

HP Vantera Measurement and Control Nodes

Technical Specifications



The HP Vantera family of measurement and control products is the foundation of open, adaptable solutions that connect decision makers at all levels of an enterprise to essential real-time operating information from plant or system processes. When used in concert with HP Vantera communication services software. the measurement and control nodes described here enable the creation of intelligent, distributed networks of nodes for a variety of applications such as energy cost management, building automation, and industrial automation.

High Performance Measurement and Control

The HP E3231A and E3232A are high performance measurement and control nodes designed to operate autonomously over an Ethernet 10Base-T network. Communication services are fully integrated, allowing the nodes to operate easily in stand-alone applications or when networked with other nodes. The HP E3231A and E3232A take full advantage of the HP Vantera communication services software, publishing and subscribing measurement and control information as determined by downloaded application software running in the nodes.

Node Applications Increase Decision Efficiency

Node applications, running in the HP E3231A or E3232A, can perform a variety of functions. For example, nodes can process measurement information from HP E3231A Discrete I/O Node HP E3232A Analog/Discrete I/O Node

KeyFeatures

- Six discrete inputs
- \bullet Four relay outputs
- Four analog inputs (E3232A only)
- Two analog outputs (E3232A only)
- 10Base-T Ethernet interface
- RS-232C interface
- Optional PC Card Interface (for dialup modem support)
- Built-in Real-time Clock and Calendar
- Status Indicator LEDs

anywhere on the network, enabling local control decisions at the field node level — without a connected controller or computer. The resulting control decisions can then be published onto the HP Vantera Information Backplane for use by other nodes anywhere on the network. The standard I/O node application provides direct access to each channel's input data and output values with easy scale conversion to the desired physical units. Develop additional node applications with the node application development environment¹, which helps you create powerful distributed measurement and control applications using tools based on Microsoft® Visual C++.

¹ contact Hewlett-Packard for availability information

Specifications

Both the HP E3231A and HP E3232A provide six discrete inputs (four contact closure sensing and two status), and four relay outputs. The HP E3232A adds an additional four analog inputs (two 0 to 20 mA and two ±5V), and two analog outputs (0 to 20 mA).

CPU Type	Motorola MC 68331	
Clock Rate	15 MHz	
Flash EPROM	2 Mbytes	
RAM	1 Mbyte	
Ethernet Interface Performance Protocol Medium	10 Mbps Internet Protocol (IP) 10Base-T	
RS232C Interface Capabilities Terminal Type Connector Baud Rate	Node setup, configuration, and diagnostics VT-100 9-pin (DB9-male) 19200	
Real-time Clock and Calendar Accuracy Resolution Battery	± 150 ppm (± 1 sec at power-up) 1 second Lithium (permanently installed)	
Standard I/O Node Application Capabilities:	Read input values, convert to desired physical units Set actuator states (discrete outputs) Program periodic reading of selected input values Publish information to network	
Power Voltage Range Frequency Power Consumption	85 - 264 VAC (auto-ranging) 47 - 63 Hz 50 VA maximum	
Physical Characteristics Size Weight Shipping Weight	8.8in long x 2.4in wide x 5.9in high (223mm x 61mm x 150mm) 2 lbs (0.91 kg) 4 lbs (1.82 kg)	
Environmental Regulatory Certification Safety Certification Operating Temperature Storage Temperature Operating Humidity Maximum Altitude Shock (non-operating) Noise Immunity Radiated Emission Radiated Immunity ESD, Air Discharge ESD, Contact Discharge	CE Mark CSA - NRTL/C 0°C to +45°C [see Maximum Altitude below] -30°C to +70°C 5% to 95% R.H. at +40°C (non-condensing) 4,600 meters (15,000 feet) [operating temp derating is -1.1°C/305m (-1.1°C/Kft) from 2,300m (7,500ft) to max altitude; Ch.1 limited to 3,450m (10,000 ft)] 350 g-peak trapezoid, 2 msec IEC801-4, Level 4 (Level 3 for AC Power Line inputs) CISPR 11, Group 1, Class A IEC801-3, 3 V/meter IEC801-2, 8 kV IEC801-2, 4 kV	

Input and Output Connection Diagram



Discrete Relay Outputs

Channels 1 and 2

Two 120/240 V Normally Open Relay Contacts

Max. Switching Current	1 A @ 30 VDC or 120/240 VAC
Number of Closures	10,000 minimum
Isolation	3,000 V
Mating Connector	Phoenix MSTB 2,5/4-ST

Two 24 V Normally Open Relay Contacts

Max. Switching Current	0.5 A @ 24 VDC
Number of Closures	10,000 minimum
Mating Connector	Phoenix MC 1,5/16-ST-3,81

Discrete Inputs

Channel 3

Four Contact-sensing Inputs

Sensing	g V	oltage
Maximu	ım	Current
Mating	Со	nnector

24 VDC isolated 3 mA (current limited) Phoenix MC 1,5/16-ST-3,81

Two Discrete Status Inputs

Range On voltage level Off voltage level Mating Connector

0 - 24 V nominal 15 - 30 VDC (3 mA @ 24 V) 0 - 5 VDC (<1 mA @ 5 V) Phoenix MC 1,5/16-ST-3,81

Analog Outputs (HP E3232A only)

