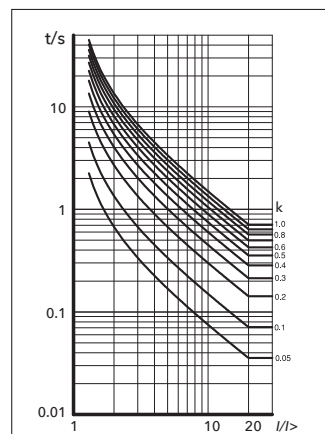
NORMAL INVERSE 3/10



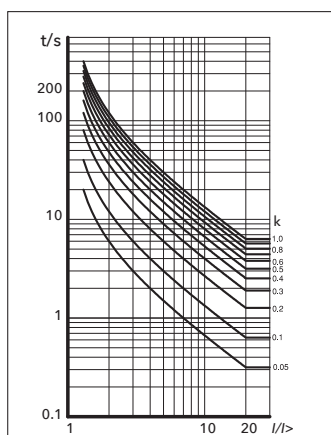
NORMAL INVERSE 1.3/10



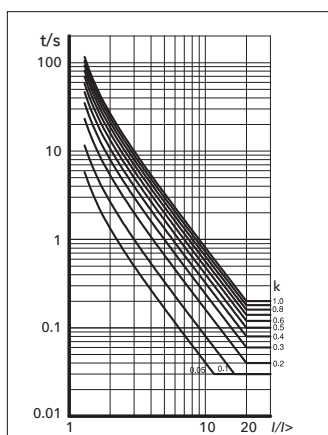
VERY INVERSE



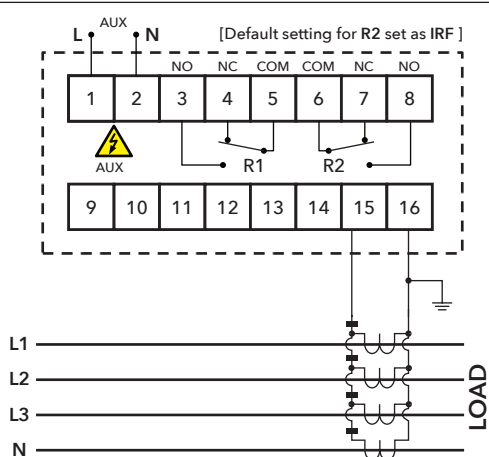
LONG-TIME INVERSE



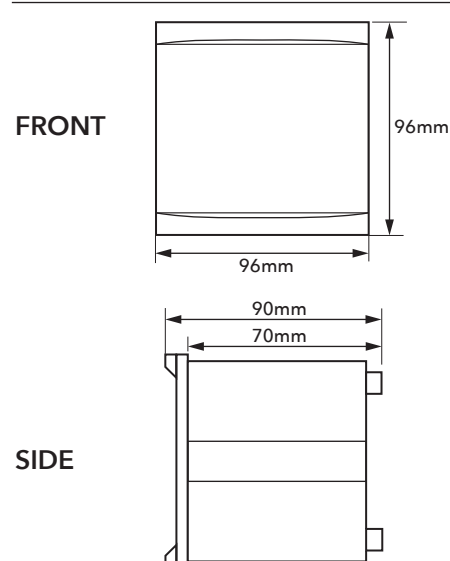
EXTREMELY INVERSE



TYPICAL APPLICATION DIAGRAM

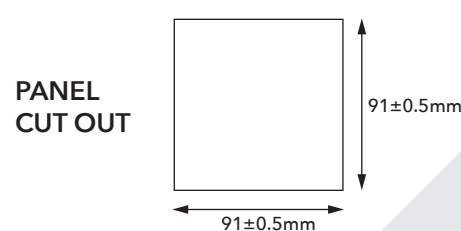


CASE DIMENSION



ORDERING INFORMATION

MODEL	DESCRIPTION
RX232-230A	Auxiliary Voltage 198~265 V AC, frequency 50 or 60Hz





FEATURES

- Built-in NFC for reading and setting parameters through mobile app
- Real-time monitoring of system condition
- Built-in self test and soft recovery watchdog
- Internal relay failure (IRF) alarm for system abnormalities
- Time-stamp event record of power failure and setting changes up to 120 events.
- Time-stamp record of up to 30 faults and 30 pickups
- Three-phase, three-stage setting for phase overcurrent
- 5 selectable IDMT and definite times
- Thermal overload protection
- Cold load pickup protection
- Circuit breaker failure protection
- Selectable fundamental or true RMS measurement
- Selectable 50 or 60 Hz frequency
- Programmable output contacts
- Complies with IEC 60255 standard
- ANSI code: 50P, 51P, CLP, 50BF, 49RMS

