



64-channel Multiplexers

Overview

The SMP3001 high-density multiplexer module is designed for scanning of multiple points to a common bus, in either 1- 2- or 4-wire configurations, either synchronously with an instrument (i.e., using triggers), or asynchronously with individual relay control. Up to 384 2-wire (or 768 1-wire) channels can be accommodated in a double-slot VXIbus card (SMP1200) for maximum density, or mixed and matched with other SMIP//™ cards for flexibility. Applications include cable harness testing, semiconductor and PCB testing, and applications where multiple points need to be switched to a common resource. All relays also have individual relay control, and each path allows for 2 A switching.

The SMP3001 consists of 8 individual (1x8) 2-wire multiplexers, or 8 (1x16) 1-wire multiplexers that can be interconnected under program control (via the bussing relays) to configure larger multiplexers as required. This eliminates external wiring and helps reduce unterminated stubs. All relays are also driven from the VXIbus +5 V supply line, since VXIbus mainframes always have ample current capacity on this supply line, as opposed to the +24 V or +12 V supply lines.

The SMP3001DS has internal residual voltage discharge relays which can be enabled to momentarily short out the measurement path when changing from one input channel to the next. This dissipates any voltage held by the wiring and instrument input capacitance. These relays protect sensitive devices, such as CMOS circuits, from residual voltages caused by previous high-voltage measurements. This feature can also be disabled in low-voltage applications where maximum throughput speed is important.

Features

SMP3001	1 x 64 2-wire Multiplexer
SMP3001DS	1 x 64 2-wire Multiplexer with Discharge Capability

High-density Multiplexing/Scanning (1x768 in a VXI Double-slot)

Built-in Configuration Relays Expand the 1x16 Multiplexer Building Blocks

Internal Capacitive Discharge Relays Keep High Voltages from Disturbing Sensitive Measurement Points

Extensive Signal Shielding Employed on PCBs for Excellent Signal Fidelity

Break-Before-Make (BBM) and Make-Before-Break (MBB) Accomplished in Hardware, Considerably Improving Scanning Time

Specifications

Maximum Switching Voltage:	300 V ac, 300 V dc
Maximum Switching Current:	2 A
Maximum Switching Power:	60 W dc, 125 VA
Path Resistance:	< 500 mΩ
Insulation Resistance:	>1x10 ⁹ Ω
Maximum Thermal Offset Per Channel (HI-LO):	<7 μV
Capacitance:	
Open Channel:	<50 pF
Channel-Mainframe:	<20 pF
High-Low:	<50 pF
Bandwidth (-3 dB):	>100 MHz

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Insertion Loss:

100 kHz:	<0.1 dB
1 MHz:	<0.2 dB
10 MHz:	<0.5 dB

Crosstalk:

100 kHz:	<-90 dB
1 MHz:	<-70 dB
10 MHz:	<-50 dB

Isolation:

100 kHz:	<-90 dB
1 MHz:	<-70 dB
10 MHz:	<-60 dB

Rated Switch Operations:

Mechanical:	1×10^7
Electrical:	5×10^5 at full load

Switching Time:

<3 ms

