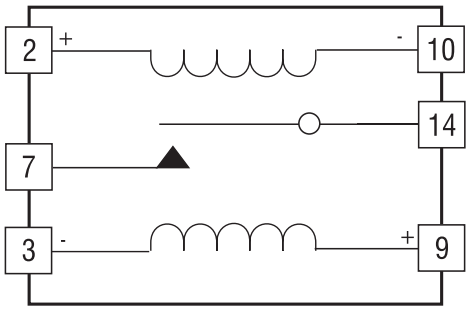
IXYS
INTEGRATED CIRCUITS DIVISION

M-949-11
Line Sense Relay

Features
- Meets UL and British Standard specifications
- Designed for use with FCC Part 68 certified equipment
- Temperature ranges from -25° to 70°C
- Senses telephone line current from 15 to 200 mA
- Includes a 1-Form-A relay contact
- Achieves excellent longitudinal balance
- Meets high-voltage isolation requirements up to 4,000 volts
- Filters common-mode noise through dual coils

Applications
- Telephone Exchange Products
- PBX and Key Systems
- Station Message Detail Reporting (SMDR) Systems

Figure 1. Electrical Configuration



Description
The M-949-11 Line Sense Relay is a small, PCB-mounted loop current detector with the safety and reliability features required for UL and British Standard (BSI) regulated telephone applications.

The M-949-11 is designed for both North American and international use, and offers superior protection against voltage surges such as lightning strikes.

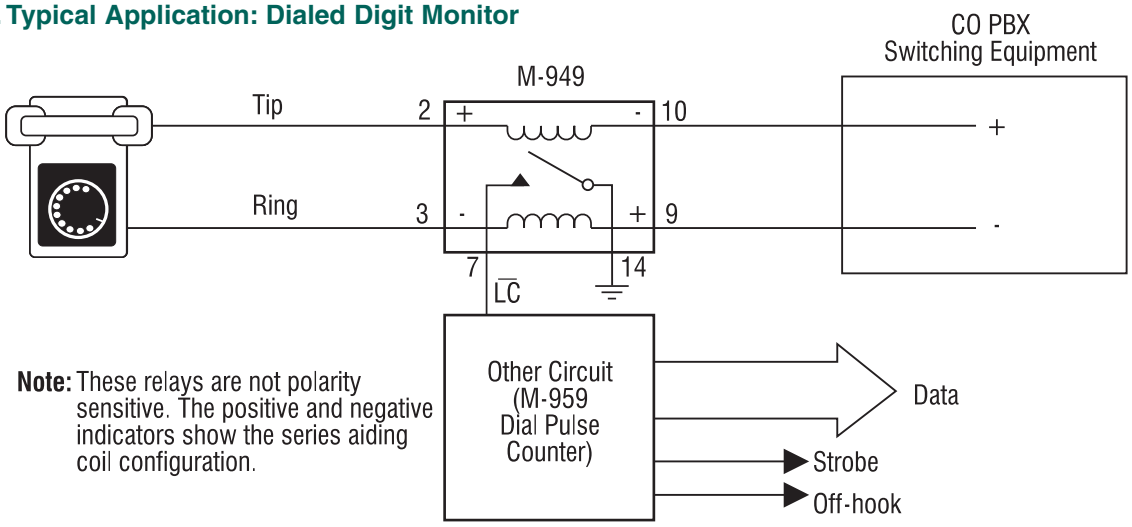
When connected to the voice pair (tip and ring) of an ordinary telephone line, the M-949-11 provides a 1-Form-A relay closure in response to current flowing through the wires. This closure can be used with control circuitry for on-hook/off-hook monitoring, switch hook flash detection, and rotary dial pulse counting.

The M-949-11 is ideally suited for use with the Teltone M-959 Dial Pulse Counter and other loop-current applications, including microprocessor-based designs.