SPECIFICATIONS

RATING

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	: $\pm 3\%$ or $\pm 20\text{mA}$
Time Delay	: $\pm 3\%$ or $\pm 40\text{ms}$

NFC COMMUNICATION

Operation System	: Android OS
Software Version	: Version 10 and above
App Name	: Mikro RX



SETTING RANGES

(i) Overcurrent Setting

3I>	: 0.5A -12.5A(10% -250%), *(Variable steps 1)
ktI>	: 0.01 -1.00, *(Variable steps 2)
tl>	: 0.03 -100s, *(Variable steps 2)
3I>Delay Type	: DT, NI3/10, NI1.3/10, VI, LI, EI
3I>>	: OFF/0.5 -100A (10% -2000%), *(Variable steps 1)
tl>>	: 0.03 -100s, *(Variable steps 2)
3I>>>	: OFF/0.5 -100A (10% -2000%), *(Variable steps 1)
tl>>>	: 0.03 -100s, *(Variable steps 2)

(ii) Thermal Overload Setting

Θ >	: OFF/0.5A -10.0A (10% -200%), (step 0.05A)
T Θ	: 1 to 200 minutes, (step 1min)
ktI Θ >	: 1.00 -1.50, (step 0.01)
Θ Trip	: 50 to 200%, (step 1%)
Θ Alarm	: 50 to 200%, (step 1%)

OUTPUT CONTACTS

Rated Voltage	: 250VAC
Continuous Carry	: 5A (Cos ϕ =1.0)
Expected Electrical Life	: 10^5 operations
Expected Mechanical Life	: 5×10^6 operations
No of Output Contact	: 2

ENVIRONMENTAL CONDITIONS

Operating Temperature	: -10°C to 55°C
Humidity	: 5% to 95%, non-condensing

MECHANICAL

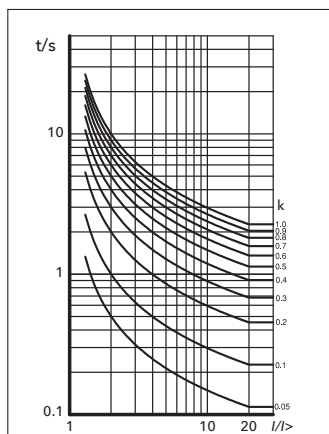
Mounting	: Panel mounting
Dimension (mm)	: 96(w) x 96(h) x 90(d)
Enclosure protection	: IP54 at the panel IP20 at the body
Approximate weight	: 0.80kg

*Variable Steps 1: step 0.05 (<10), step 0.1 (<100)

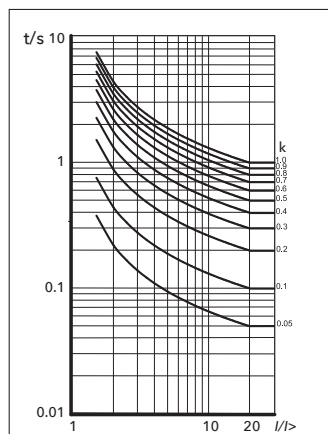
*Variable Steps 2: step 0.01 (<1), step 0.1 (<10), step 0.5 (<100)

