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**Data Sheet**

August 15, 2026

AMETEK / VTI INSTRUMENTS / VXI TECHNOLOGY

# Ametek / VTI Instruments / VXI Technology SM5002 50 SPDT High-Density Basic Switch Module

VTI Instruments SM5002 50-Channel SPDT 2 A SMIP Switch Module The VTI Instruments SM5002 (SMP5002 in SMIP II naming) is a high-density general-purpose switch module with 50 SPDT Form C relays at 2 A. OEM SMP5001/5002/5003 datasheet rates 300 Vac/dc switching, less than 300 mOhm path resistance, greater than 100 MHz bandwidth, and less than 3 ms switching time for the SMIP plug-in family used in SMP1100/SMP1200 bases. General-purpose UUT signal routing in VXI functional test, adapter-defined topologies, and mixed SMIP switch systems. The VTI Instruments SM5002 (SMP5002 in SMIP II naming) is a high-density general-purpose switch module with 50 SPDT Form C relays at 2 A. OEM SMP5001/5002/5003 datasheet rates 300 Vac/dc switching, less than 300 mOhm path resistance, greater than 100 MHz bandwidth, and less than 3 ms switching time for the SMIP plug-in family used in SMP1100/SMP1200 bases. General-purpose UUT signal routing in VXI functional test, adapter-defined topologies, and mixed SMIP switch systems. Mixable with other SMIP modules in SMP1100/SMP1200



## MODEL

**Ametek / VTI  
Instruments / VXI  
Technology  
SM5002**

## CALIBRATION

**Available on  
request**

## CONDITION

**Used**

## STATUS

**In stock**

## RFQ / SKU

**SM5002**

## LISTING

**<https://aumictechlabs.com/products/sm5002-3/>**

NIST-traceable cal

SAM registered

30-day returns

NAICS 423690 • 811210 • 541380

## This unit

The Ametek VTI Instruments SM5002 is a 50-channel SPDT high-density switch module designed for signal routing in VXIbus automated test equipment and data acquisition systems. Built on the SMIP (Switch Modularity and Interface Platform) family, the module delivers 50 independent switching points with signal integrity preserved through multi-layer PCB construction, extensive ground planes, and integrated shielding. Each relay supports 300 V ac/dc switching at 2 A maximum with path resistance below 300 m $\Omega$  and insulation resistance exceeding  $1 \times 10^9 \Omega$ . The module achieves bandwidth greater than 100 MHz, insertion loss below 0.1 dB at 100 kHz, and thermal offset under 7  $\mu$ V per channel. Switching time is less than 3 ms, with rated mechanical life of  $1 \times 10^7$  operations and electrical endurance of  $5 \times 10^5$  cycles at full load.

**Technical Specifications**

Relay Configuration: 50  $\times$  SPDT Maximum Switching Voltage: 300 V ac, 300 V dc Maximum Switching Current: 2 A Maximum Switching Power: 60 W dc, 125 VA Path Resistance:  $1 \times 10^9 \Omega$  Thermal Offset (HI-LO): 100 MHz Insertion Loss: < 0.1 dB (100 kHz), < 0.2 dB (1 MHz), < 1.0 dB (10 MHz) Crosstalk: < -80 dB (100 kHz), < -60 dB (1 MHz), < -40 dB (10 MHz) Isolation: < -50 dB (100 kHz), < -45 dB (1 MHz), < -40 dB (10 MHz) Rated Operations:  $1 \times 10^7$  mechanical,  $5 \times 10^5$  electrical at full load Switching Time: < 3 ms Open Channel Capacitance: < 50 pF Channel-to-Mainframe Capacitance: < 80 pF

**Key Features**

- Direct register control of all relays for maximum switching speed and minimal backplane traffic
- Hardware-implemented break-before-make and make-before-break switching modes
- Downloadable scan lists with 1 MB deep pattern memory
- Backplane trigger advance capability
- Embedded virtual schematic control for simplified setup

**VXIbus +5V powered relay drive**

**Typical Applications**

- High-density signal routing in automated test equipment (ATE)
- Multi-channel data acquisition systems
- General-purpose switching in VXIbus test platforms

**Compatibility & Integration**

The SM5002 integrates into VXIbus mainframes as a double-slot module and interoperates with other SMIP family cards for custom switching configurations. Up to 300 individual SPDT relays can be accommodated across multiple modules in a single chassis.

