Non-directional, phase-to-phase and phase-to-ground overcurrent protection for AC systems.

MIC

Digital Overcurrent Relay

Applications
- AC feeders, motors, transformers, etc.
- Overload protection
- Rapid short circuit detection

Protection and Control
- Instantaneous and time overcurrent
- Phase and ground faults

Features
- 4 inverse and 4 definite time curves
- Settings with front panel switches
- Line current metering and last trip data
- Part of a modular system
- Independent 4" modules
- 1/4 standard 19" rack cases available
- 2 digit display and reset button

DESCRIPTION

The MIC 1000 is a digital, microprocessor-based overcurrent relay that provides nondirectional phase to phase and phase to ground overcurrent protection. The relay's overcurrent function can be inverse time, where four families of curves are provided, or definite time with four times offered, as well instantaneous operation with adjustable time delay. All of these features are offered in a single relay.

Line current metering, both phase to phase and phase to ground, are provided with a meter. Faults are time tagged and the most recent fault and time are displayed.

APPLICATIONS

The MIC relay is applied on alternating current circuits (feeders, motors, transformers, etc.), and provides effective protection against overloads, and rapid detection of short circuits.

Negligible overtravel (less than 50 ms for the time unit, less than 25 ms for the instantaneous unit), and a high drop-out to pick-up ratio (<95%), along with the instantaneous unit adjustment tap, allow optional coordination and reclosing, without compromising selectivity.

Operation of the instantaneous unit can be blocked for both phase to phase and phase to ground conditions.

CONSTRUCTION

- accurate and reliable, with low power consumption
- fixed rack, 1/3 case, 19" rack
- drawout, 1/4 case, 19" rack
- LED starting lamps and system availability indicators
- shock proof, non-flammable, sealed plastic case, which permits exterior reset of indicating LED's
- anti-seismic waveform response
- high reliability solid-state components
- microprocessor system

STANDARD FEATURES

Front accessible time delay micro-switches.

Time Unit

The following characteristics are included in every relay:

- BS 142 inverse
- ANSI inverse
- very inverse
- extremely inverse
- 2 sec definite time
- 4 sec definite time
- 6 sec definite time
- 8 sec definite time

(time dial adjustable from 0.05 to 1 in 0.05 steps)

STANDARD FEATURES

Instantaneous Unit
Instantaneous unit time delay adjustable between 0 and 3.1 sec in 100 ms steps.

Indicators Include:
- green LED when in service
- measuring unit starting LED's
- target LED's for the measuring units (two for phase and ground relays)

Reset
Through front mounted push-button.

Output Contact Selector Switch
Output contacts can be selected from a two position selector switch which allows trip/alarm contact flexibility.

Display Sequentially Indicates:
- F0 - relay condition
- F1 - phase current
- F2 - neutral current
- F3 - phase current at last trip
- F4 - neutral current at last trip
- F5 - operating time for the last trip

MIC TECHNICAL SPECIFICATIONS

PROTECTION

CURRENT RANGES

Rated Current (I_n)	Inverse Time Unit Current Range (Is)	Instantaneous Unit
5 A	0.5-4.375 A 1-8.75 A 1.5-13.125 A	1 to 31 times Is
1 A	0.1-0.875 A 0.2-1.75 A 0.3-2.625 A	

METERING

RATINGS

Rated Frequency: 50/60 Hz
Rated Current: 1 or 5 A
DC/AC Auxiliary Voltage (3 Ranges): 24-48 V, 48-125 V, 110-240 V (±20%)
Power Consumption: Less than 1.5 W at all voltages

ACCURACY

Accurate to within 5% of operating value
Accurate to within 5% of the time value, or 0.025 sec, whichever is greater, E-5 class

MONITORING

REPEATABILITY

1% on operating value
2% on operating time or 0.025 sec, whichever is greater

OUTPUTS

OUTPUT AND TRIPPING CONTACTS

Making Capacity: 3000 W resistive for 2 sec, with a maximum of 30 A at 300 VDC
Breaking Capacity: 50 W resistive with a max. of 2 A at 300 VDC
Continuous: 5 A with a maximum of 300 VDC

