

DATA SHEET



EX1200-3048S

48-CHANNEL FET MULTIPLEXER

FEATURES

- High-density solid-state multiplexer, up to 288 2-wire channels per full rack mainframe
- On/off switching < 500 μ s
- Switch up to 250 VAC / 250 VDC, highest for a solid state switch module in its class
- Configure as 2- or 4-wire multiplexers
- Optically isolated design
- Supports thermocouple, RTD, and thermistor measurements
- Optional screw-terminal junction box includes built-in cold-junction compensation
- Direct routing to DMM through internal analog measurement bus simplifies field wiring



RELIABLE DATA FIRST TIME EVERY TIME

OVERVIEW

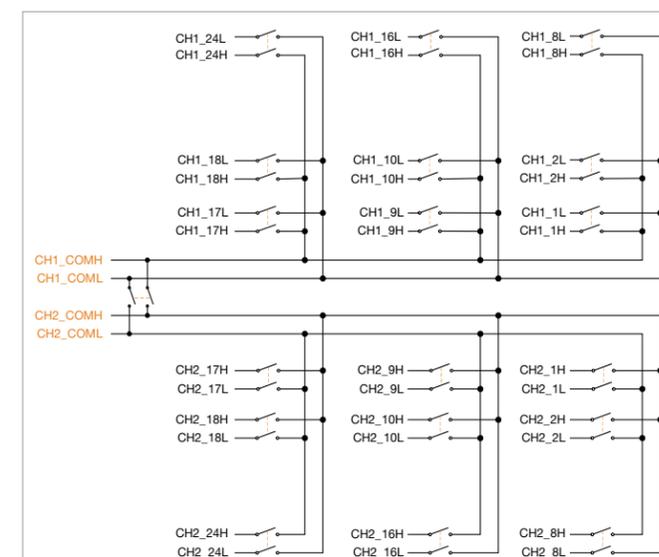
The EX1200-3048S is a high-density FET multiplexer module designed for scanning of multiple points to a common bus in either 2- or 4-wire configurations. Scanning can be done either synchronously with the EX1200 DMM scan function or asynchronously as a system switch to other devices through the hardware trigger bus or LXI LAN messages.

The solid-state design delivers maximum switching speed and near infinite life. Up to 288 two-wire (or 144 four-wire) channels can be accommodated in a single EX1200 full rack mainframe for maximum density or mixed and matched with other EX1200 plug-ins for flexibility. Typical applications include temperature and voltage data acquisition and datalogging at up to 1000 scans per second.

The EX1200-3048S consists of dual (1x24) 2-wire multiplexer banks. Each bank can be interconnected within a module under program control (via bussing relays) and across modules via the EX1200 analog bus to configure larger multiplexers as required. This eliminates external wiring and helps reduce unterminated stubs.

Internal residual voltage discharge relays 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. An optional terminal block provides screw termination points for external field wiring. This terminal block also includes cold junction compensation reference for more precise temperature measurements.

BLOCK DIAGRAM



RELIABLE DATA FIRST TIME EVERY TIME

General Specifications

CHANNEL COUNT	48 two-wire or 24 four-wire
RELAY TYPE	Opto-isolated solid-state
MAXIMUM SWITCHING VOLTAGE	250 V
MAXIMUM SWITCHING CURRENT	0.2 A
MAXIMUM SWITCHING POWER	6 W / 4.2 VA
RATED SWITCH OPERATIONS	Unlimited (solid state relays)
SWITCHING TIME	< 500 μ s
PATH RESISTANCE	< 8 Ω
INSULATION RESISTANCE	> 1 X 10 ⁹ Ω
MAXIMUM THERMAL OFFSET PER CHANNEL (HI-LO)	< 7 μ V
CAPACITANCE	
Open channel	< 50 pF
Channel-mainframe	< 20 pF
High-low	< 50 pF
BANDWIDTH (-3 dB)	> 10 MHz
CROSSTALK (TYPICAL)	
100 kHz	< -55 dB
1 MHz	< -45 dB
10 MHz	< -30 dB
ISOLATION (TYPICAL)	
100 kHz	< -55 dB
1 MHz	< -40 dB
10 MHz	< -25 dB
CONNECTOR TYPE	104-pin

Application Notes:

Solid-state relays are not ideally suited for low-level resistance measurements (< 1 Ω). The relays have an internal resistance of approximately 13 mV which is significant under these circumstances. A leakage current is also present in solid-state relays which varies dramatically with temperature, affecting low-level resistance measurements.

Ordering Information

EX1200-3048S	48-channel 2-wire FET multiplexer
ACCESSORIES AND TOOLS	
70-0363-501	104-pin HD D-sub mating connector and backshell, with 3 ft unterminated 22 AWG wire
27-0389-104	104-pin HD D-sub mating connector with hood and pins, fixed contacts (no crimp tool required)
27-0390-104	104-pin HD D-sub mating connector, backshell and pins, crimp style
70-0297-001	Crimp tooling, includes handle and positioner, 22 AWG
70-0367-001	EX1200-TB104, differential module