

NE-1 Interrupter System

Key Features

- **48 VDC Operation**—powered from the regular central office -48V battery
- **100% Solid State Interrupters**—all output load switching performed by power semiconductor devices for high reliability
- **Compact Size**—requires only 1.75" (4.45cm) of vertical rack space
- **Main and Standby Outputs Monitored**—to permit timely repairs and avoid service interruption
- **Redundant Interrupters with Automatic/Manual Transfer**—enables either of the two interrupters to be selected to serve the load
- **All Interrupter and Monitor Circuitry Combined on Two Identical Plug-in Circuit Packs**—allows rapid service restoration

Description

The Lorain® NE-1 interrupter system is designed to power non-switched “special services” loads in digital central offices. These loads often require interrupter outputs unavailable from the co-located local digital central office switch.

The NE-1 provides up to 1.0 amp of CODE 1 GEN BR1 ringing current (from a user-furnished continuous ringing source) and 10 or 30 IPM (customer selectable at installation), 60 and 120 IPM ground pulse signaling cadences (see Interruption Timing Table for details). It features duplicated solid-state interrupters and monitors for reliable system operation. The output load switching of the interrupters is performed by power semiconductor devices instead of relays, to ensure years of trouble-free service.

The self-contained automatic and manual transfer circuit allows either of the two identical interrupters to be selected to serve the load. If trouble occurs in the on-line unit, the monitors cause the transfer circuit to switch the load to the reserve interrupter and bring in a minor alarm.

The NE-1 interrupter system is arranged on the “active standby” principle, where the reserve interrupter is energized continuously and all of its outputs are continuously monitored. If any output fails, a minor alarm is brought in so repairs can be made before the failure becomes service-affecting.

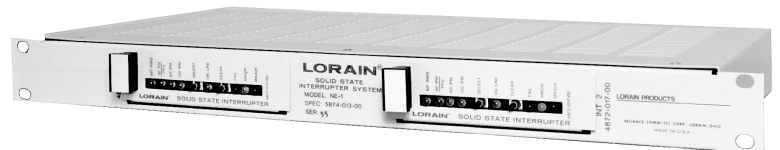
An individual LED follower on each cadenced output simplifies troubleshooting with a visual display of each function. Visual major and minor alarms are also provided. Alarm relay contacts extend minor and major alarms to the central office alarm circuit. Three Form C (break-make) contacts each are provided for major and minor alarms.

Application

The NE-1 interrupter system supplies interrupted ringing (from a user-furnished continuous ringing source) and ground pulses for non-switched “special services” and remote test circuits, office alarm gongs, and time and weather announcement machines co-located in local digital central offices.

Operating Characteristics

Under normal conditions, both the regular and reserve interrupters are energized continuously with only one of the two interrupters being connected through the transfer relay to the load. Either side (1 or 2) may be selected as the main side. The opposite side automatically becomes the standby side. If trouble conditions arise during normal operation, failure of any interrupter output automatically transfers the load to the reserve interrupter and provides a minor alarm. If the reserve interrupter fails prior to transfer, a minor alarm is provided. If the reserve interrupter fails after it assumes the load, a major alarm is provided.



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Specifications

Input

Voltage: 42.75-56 VDC
 Current: 0.2 amp maximum at 56 VDC input
 Ringing Input Voltage:
 Minimum — 70 volts (rms)
 Maximum — 150 volts (rms)
 Frequency — 16-67Hz

Output

Refer to Interruption Timing Table for output ratings

Physical Characteristics

Mounting: Designed to mount in a standard 19" (48.26cm) relay rack arranged for 1.75" (4.45cm) mounting plates. Adapters for 23" (58.42cm) mounting are also provided as standard.
 Dimensions:
 Height: 1.75" (4.45cm)
 Width: 19" (48.26cm)
 Depth: 9.88" (25.08cm)
 Weight: 8 lbs. (3.63 kgs)

Environmental

Operating Temperature: 0° C to +50° C (+32° F to +122° F)
 Ventilation Requirements: The unit should be mounted so that bottom and top ventilating openings are not blocked and air entering the bottom of the cabinet does not exceed 50° C (122° F)

INTERRUPTION TIMING TABLE

Designation	SECONDS							Max. Output 1A	
	0	1	2	3	4	5	6	Type	Note
C1 GEN BR1	[Bar from 0 to 2.5]							RS	4, 5
PKU (PICKUP) OR 30 IPM	[Bar from 0 to 2.5], [Bar from 3 to 5.5], [Bar from 6 to 6.5]							GS	3, 5
60 IPM	[Bar from 0 to 0.5], [Bar from 1 to 1.5], [Bar from 2 to 2.5], [Bar from 3 to 3.5], [Bar from 4 to 4.5], [Bar from 5 to 5.5], [Bar from 6 to 6.5]							GS	5
120 IPM	[Bar from 0 to 0.25], [Bar from 0.5 to 0.75], [Bar from 1 to 1.25], [Bar from 1.5 to 1.75], [Bar from 2 to 2.25], [Bar from 2.5 to 2.75], [Bar from 3 to 3.25], [Bar from 3.5 to 3.75], [Bar from 4 to 4.25], [Bar from 4.5 to 4.75], [Bar from 5 to 5.25], [Bar from 5.5 to 5.75], [Bar from 6 to 6.25], [Bar from 6.5 to 6.75]							GS	5

Notes: 1. Bars indicate an "on" period.
 2. "RS" denotes solid state ringing switch. "GS" denotes solid state current — limited ground pulse switch.
 3. Either the PKU or 30 IPM output may be selected, but not both.
 4. MR R1 BR1 or "INT RING" are alternate designations for CODE 1 GEN BR1.
 5. The maximum load on the interrupted ringing output and on each ground pulse output should not exceed 1.0 amp. The maximum interrupted ringing load must not exceed the output current rating of the user-furnished ringing generator feeding the NE-1 interrupter system (100VA maximum or 1.0 amp at 100V rms with a 100VA ringing generator, proportionally less with smaller ringing generators).

Additional Information

For additional specifications, engineering and installation information, specify model NE-1, spec. number 5874001300.



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