IDMT CURVE

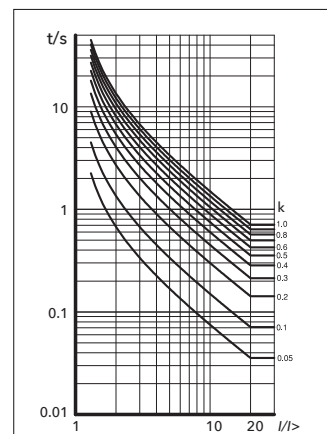
NORMAL INVERSE 3/10



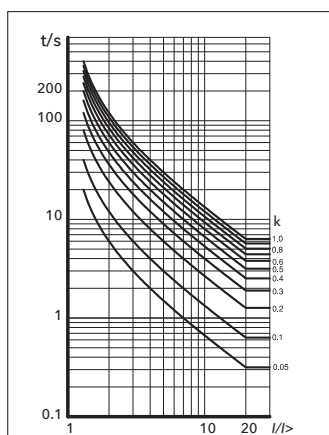
NORMAL INVERSE 1.3/10



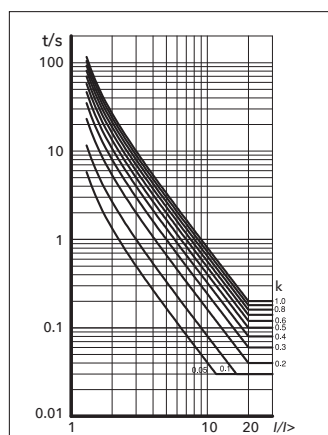
VERY INVERSE



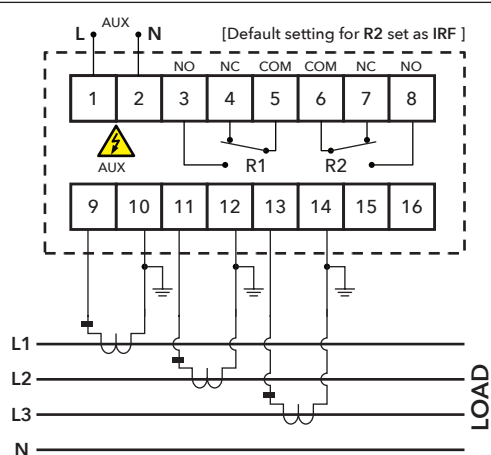
LONG-TIME INVERSE



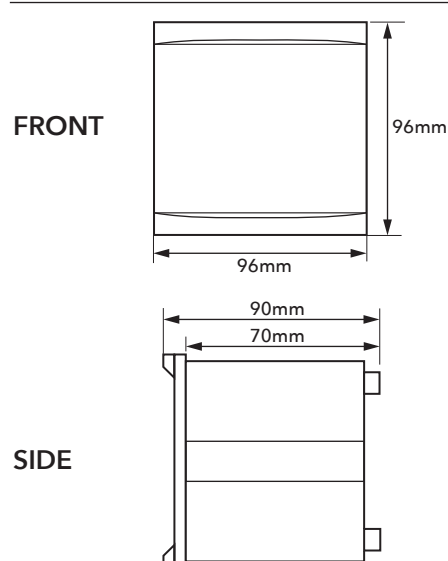
EXTREMELY INVERSE



TYPICAL APPLICATION DIAGRAM

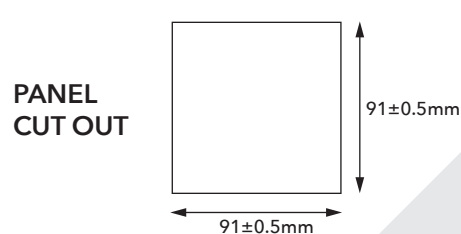


CASE DIMENSION



ORDERING INFORMATION

MODEL	DESCRIPTION
RX233-230A	Auxiliary Voltage 198~265 VAC, frequency 50 or 60Hz





FEATURES

- Built-in NFC for reading and setting parameters through mobile app
- Real-time monitoring of system condition
- Built-in self test and soft recovery watchdog
- Internal relay failure (IRF) alarm for system abnormalities
- Time-stamp event record of power failure and setting changes up to 120 events.
- Time-stamp record up of to 30 faults and 30 pickups
- Selectable fundamental or true RMS measurement
- Selectable 50 or 60 Hz frequency
- Programmable contact outputs
- Detection of no connection to ZCT
- Incorporated fail-safe feature into trip contact

FEATURE FOR RX330

- ** Self-reclosing feature

SPECIFICATIONS

AUXILIARY SUPPLY

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

ACCURACY

Protection Thresholds : -15% to 0%
 Time Delay : $\pm 3\%$ or $\pm 40\text{ms}$

INPUTS

Remote Reset : N.O. dry contact
 Remote Test : N.O. dry contact

NFC COMMUNICATION

Operation System : Android OS
 Software Version : Version 10 and above
 App Name : Mikro RX



OUTPUT CONTACTS

Rated Voltage : 250VAC
 Continuous Carry : 5A ($\cos\phi=1.0$)
 Expected Electrical Life : 10^5 operations
 Expected Mechanical Life : 5×10^6 operations
 No of Output Contact : 3

SETTING RANGES

(i) Earth-Leakage Setting

$I\Delta n$ Sensitivity : 20mA - 30.0A, *(Variable steps 1)
 Time Δt : INST - 10.0s, (Step 0.01s)
 Pre-fault : 10mA - 24.0A, *(Variable steps 1)
 Reset Hysteresis : 2% - 10%, (Step 1%)

