



M3500-OPT09 20-Channel Scanner Card USER'S GUIDE

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in Taiwan

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Product Introduction

Picotest thanks you to purchase the "M3500-OPT09 (20-channel Scanner Card)". To reach the best performance from the product, please read this guide

1. Overview

The M3500-OPT09 supports the following measurements, such as for voltage 20 points, for current 2 points, for 2-wired resistance 20 points and for 4-wired resistance 10 points at most.

2. Inspection & Upkeep

Inspection:

When you open the package, inspect it carefully to make sure whether defects occur on the appearance or malfunctions show in the operation. Please contact with your local reseller or PICOTEST representative for more help.

Upkeep:

To clean the product, wipe its cover (except the circuit) gently with a soft and moistened cloth. Prevent using solvents, such as benzene, alcohol, acetone, ether, ketones, thinners or gasoline because of

their destructive capabilities.

3. Safety

This safety information with the warning and danger marks on the user's guide reminds users to avoid risks as they are using it.

Warning: The triangle symbol in black indicates that incorrect operation might cause an injury to users or damage to the product.

Danger: The triangle symbol in red indicates that incorrect operation might cause an extreme hazard to users' life.

4. Prention

Danger

- To avoid electrical shock and personal injury, please don't measure the source out of specification.
- The maximum AC voltage is 110V rms or 155V peak, 100kHz, 1A switched 30VA (resistive load), and DC voltage is 110V, 1A switched, 30VA (resistive load).

Warning

- To avoid breaking the product, please do not pull it away when measurement is executed.

5. Specifications

Maximum AC Voltage	110V rms or 155V peak, 100kHz, 1A switched, 30VA (resistive load)
Maximum DC Voltage	110V, 1A switched, 30VA (resistive load)
Contact Life	>100000 operations at maximum signal level; >100000000 operations cold switching.
Contact Resistance	<10hm at end of contact life
Actuation Time	5ms maximum on/off
Contact Potential	<±500nV typical per contact, 1μV max <±500nV typical per contact pair, 1μV max
Connector Type	Screw terminal, #22 AWG wire size
Isolation btw Any Two terminals	>10 Gohm, < 75pF

Isolation btw Any Terminal and Earth	>10 Gohm, < 150pF
Common Mode Voltage	200V peak btw any terminal and earth
Max. Voltage btw Any Two Terminals	160V peak
Max. Voltage btw Any Terminal and M3500A Input LO	160V peak
Environmental	Meets all M3500A Environmental Spec.

6. Efficiency

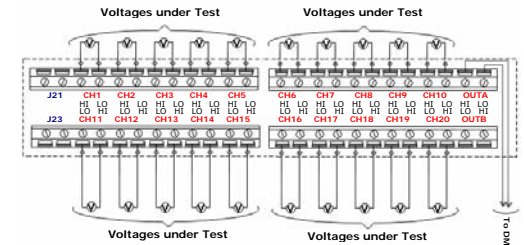
Rate of the Scanner Card Measurement			
AutoZero OFF, AutoGain OFF, AutoRange OFF, Scan Timer=0, 60Hz			
single function(VDC)	NPLC	Take Time with 2000 Readings(sec)	rate(ch/s)
	(Fast 4.5)	0.02	68
	(Slow 4.5 & Fast 5.5)	0.1	74
	(Slow 5.5 & Fast 6.5)	1	105
Mix function (VDC+2WRES)	NPLC	Take Time with 2000 Readings(sec)	rate(ch/s)
	(Fast 4.5)	0.02	306
	(Slow 4.5 & Fast 5.5)	0.1	318
	(Slow 5.5 & Fast 6.5)	1	442
(Slow 6.5)	10	1710	1.2

7. SCPI Commands

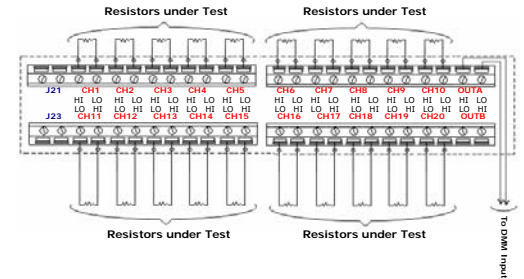
Command	Description
ROUTE:CLOSe <channel>	Close channels <1 ~ 20>.
ROUTE:CLOSe?	Query the closed channels
ROUTE:OPEN	Open all channels.
ROUTE:STATe?	Ask the state. The state 1 means Card inserted or 0 means Card not inserted.
ROUTE:SCAN:FUNCTION <channel>, {<function> "VOLT:DC" "VOLT:AC" "FREQ uency" "RESistance" "FREStance" "NONE" }	Set card states which might measure the VAC, VDC, Frequency, 2-Wire Resistance, 4-Wire Resistance or disabling the channel.
ROUTE:SCAN:FUNc? <channel>	Ask the channel's state of the card.
ROUTE:SCAN:TImeR?	Read the time interval of scanning.
ROUTE:SCAN:TImeR <value>	Set the time interval of scanning <The unit is second>.
ROUTE:SCAN:COUnT?	Read the number of times of scanning.
ROUTE:SCAN:COUnT <value>	Set the number of times of scanning.
ROUTE:SCAN:STATe?	Read the state of scanning. 1 means "finished", 0 means "not finished".
ROUTE:SCAN:SCAN	Run SCAN mode
ROUTE:SCAN:STEP	Run STEP mode

8. Measurements

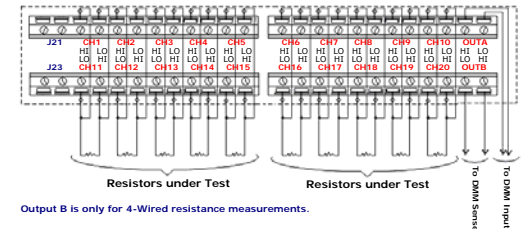
● Voltage Application



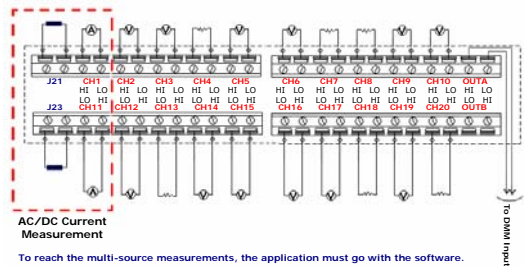
● 2-Wired Resistance Application



● 4-Wired Resistance Application



● Current Application



- Note 1: CH1 & CH11 can be used on other measurements when current shunts are released from J21 & J23.
- Note 2: To use Current Measurement via the scanner card, users have to enable DCV & MX+B functions. As to the MX+B setting, the concept is equivalent to the current equation $I=V/R$. So here "M" stands for "1/R", "X" stands for "voltage measured by multimeter" and "B" stands for "Offset, 0".