## SM5002 Characteristics / Specifications

| PARAMETER                                | VALUE                                |
|------------------------------------------|--------------------------------------|
| Model                                    | SM5002                               |
| Alternate Designation                    | SMP5002                              |
| Instrument Type                          | High-density SPDT SMIP switch module |
| Relay Configuration                      | 50 SPDT Form C 2 A relays            |
| Maximum Switching Voltage                | 300 V ac 300 V dc                    |
| Maximum Switching Current                | 2 A                                  |
| Maximum Switching Power                  | 60 W dc 125 VA                       |
| Path Resistance                          | less than 300 mOhm                   |
| Insulation Resistance                    | greater than $1 \times 10^9$ Ohm     |
| Maximum Thermal Offset Per Channel Hi Lo | less than 7 uV                       |
| Open Channel Capacitance                 | less than 50 pF                      |
| Channel To Mainframe Capacitance         | less than 80 pF                      |
| High To Low Capacitance                  | less than 50 pF                      |
| Bandwidth Minus 3 Db                     | greater than 100 MHz                 |
| Insertion Loss At 100 KHz                | less than 0.1 dB                     |
| Insertion Loss At 1 Mhz                  | less than 0.2 dB                     |
| Insertion Loss At 10 Mhz                 | less than 1.0 dB                     |
| Crosstalk At 100 KHz                     | less than -80 dB                     |
| Crosstalk At 1 Mhz                       | less than -60 dB                     |
| Crosstalk At 10 Mhz                      | less than -40 dB                     |
| Isolation At 100 KHz                     | less than -50 dB                     |
| Isolation At 1 Mhz                       | less than -45 dB                     |
| Isolation At 10 Mhz                      | less than -40 dB                     |
| Rated Switch Operations Mechanical       | $1 \times 10^7$                      |
| Rated Switch Operations Electrical       | $5 \times 10^5$ at full load         |

| PARAMETER               | VALUE                                                                         |
|-------------------------|-------------------------------------------------------------------------------|
| Switching Time          | less than 3 ms                                                                |
| Density In Smp12        | up to 300 individual SPDT relays in adouble-slot VXIbus card family statement |
| Dpdt Equivalent Pairing | 25 DPDT per SM5002 when paired                                                |
| Bandwidth               | Minus 3 Db: greater than 100 MHz                                              |

# Full OEM specifications

Complete technical content extracted from the manufacturer datasheet. Sparse OEM tables are reconstructed as tables below; other text is preserved as paragraphs.

| Specifications                           |                                      |
|------------------------------------------|--------------------------------------|
| Specifications                           |                                      |
| PARAMETER                                | VALUE                                |
| Model                                    | SM5002                               |
| Alternate Designation                    | SMP5002                              |
| Instrument Type                          | High-density SPDT SMIP switch module |
| Relay Configuration                      | 50 SPDT Form C 2 A relays            |
| Maximum Switching Voltage                | 300 V ac 300 V dc                    |
| Maximum Switching Current                | 2 A                                  |
| Maximum Switching Power                  | 60 W dc 125 VA                       |
| Path Resistance                          | less than 300 m0hm                   |
| Insulation Resistance                    | greater than 1x10^9 0hm              |
| Maximum Thermal Offset Per Channel Hi Lo | less than 7 uV                       |
| Open Channel Capacitance                 | less than 50 pF                      |
| Channel To Mainframe Capacitance         | less than 80 pF                      |
| High To Low Capacitance                  | less than 50 pF                      |
| Bandwidth Minus 3 Db                     | greater than 100 MHz                 |
| Insertion Loss At 100 Khz                | less than 0.1 dB                     |
| Insertion Loss At 1 Mhz                  | less than 0.2 dB                     |
| Insertion Loss At 10 Mhz                 | less than 1.0 dB                     |
| Crosstalk At 100 Khz                     | less than -80 dB                     |
| Crosstalk At 1 Mhz                       | less than -60 dB                     |
| Crosstalk At 10 Mhz                      | less than -40 dB                     |
| Isolation At 100 Khz                     | less than -50 dB                     |
| Isolation At 1 Mhz                       | less than -45 dB                     |
| Isolation At 10 Mhz                      | less than -40 dB                     |
| Rated Switch Operations Mechanical       | 1x10^7                               |
| Rated Switch Operations Electrical       | 5x10^5 at full load                  |
| Switching Time                           | less than 3 ms                       |

| PARAMETER               | VALUE                                                                         |
|-------------------------|-------------------------------------------------------------------------------|
| Density In Smp1200      | up to 300 individual SPDT relays in adouble-slot VXIbus card family statement |
| Dpdt Equivalent Pairing | 25 DPDT per SM5002 when paired                                                |

Notes  
From VTI Instruments SMP5001/5002/5003 General Purpose 2 A Relays datasheet. Queue model SM5002 matches SMP5002 electrical identity in the SMIP family. Requires SMP1100 or SMP1200 base unit (not included).

### Available from Aumictech

Used and refurbished unit evaluated in-house. Calibration: Available on request. Used · In stock.

Request a quote: [sales@aumictech.com](mailto:sales@aumictech.com) · +1 (484) 841-9341

#### Aumictech

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NIST-traceable calibration · SAM registered ·  
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Generated August 15, 2026

Technical content from manufacturer specifications. Unit photo/stock from Aumictech listing when available. Specifications subject to OEM documentation and unit condition.