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VXI Instruments®
the test solutions provider

# VX2702 DC Source and Measurement Unit




## Features

- ✓ Includes high performance DC measurement- and stimulation in one VXI-module
- ✓ DC U/I-Generator, 16Bit, ±50$V_{DC}$ / ±100$mA_{DC}$
- ✓ DC Voltage Measurement , 16Bit, up to ±50$V_{DC}$
- ✓ DC Current Measurement, 16Bit, from nA up to ±100$mA_{DC}$
- ✓ Design for high speed measurements
- ✓ Fully isolated and floating inputs and outputs
- ✓ Integrated relay matrix
- ✓ Digital calibration

# VX2702 DC Source and Measurement Unit

## Product information:

The VX2702 is a high precision, high speed DC-Source and DC-Measurement Unit (SMU). The SMU includes one U/I-Generator (DCVS/DCCS), one DC-Voltage-Measurement Unit (VMU) and one DC-Current-Measurement Unit (CMU). All units are operating **completely independent**.

The VX2702 , C-size single slot VXI module, is designed for high throughput testing.

**DCVS and DCCS:**

- The U/I-Generator generates high precision and stable output voltages or currents.
- The DCVS/DCCS output is floating. All internal voltage supplies are designed with special DC/DC-converters which guaranties extremely low noise output- voltages and current.
- Very low settling times are executed via the bipolar power stage.
- The DCVS does support the Auto-Sensing feature

**VMU:**

- The VMU is used to measure DC voltages.
- The VMU input is floating. All internal voltage supplies are designed with special DC/DC-converters which guaranties extremely low noise.

**CMU:**

- The CMU is used to measure DC current.
- The CMU uses a special concept for current measurements where a very low input impedance is used to measure low currents. This concept can be used for currents up to 100mA and guaranties very low measurement times.
- The CMU input is floating. All internal voltage supplies are designed with special DC/DC-converters which guaranties extremely low noise.

The instrument calibration is done digital and fully automatic. The calibration data are stored in an on-board EEPROM.

**Relay Matrix:**

- The VX2702 does support a customized relay matrix plugged into the instrument as a daughter board.
- The on-board relays can be controlled by the software driver.

All product data[1] are specified for an ambient temperature of 23°C ± 5°C, after 1 hour warm-up time

| Current Measurement Unit | Specification | Comment |
|---|---|---|
| Resolution | 16Bit | |
| ADC Conversion time | 10µs | |
| Overload Protection | +/-200mA | all ranges |
| | | |
| Accuracy | | |
| 1uA-Range | 0,5% + 5nA | % of reading + offset |
| 10uA-Range | 0,2% + 20nA | % of reading + offset |
| 100uA-Range | 0,1% + 100nA | % of reading + offset |
| 1mA-Range | 0,1% + 1µA | % of reading + offset |
| 10mA-Range | 0,1% +10µA | % of reading + offset |
| 100mA-Range | 0,1% + 100µA | % of reading + offset |
| Input impedance | | |
| 1uA-Range | <100Ω | |
| 10uA-Range | <10Ω | |
| 100uA-Range | <1Ω | |
| 1mA-Range | <1Ω | |
| 10mA-Range | <100mΩ | |
| 100mA-Range | <100mΩ | |

| Voltage Measurement Unit | Specification | Comment |
|---|---|---|
| Resolution | 16Bit | |
| ADC Conversion time | 10µs | |
| Overload Protection | +/-200V | all ranges |
| | | |
| Accuracy | | |
| 6V-Range | 0,05% + 3mV | % of reading + offset |
| 15V-Range | 0,05% + 7.5mV | % of reading + offset |
| 50V-Range | 0,05% + 25mV | % of reading + offset |
| Input impedance | | |
| 6V-Range | >100MΩ | |
| 15V-Range | >100MΩ | |
| 50V-Range | 10 MΩ | |

# VX2702 DC Source and Measurement Unit

| U/I Generator | Specification | Comment |
|---|---|---|
| **DC Voltage Source** | | |
| Resolution | 16Bit | |
| Output voltage | -50V … +50V | |
| Maximum output current | ±100mA | |
| Accuracy | | |
| Gain-Error | 0,05% | of programmed value |
| Offset-Error | 0,05% | of full scale |
| **DC Current Source** | | |
| Resolution | 16Bit | |
| Output current | -100mA … +100mA | |
| Maximum output voltage | ±50V | |
| Ranges | | 100mA, 10mA, 1mA, 100uA, 10uA |
| Accuracy | | |
| Gain-Error | 0,1% | of programmed value |
| Offset-Error | 0,1% | of full range |

**Instrument Driver:**

The instrument integration is simplified with VXI*plug&play* drivers. A soft front panel is included to control and verify the instrument without writing a user program.

**Quality:**

All VX Instruments products are designed and built with ISO-9001 certified quality at VX Instruments facility in Landshut, Germany. VX Instruments stands behind their products with a full three-year warranty.

(1) Product specification and description in this document are subject to change without notice

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