(ii) Self Reclosing Setting **

Number of Shots : OFF/1 - 30 (Step 1)
 Dead Time : 1s - 500s (Step 1s)
 Persistent Fault Time: OFF/1s - 500s (Step 1s)
 Reclaim Time : OFF/1min - 500min (Step 1min)
 Lockout Self Reset Time: OFF/1h - 200h (Step 1h)

EARTH LEAKAGE PROTECTION CLASS

Type A 

INDICATORS

Auxiliary Supply : Green indicator
 Pick-up : Red indicator
 Trip : 7-segment display and Red Indicator
 ZCT Fault : Red indicator
 Reclose Fault : Red indicator**

ENVIRONMENTAL CONDITIONS

Operating 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 : 0.5kg

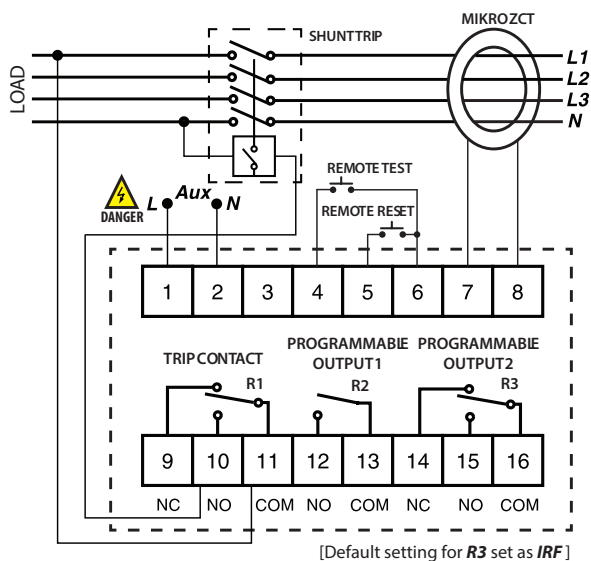
ZERO-PHASE CURRENT TRANSFORMER

To operate with Mikro's ZCT series of current transformer.

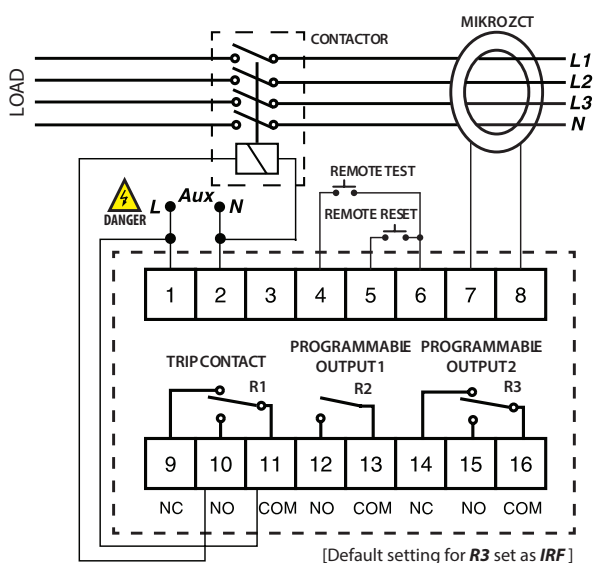
* Variable Steps 1: step 1mA (<999mA), step 0.01A (<9.99A), step 0.1A (<30A)

** For RX330 Model Only

TYPICAL APPLICATION DIAGRAM FOR RX300

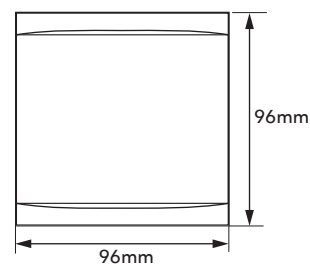


TYPICAL APPLICATION DIAGRAM FOR RX330

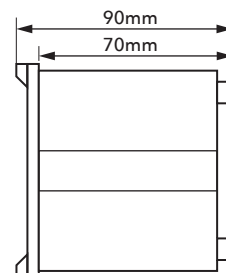


CASE DIMENSION

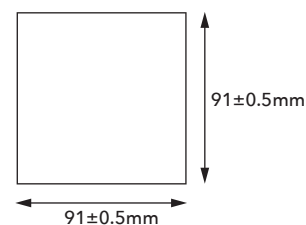
FRONT



SIDE



PANEL CUT OUT



ORDERING INFORMATION

MODEL	DESCRIPTION
RX300-230A	Auxiliary voltage 198 ~ 265VAC, frequency 50 or 60Hz
RX330-230A	Auxiliary voltage 198 ~ 265VAC, frequency 50 or 60Hz



MIKRO MSC BERHAD 200601018418 (738171-M)

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