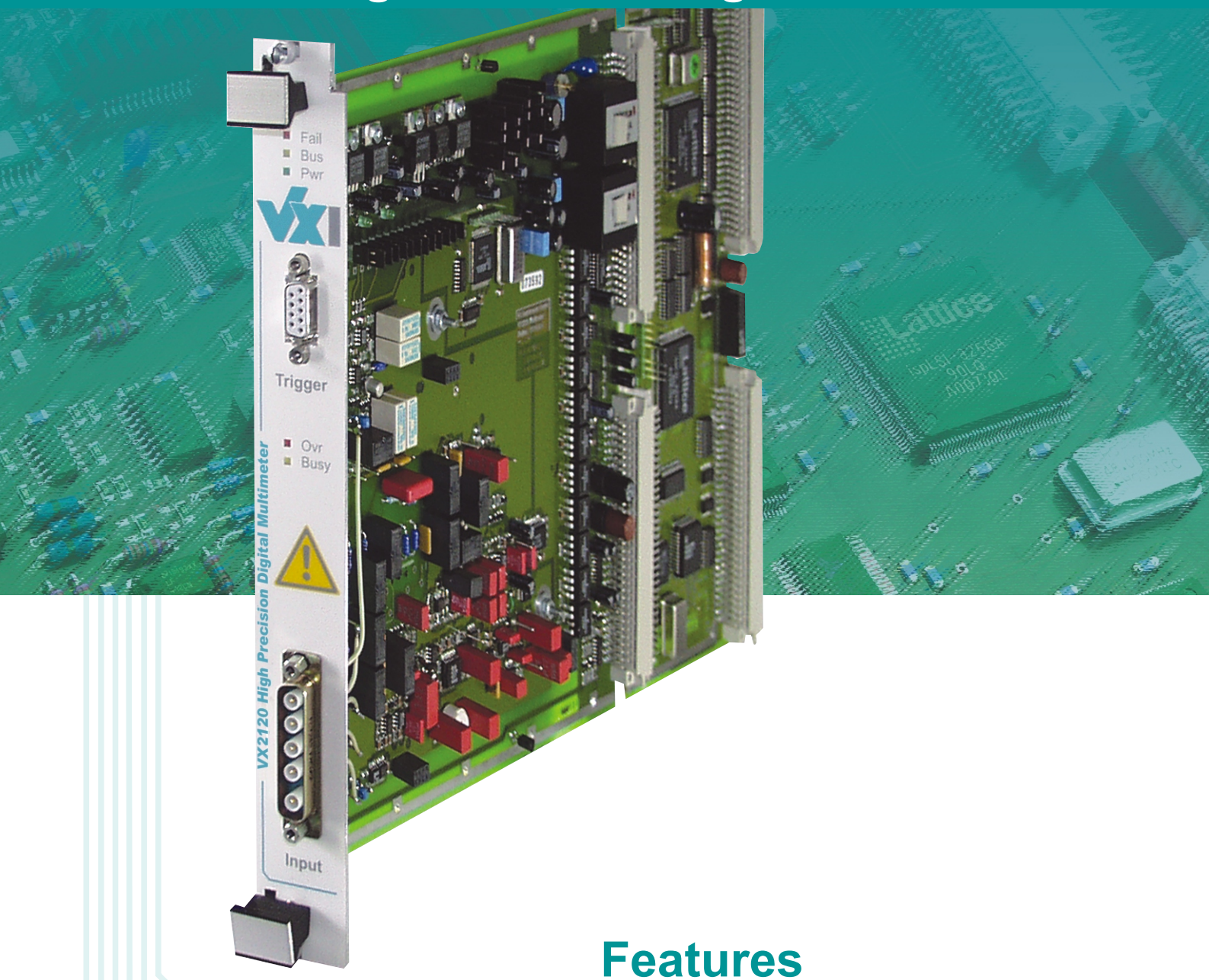
VXI Instruments®
the test solutions provider

# VX2120 High Precision Digital Multimeter




## Features

- ✓ High precision measurements, 24-Bit
- ✓ Tracking technology, high accurate AC measurements even at low frequencies
- ✓ Fully isolated, floating inputs
- ✓ High common mode rejection ratio (CMMR)
- ✓ DC input voltages up to $1000V_{DC}$
- ✓ AC input voltages up to $1000V_{ACPeak}$
- ✓ 2 or 4-wire resistance measurements up to 10MΩ
- ✓ Firmware update via VXI-Bus
- ✓ Digital calibration

# VX2120 High Precision Digital Multimeter

## Product information:

The VX2120 is a high precision Digital Multimeter (DMM) for high performance measurements with 24-Bit resolution.

It provides measurements DCV up to $1000V_{DC}$, ACV up to $1000V_{ACPeak}$ and resistance (2 or 4-wire) up to 10MΩ.

Triggering is provided either from software or by a TTL-level signal via the front panel.

The internal microprocessor is equipped with flash memory for an fast and easy software update via the VXI-Bus. This will simplify new measurement functions to be downloaded.