Ordering Information

Part #	Description
M-949-11	Loop Current Sensing Relay

Figure 2. Typical Application: Dialed Digit Monitor



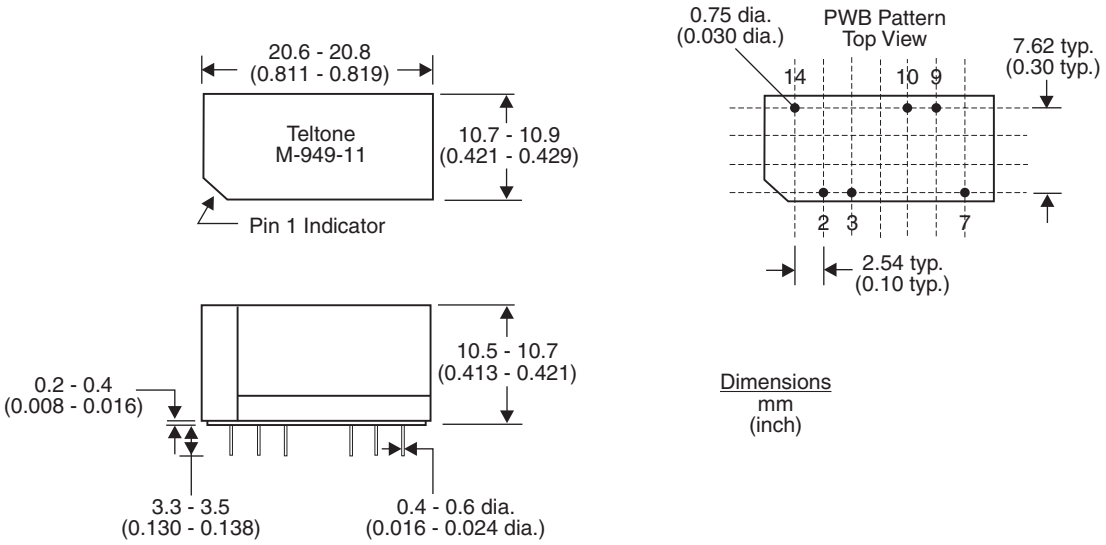
Note: These relays are not polarity sensitive. The positive and negative indicators show the series aiding coil configuration.

Electrical Characteristics

	Parameter	Conditions	Min	Max	Units	Notes
Dual Coils						
	Pick-Up Current	-25ºC to 70ºC Ambient	15	-	mA	1
	Drop-Out Current	-	-	5	mA	1
	Continuous Coil Current	20ºC Ambient	-	200	mA	2
	Coil Resistance - Each Coil	-	8.1	9.9	Ω	-
	Coil Inductance - Each Coil	-	-	1.5	mH	3
	Coil Inductance - Both Coils in Series	-	-	6	mH	3
	Longitudinal Balance	-	63	-	dB	4
	Coil to Coil Capacitance (at 1kHz)	-	-	2500	pF	-
	Excitation to Closure Time (Including Bounce)	-	-	0.5	ms	5
	Excitation Removal to Open Time	-	-	0.1	ms	-
Relay Contact						
	Voltage Rating	-	-	90	V_{DC}	-
	Current Rating	-	-	500	mA	-
	Power (Resistive) Rating	-	-	10	W	6
	Rated Life	-	-	10^6	operations	7
		-	-	10^8	operations	8
Dielectric Strength						
	Open Contacts	-	100	-	V_{DC}	-
	Coil to Coil	-	250	-	V_{DC}	-
	Coil to Contact	-	4000	-	V_{DC}	-
Ambient Temperature						
	Operating	85%	-25	70	ºC	9
	Non-Operating (Storage)	95%	-40	85	ºC	9

1 With coils in series-aiding configuration.
2 With the current continuously applied.
3 At 1kHz.
4 With current of 15-200mA at 1kHz.
5 With current of 15mA and coils in series-aiding configuration.
6 Maximum initial contact resistance ≤ 1Ω
7 10º at 10W (resistive).
8 10º at 5W (resistive).
9 Relative humidity.

Mechanical Dimensions



For additional information please visit our website at: www.ixysic.com

Specification: DS-M-949-11-R04

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