Channel 4 and 5

Two 0 - 20 mA Outputs

Resolution Accuracy Mating Connector Maximum Resistive Load Drift 12 bits $\pm 0.5\%$ of FS (@ 25 °C) Phoenix MC 1,5/16-ST-3,81 750 Ω 0.01% / °C

Analog Inputs (HP E3232A only)

Channels 6,7,8 and 9

General Specifications

Type Accuracy Drift Linearity Normal Mode Rejection RMS Noise Measurement Time

Mating Connector

Two 0 - ±5 Inputs

Type Maximum Sustainable Volts Input Impedance

Two 0 - 20 mA Inputs

Input Impedance Maximum Sustainable Volts Non-isolated $\pm 0.5\%$ of FS (@ 25° C) 0.01% / $^{\circ}$ C 0.01% (typical) >80dB (typical) 0.01% of FS (typical) 500mSec/ch. (nultiple channels) 100mSec/ch. (one channel) Phoenix MC 1,5/16-ST-3,81

Differential DC Voltage 30 VDC 400 KΩ nominal

250Ω nominal ±10 Vpk









Ordering Information HP Vantera Measurement and Control Nodes



HP E3231A Discrete I/O Node

Opt 001	Load Profile Recorder Node Application
Opt 002	PC Card Modem Interface

Opt 003 DIN-Rail Mounting Kit

HP E3232A Analog/Discrete I/O Node

Opt 002	PC Card Modem Interface
Opt 003	DIN-Rail Mounting Kit

HP E3236A Power cord for E3231A & E3232A

Standard configuration provides screw terminal interface for customer-supplied power connection. This product provides power cord and molded connector. Country option specifies appropriate power connector.

Standard Accessories Included

- One complete set of mating connectors with screw terminal interface for discrete I/O, analog I/O, and power line connections
- Blank labels for each connector
- Wall-mounting screws
- Mounting template

Additional quantities of these accessories may be ordered from Hewlett-Packard as part number E3231-84201 (for the HP E3231A), or E3232-84202 (for the HP E3232A).

Option 001 Load Profile Recorder Node Application

Detailed information about this option is provided in literature part number 5965-6191E, available from HP.

Option 002 PC Card Modem Interface

Provides optional dial-up modem interface in conjunction with the Option 001 Load Profile Recorder Node Application. Compatible modems include the Motorola Montana 33.6 Modem/Fax Card. A complete list of compatible modems and supported countries is available on the HP Vantera website at www.hp.com/go/hpvantera

PC Card Standard	PCMCIA v2.1
Physical Size	PCMCIA Type II
Vcc Power	5V only, 350 mA maximum current
Vpp Power	none
Modem Temperature	< +25°C rise above ambient

Documentation

The HP E3231A and E3232A include printed mounting, installation and operating instructions. Soft-manuals are also provided on the HP E2725AA software media CD-ROM.

Related Products and Publications

The following publications are available from HP.

HP E3231A Opt 001 Load Profile Recorder Node Application	p/n 5965-6191E
HP E2715AA Vantera Communication Services	p/n 5965-6193E
HP E2716AA Vantera Subnet Router Services	p/n 5965-6193E
HP E2717AA Vantera WAN Router Services	p/n 5965-6193E
HP E2718AA Vantera Configuration and Administration Tool	p/n 5965-6189E
HP E2720AA Vantera Application Developer's Toolkit	p/n 5965-6193E
HP Vantera Platform Configuration Guide	p/n 5965-6194E
HP Vantera Product Family Brochure	p/n 5965-6190E
HP Vantera Solutions for Enhanced Energy Services	p/n 5965-6192E
HP Vantera Channel Partner Program Datasheet	p/h 5965-7077E

For more information on Hewlett-Packard Test & Measurement products, applications or services please call your local Hewlett-Packard sales offices. A current listing is available via Web through AccessHP at http://www.hp.com. If you do not have access to the Internet please contact one of the HP centers listed below and they will direct you to your nearest HP representative.

United States: Hewlett-Packard Company Test and Measurement Organization 5301 Stevens Creek Blvd. Bldg. 51L-SC Santa Clara, CA 95052-8059 1 800 452 4844

Canada: Hewlett-Packard Canada Ltd. 5150 Spectrum Way Mississauga, Ontario L4W 5G1 (905) 206 4725

Europe: Hewlett-Packard European Marketing Centre P.O. Box 999 1180 AZ Amstelveen The Netherlands (31 20) 547 9900

Japan: Hewlett-Packard Japan Ltd. Measurement Assistance Center 9-1, Takakura-Cho, Hachioji-Shi, Tokyo 192, Japan Tel: (81-426) 56-7832 Fax: (81-426) 56-7840

Latin America: Hewlett-Packard Latin American Region Headquarters 5200 Blue Lagoon Drive 9th Floor Miami, Florida 33126 U.S.A. (305) 267 4245/4220

Australia/New Zealand: Hewlett-Packard Australia Ltd. 31-41 Joseph Street Blackburn, Victoria 3130 Australia 1 800 629 485

Asia Pacific: Hewlett-Packard Asia Pacific Ltd 17-21/F Shell Tower, Times Square, 1 Matheson Street, Causeway Bay, Hong Kong Tel: (852) 2599 7777 Fax: (852) 2509 9285

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