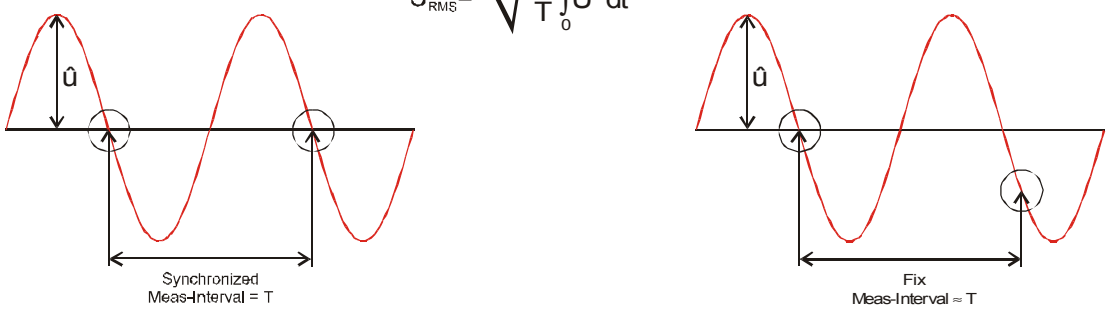
The instrument calibration is done digital and fully automatic. The calibration data are stored in on-board EEPROM.

The VX2120 does support both True-RMS and Average-Peak AC-Measurements.

For high precision AC measurements the VX2120 uses the "tracking technology". This feature allows highly accurate AC measurements even at very low signal frequencies. The instrument determines the signal frequency and adjusts the measurement time interval (T) automatically. The time interval is a determining factor for the accuracy of the measurement, especially at low frequencies. The formula for $U_{RMS}$ is listed below.

**The advantage of tracking <u>compared to</u> non-tracking**

$$U_{RMS} = \sqrt{\frac{1}{T}\int_0^T U^2\,dt}$$



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

| DC Voltage | Specification |
|---|---|
| Resolution | 24 Bit |
| Overload Protection | |
| 0,1V-Range | 350$V_P$ |
| 1,0V-Range | 350$V_P$ |
| 10V-Range | 350$V_P$ |
| 100V-Range | 1000$V_P$ |
| 1000V-Range | 1000$V_P$ |
| Maximum Input Voltage | |
| 0,1V-Range | 0,13V |
| 1,0V-Range | 1,3V |
| 10V-Range | 13V |
| 100V-Range | 130V |
| 1000V-Range | 1000V |
| Input Impedance | |
| 0,1V-Range | >1GΩ |
| 1,0V-Range | >1GΩ |
| 10V-Range | >1GΩ |
| 100V-Range | 10MΩ |
| 1000V-Range | 10MΩ |
| CMMR | 140dB |

| AC Voltage | Specification |
|---|---|
| Resolution | 24 Bit |
| Maximum DC voltage | 400V in all ranges |
| Overload Protection | |
| 0,1V-Range | 350$V_P$ |
| 1,0V-Range | 350$V_P$ |
| 10V-Range | 350$V_P$ |
| 100V-Range | 1000$V_P$ |
| 1000V-Range | 1000$V_P$ |
| Maximum Input Voltage | |
| 0,1V-Range | 0,20$V_P$ |
| 1,0V-Range | 2,0$V_P$ |
| 10V-Range | 20$V_P$ |
| 100V-Range | 200$V_P$ |
| 1000V-Range | 1000$V_P$ |
| Input Impedance | ≥1MΩ // 100pF |
| Maximum V x Hz Product | 4 x $10^6$ |

| DC Accuracy[2][3] | % of reading + offset |
|---|---|
| 0,1V-Range | 0,005% + 15µV |
| 1,0V-Range | 0,004% + 20µV |
| 10V-Range | 0,004% + 100µV |
| 100V-Range | 0,005% + 600µV |
| 1000V-Range | 0,01% + 6mV |

| AC Accuracy [2][4][5] | % of reading + offset | | | | |
|---|---|---|---|---|---|
| | True RMS | | | Average Peak | |
| | 50Hz–10KHz | 10KHz–50KHz | 50KHz–100KHz | 50Hz–20KHz | 20KHz–50KHz |
| 0,1V-Range | 0,07%+20µV | 0,2%+40µV | 0,3%+70µV | 0,2%+50µV | 0,2%+50µV |
| 1,0V-Range | 0,07%+0,2mV | 0,2%+0,4mV | 0,3%+0,7mV | 0,2%+200µV | 0,2%+200µV |
| 10V-Range | 0,08%+1,8mV | 0,2%+4mV | 0,3%+7mV | 0,25%+2mV | 0,3%+2mV |
| 100V-Range | 0,09%+18mV | 0,2%+40mV | 0,3%+70mV | 0,25%+20mV | 0,3%+20mV |
| 1000V-Range | 0,1%+180mV | n/a | n/a | 0,25%+200mV | n/a |

# VX2120 High Precision Digital Multimeter

| Resistance | |
|---|---|
| **General** | **Specification** |
| Resolution | 24 Bit |
| Maximum Measurement Value | |
| 100Ω-Range | 130Ω |
| 1KΩ-Range | 1300Ω |
| 10kΩ-Range | 13KΩ |
| 100KΩ-Range | 130KΩ |
| 1MΩ-Range | 1300KΩ |
| 10MΩ-Range | 13MΩ |

| Resistance Accuracy(2)(6) | % of reading + offset |
|---|---|
| 100Ω-Range | 0,01% + 15mΩ |
| 1KΩ-Range | 0,01% + 20mΩ |
| 10kΩ-Range | 0,01% + 100mΩ |
| 100KΩ-Range | 0,01% + 1Ω |
| 1MΩ-Range | 0,02% + 10Ω |
| 10MΩ-Range | 0,03% + 100Ω |

**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 two-year warranty.

(1) Product specification and description in this document are subject to change without notice
(2) 6 months, 23°C ±2°C
(3) For measurements > 5% of range
(4) For sine wave signals > 5% of range
(5) For voltages > 300V add 0,2% + 0,1V
(6) Only 4-wire measurement

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