

# Appendix A: Specifications

**Table A-1: VXI Instrument Characteristics**

Characteristics	Description			
VXI General Characteristics	The instrument provides a VXI interface that complies with Revision 1.4.  The VXI interface is defined by the VXI Consortium, Inc.			
Interface Type	Message Based (1.4)			
Protocols	Word Serial (WSP)			
TTL Outputs	VXI TTLTRG* Lines TTLTRG0* through TTLTRG7* under program control.			
Product Compliance to Regulations (VX4320, VX4330, VX4350, VX4380 only)				
Product Safety	UL, cUL, UL classified to IEC-1010-1.			
IEC Characteristics	Overvoltage Category: CAT I Safety: Class I			
EMC	Per EC Council Directive 89/336 EEC (EC-92), the following standards and limits apply to the requirements for equipment to be used in residential, commercial, and light industrial environments. They are specified in EN-50081-1, the Generic Emission Standard, and in EN 50082-1, the Generic Immunity Standard. For equipment that is also intended to be used in industrial environments, the standards and limits specified in EN 50081-2 and EN 50082-2 should be used in addition.			
Emissions	Emissions shall be within the limits specified by the following requirements:  Enclosure: EN 55011 Class A limit for radiated emissions.  AC Mains: EN 55011 Class A limit for radiated emissions. EN 60555-2: Power line harmonics			
Immunity, Enclosure, Radio Frequency Electromagnetic Field; IEC 801-3	No state change when the instrument is subjected to a 3 V/M electromagnetic field over the frequency range of 27 MHz to 500 MHz.			
Immunity, Enclosure, Electrostatic Discharge (ESD); IEC 801-2	Up to 8 kV with no loss of stored data, change to control settings, degradation of performance, or temporary loss of function. No state change.			
Immunity, Fast Transients, Common Mode; IEC 801-4	No loss of stored data, change to control settings, degradation of performance, or temporary loss of function will occur when the instrument is subjected to the transients as described below.			
	Port	Peak Voltage – kV	Tr/Th – ns	Rep. Freq. – kHz
	Signal & control	0.5	5/50	5
	AC Power	1	5/50	5

**Table A-1: VXI Instrument Characteristics**

Characteristics	Description
EN 55011, Class A	The instrument complies with the requirements of EN 55011 for radiated, conducted, and magnetic emissions, when installed in a suitable VXI chassis. A suitable VXI chassis is defined as one which contains adequate EMC shielding which makes contact with the RF gasket on the front and rear shields of the VX43xx Module.
FCC	The instrument complies with the requirements of FCC CFR 47, Part 15, Subpart B, Class A for radiated and conducted emissions.

**Table A-2: Environmental/Reliability Characteristics<sup>33</sup>**

Characteristics	Description
Temperature	
Operating	Meets or exceeds MIL-T-28800E for Type III, 0 to 50° C external ambient, when operated in a mainframe providing Class 3 equipment.
Non-operating	–40° C to +71° C  Airflow of at least 1.13 liters/sec at 0.03 mm H <sub>2</sub> O air pressure, –10° C/55° C for 10° C (or less) temperature rise of internal air, as measured at the cooling air exit points, and with no heat transfer either to or from any adjacent VXI modules.
Relative Humidity	
Operating	Up to 95% at up to 30° C, and up to 45%, at up to 50° C.
Non-operating	Up to 95%, at up to 50° C.
Altitude (1) Operating	6,000 ft. altitude.
Altitude (2)	Meets or exceeds MIL-T-28800E for Type III, (operating to 10,000 ft., non-operating to 15,000 ft.).

**Table A-3: VX4330-Specific Characteristics**

Characteristics	Description		
VME Interrupter Level	Switch selectable to a level between 1 and 7.		
VXI Logical Address	Switch selectable to a value between 0 and 254.		
VXI Dynamic Addressing	Not supported.		
Contents of device/manufacture dependent VXI registers.			
ID Register	BFFC hexadecimal.		
Device Type	Set according to the model number of the slave module that the interface is installed on as specified in the following table. (Convert the last 3 digits of the model number to hex, take the one's complement, AND with F7FF.)		
	<table> <tr> <th>Slave Module Model No.</th><th>Register Contents (hexadecimal)</th></tr> </table>	Slave Module Model No.	Register Contents (hexadecimal)
Slave Module Model No.	Register Contents (hexadecimal)		

**Table A–3: VX4330-Specific Characteristics (Cont.)**

Characteristics	Description	
	VX4320	F6BF
	VX4330	F6B5
	VX4350	F6A1
	VX4380	F683
VXI TTL Trigger Outputs	One or more of the VXI TTLTRG* signals may be driven. All TTLTRG* outputs may be disabled.	
VXI TTL Trigger Inputs	One of the VXI TTLTRG* signals may be selected to be polled or to act as an interrupt source to the module's microprocessor.	
Configuration	64 SPDT (Form C) latching relays	
Current		
Voltage	+5 V Supply	
Maximum Average	2.81 A	
Fused	5 A	

**Table A–4: Relay Switching Characteristics**

Characteristics	Description			
Maximum Switching Voltages	<b>Terminals</b>	<b>DC</b>	<b>AC/RMS</b>	<b>V Peak</b>
	HI to LO	220	250	354
	HI to Chassis	250	250	354
	LO to Chassis	250	250	354
Maximum Switching Current (non-inductive)	<b>Terminals</b>	<b>&lt;30 VDC</b>	<b>&lt;30 VAC/RMS</b>	
	per channel	2 A	2 A	
	per common	2 A	2 A	
Maximum Switching Power (non-inductive)	<b>Terminals</b>	<b>&lt;220 VDC</b>	<b>&lt;250 VAC/RMS</b>	<b>V Peak</b>
	per channel	60 W	125 VA	354
	per common	60 W	125 VA	354
Rated Switching Operations	<b>Loading</b>	<b>Operations</b>		
	No Load	$1 \times 10^8$		
	30 VDC 2A	$1 \times 10^5$		
	30 VDC 1A	$2 \times 10^5$		
	125 VAC 1A	$1 \times 10^5$		

**Table A-5: Switching Channel Characteristics**

Characteristics	Description	
Bandwidth (–3 dB) Characteristics – 50 $\Omega$ Source/Load	<b>Circuit</b>	<b>Bandwidth</b>
	1 $\times$ 10 Scanner 2-wire	>20 MHz
	1 $\times$ 20 Scanner 2-wire	>10 MHz
	1 $\times$ 40 Scanner 1-wire	>10 MHz
	1 $\times$ 240 Scanner 1-wire	>3 MHz
Channel to Channel Crosstalk	<b>Frequency</b>	<b>Crosstalk</b>
	10 KHz	< –90 dB
	100 kHz	< –80 dB
	1 MHz	< –50 dB
	10 MHz	< –25 dB

**Table A-6: Signal Path**

Characteristics	Description	
Signal Path Thermal Offset	Offset Voltage: < 7 $\mu$ V	
Signal Path Resistance	<b>Condition</b>	<b>Contact Resistance</b>
	Initial	<1.5 $\Omega$
	After Rated Operations	<3.5 $\Omega$
Insulation Resistance	>5 $\times 10^8 \Omega$ @ +25° C, 40% RH	
	>5 $\times 10^6 \Omega$ @ +40° C, 95% RH	

**Table A-7: Power Distribution**

Characteristics	Description
+5 VDC Current	2.81 A

**Table A-8: Cabling**

Characteristics	Description
Recommended Cable	VX1630 Analog Cable, 5 meters
Cable kit	VX1630A