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KEITHLEY

Model 6167 Guarded Adapter

Introduction

The Model 6167 (see Figure 1) is an optional guarded adapter that is designed to be used with the Models 602, 614, and 616 electrometers, and the Models 220 and 224 current sources. This adapter is used to significantly reduce the effect of external input capacitance and resistance by driving the inner shield of the triax cable at guard potential. Circuit low is routed to the outer shield of the triax cable.

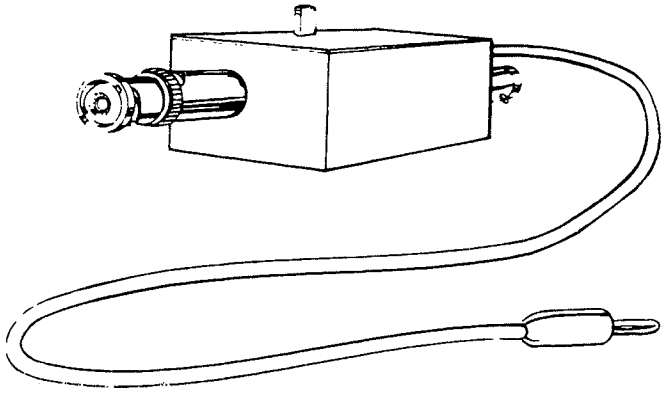


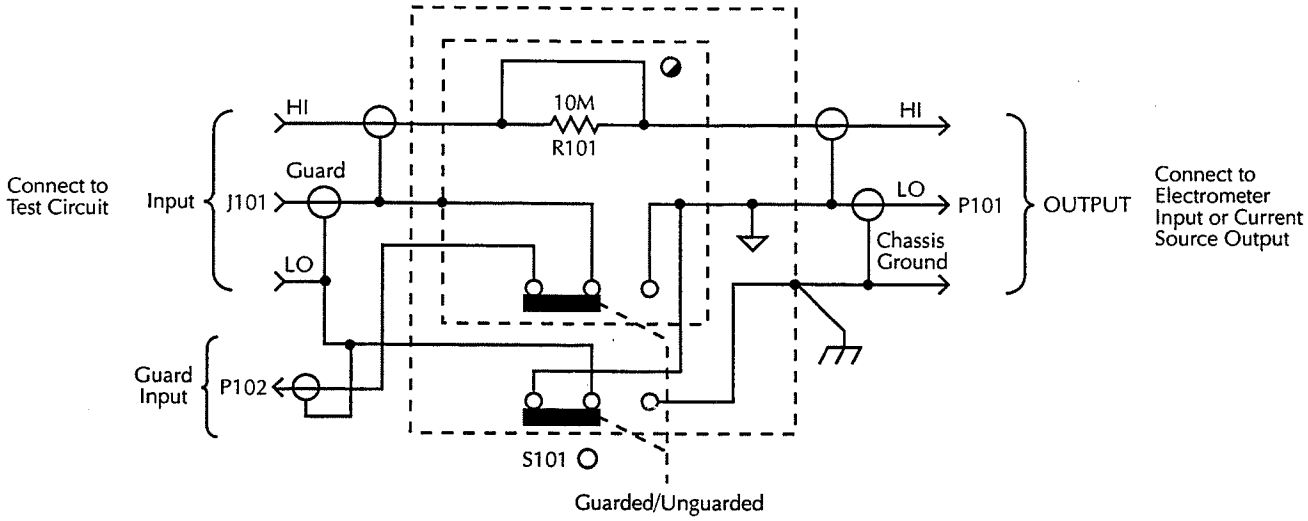
Figure 1. Model 6167

As shown in the schematic of Figure 2, the adapter can be configured in two modes: unguarded and guarded. In the unguarded mode, the input or output signal is simply routed directly through the adapter. In the guarded mode, connections are reconfigured such that guard is connected to the inner shell of the adapter input connector (J101). This allows the guard potential to surround (shield) the high signal path of the triax cable. Electrometer/source low is routed to the outer shell of the adapter input connector.

Figure 3 provides a simplified circuit showing how the adapter input is connected to the front end of the electrometer or current source for the guarded configuration.

Connect the adapter as follows:

1. Connect the adapter to the triax connector on the electrometer or current source. The male triax connector of the adapter mates to the female triax connector of the electrometer or current source.
2. Plug the adapter guard cable into the GUARD terminal jack of the electrometer or current source.
3. Connect the external test circuit to the adapter using a 2-slot triax cable. The triax cable mates to the female triax connector of the adapter.



Notes:

1.) All resistors are in Ohms unless marked otherwise (M-Megohm).
2.) ○ Denotes external panel control.
3.) ◕ Denotes internal control.
4.) ⏚ Denotes analog common.
5.) ⏚ Denotes chassis common.
6.) S101 shown in "Guarded" mode.

Figure 2. Model 6167 schematic

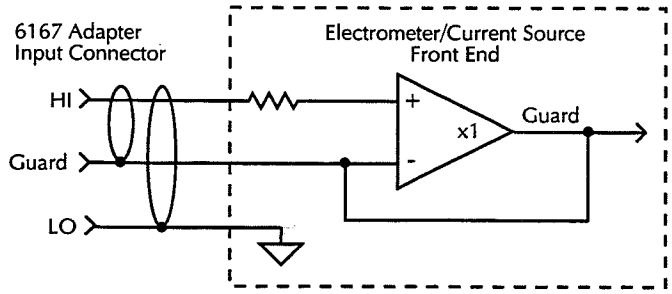


Figure 3. Guarded configuration

Replaceable parts list

Designation	Description	Keithley part no.
J101	Triax jack	CS-440
P101	Triax plug	CS-141
R101	10Ω, 5%, 1/4W resistor	R-76-10M
S101	DPDT slide switch	SW-427
	Banana plug	BG-10-1

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