ENVIRONMENTAL

Operating Temperature: -10°C to +55°C
Storage Temperature: -40°C to + 70°C
Current Carrying Capacity:
- **Continuous:** 2 x I_n
- **For 3 Seconds:** 50 x I_n
- **For 1 Second:** 100 x I_n

Relative Humidity: To 95% without condensing

TYPE TESTS

Insulation Withstand: 2 kV 50/60 Hz for one min, per IEC 255-5
Impulse: 5 kV peak 1.2/50 ms, 0.5 J per IEC 255-4
Interference Test: 2.5 kV Longitudinal, 1 kV transversal, Class III, per IEC 255-4
Electrostatic Discharge: Per IEC 801-2, Class III
Radio Interference: Per IEC 801-3, Class III
Surge Withstand: Per IEC 801-4, Class III

PACKAGING

Approximate Weight:
- **Net:** 9 lbs (4 kg)
- **Ship:** 11 lbs (5 kg)

APPROVALS

CE Compliant — UL - UL listed for USA and Canada

INPUTS

CURRENT CIRCUIT BURDENS

Range (A)	Frequency (Hz)	Minimum Pickup Current	Burden in Ω for multiples of minimum pickup current					
			Minimum pickup			3 times pickup	10 times pickup	20 times pickup
			R	jX	Z	Z	Z	Z
1.5-13.125	50	1.5	0.04	0.01	0.04	0.04	0.04	0.04
0.5-4.375	50	0.5	0.05	0.025	0.055	0.055	0.055	0.055
0.3-2.625	50	0.3	0.3	0.1	0.33	0.33	0.33	0.33
0.1-0.875	50	0.1	0.35	0.2	0.4	0.4	0.4	0.4

*Specifications subject to change without notice.

SELECTION GUIDE

Phase or ground relays
The information required to provide a complete definition of a model appears in the tables. It is recommended that the model designation is accompanied with its characteristics.

MIC 50 * * N011 * 00 *

MIC	Microprocessor-based relay
1	I_n = 1 A
5	I_n = 5 A
0	Range: 0.1-0.875 x I_n
1	Range: 0.2-1.75 x I_n
2	Range: 0.3-2.625 x I_n
F	Aux. voltage: 24-48 VDC/VAC
G	Aux. voltage: 48-125 VDC/VAC
H	Aux. voltage: 110-250 VDC, 110-220 VAC
C	Individual drawout housing
S	As part of a †MID system

Example A: Overcurrent microprocessor-based relay, single phase, rated current I_n = 5 A, range 0.1-0.875 x I_n, 50 Hz alarm contact, aux. voltage 48-125 DC/AC. Model: MIC 5050 N 011 G 00C

Example B: Overcurrent microprocessor-based relay, three-phase and ground, phase range 0.3-2.626 x (I_n = 5 A), ground range 0.1-0.875 x (I_n = 1 A), 50 Hz, with display, with alarm contact, aux. voltage 48-125 VCC/AC. Model: MIC 8050 N 011 G 00C

Phase and ground relays
The information required to provide a complete definition of a model appears in the tables. It is recommended that the model designation is accompanied with its characteristics.

MIC * 0 * * N011 * 00 *

MIC	Microprocessor-based relay
8	3 ϕ+ ground
2	Phase range: 0.3-2.625
5	Phase range: 1.5-13.125
0	Ground range: 0.1-0.875
3	Ground range: 0.5-4.375
F	Aux. voltage: 24-48 VAC/DC
G	Aux. voltage: 48-125 VAC/DC
H	Aux. voltage: 110-250 VDC, 110-220 VAC
C	Individual drawout housing
S	As part of a MID† drawout system

† Modular Industrial Protection System

Online ordering is available for this product.
See pages 15 - 18.

www.GEindustrial.com/pm