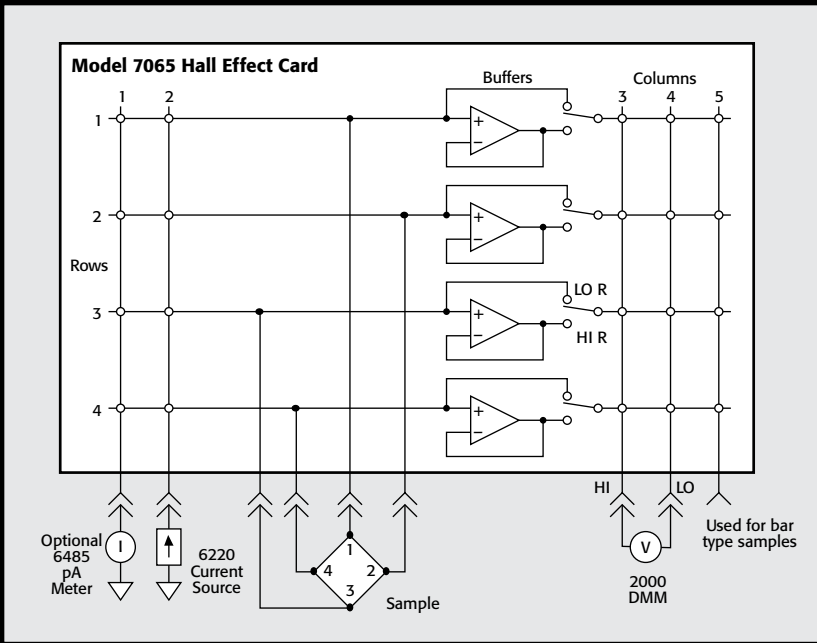


# 7065

# Hall Effect Card



## Building blocks for an economical measurement system

The Model 7065 Hall Effect Card is intended for those who want to assemble their own economical Hall test systems. It also can form the foundation of a Hall Effect system. The sensitivity and capabilities of this card are unmatched by any other system or Hall Effect electronics package.

The Model 7065 is a signal conditioning card designed to buffer test signals from the Hall sample to the measurement instrumentation and to switch current from a source to the Hall sample. When used with Keithley's Model 7001 scanner mainframe, the Model 7065 provides the switching capability to measure Hall voltages as low as 50nV and sample resistances in excess of  $10^{12}\Omega$ .

All the accessories needed to connect the sample holder, scanner, instruments, and controller are included, simplifying connections. The Model 7065 is connected directly to the sample, and all instruments are connected via the IEEE-488 bus to the controller. Examples of resistivity and Hall voltage measurement programs are included in the Model 7065 Instruction Manual.

## Ordering Information

**7065** Hall Effect Card  
**7001** Switch System

The Model 7065 can be operated in either a low resistivity or a high resistivity mode. In the high resistivity mode, input impedance is greater than  $100T\Omega$ , input bias current is less than 150fA, and output resistance is less than  $60\Omega$ . Input voltage ranges in both operating modes is +8V to -8V. If higher voltage is desired, Keithley recommends using a 6220/6514 system. Cabling and sample connections must be carefully designed to make full use of the Model 7065's capabilities. Refer to Keithley's Low Level Measurements handbook for guidance in designing these connections.

## ACCESSORIES SUPPLIED

4801	Low Noise Input Cable
7078-TRX-10	3-slot Triax Cable (10 ft.)
6172	2-slot Male to 3-Lug Female Triax Adapter
7025-10	Triaxial Input Cable (10 ft.) (4 supplied)
4851	BNC Shorting Plug
Wire Kit Including:	
SC-72-0	Single Conductor Insulated Wire, black (4 ft.) (2 supplied)
SC-72-9	Single Conductor Insulated Wire, white (4 ft.)
BG-5	Single Banana Plug, black (2 supplied)
BG-10-1	Single Banana Plug, white
BG-7	Double Banana Plug, black
SC-8	2-conductor Cable w/shield (10 ft.)
7007-2	Double Shielded Premium Cable (6 ft.)

## SERVICES AVAILABLE

7065-3Y-EW	1-year factory warranty extended to 3 years from date of shipment
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## LOW RESISTIVITY MODE

**INPUT VOLTAGE OPERATING RANGE:** +8 to -8V.  
**INPUT IMPEDANCE:**  $>10G\Omega$  in parallel with  $<420pF$ .  
**INPUT BIAS CURRENT:**  $<100pA$ .  
**INPUT VOLTAGE NOISE:**  $<50nV$  p-p, 0.1 to 10Hz bandwidth.  
**INPUT TO OUTPUT RESISTANCE:**  $<30\Omega$ .

## HIGH RESISTIVITY MODE

**INPUT VOLTAGE OPERATING RANGE:** +8 to -8V.  
**INPUT IMPEDANCE:**  $>100T\Omega$  in parallel with  $<3pF$ .  
**INPUT BIAS CURRENT:**  $<150fA$  at 23°C. Doubles approximately every 10°C rise in ambient room temperature.  
**INPUT VOLTAGE NOISE:**  $<10\mu V$  p-p, 0.1 to 10Hz bandwidth.  
**OUTPUT RESISTANCE:**  $<60\Omega$ .

## CONFIGURATION

Input characteristics and output matrix configuration for van der Pauw or Hall bar measurements. Input characteristics selectable for either low resistivity or high resistivity samples.

## GENERAL

**MAXIMUM COMMON MODE VOLTAGE (analog ground to earth ground):** 30V peak, DC to 60Hz sine wave.  
**ISOLATION:** Analog ground to earth ground:  $>10^9\Omega$  in parallel with 150pF.  
**WARM-UP:** 1 hour to rated specifications.  
**ENVIRONMENT: Operating:** 0°-35°C, up to 70% R.H.  
**Storage:** -25° to +65°C.  
**CONNECTORS:**  
**Current Source Input:** Two-lug female triaxial. Input HI to LO clamped at  $\pm 12V$ . **Maximum Input:** 100mA.  
**Sample Inputs:** Four two-lug female triaxial. Outer shell is analog ground. Inner shield is driven guard. **Maximum Input Overload (HI to analog ground or GUARD to analog ground):**  $\pm 12V$ .  
**Current Monitor Output:** Insulated female BNC.  
**Measurement Outputs:** Spring-loaded terminals. Accepts AWG #18 to #24 wire. **Maximum Load:** 1mA.  
**DIMENSIONS, WEIGHT:** 32mm high  $\times$  114mm wide  $\times$  272mm long (1 in  $\times$  4 in  $\times$  10 in). Net weight: 434kg (15½ oz).  
 All specifications are 1 year, 0°-35°C, installed in scanner mainframe.

The foundation of a Hall Effect system

SWITCHING AND CONTROL

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