
C-Size VXI, High-Power Mainframe, 13-Slot HP E1401B Technical Specifications

- High peak and dynamic currents
- Ultra-reliable power supply
- Easy to service while mounted in a test rack
- MTTR 5 minutes for power supply or fans
- Improved, uniform airflow



HP E1401B

Description

The HP E1401B is Hewlett-Packard's high-power, high-performance **C-size, 13-slot VXI mainframe**. Ample dynamic and peak currents are available for the most demanding, power-hungry applications.

The HP E1401B is well suited for applications that require high-density instrumentation. The HP E1401B complies with the *VXIplug&play* Specification, and an optional rack mount kit is available for attaching *VXIplug&play*-defined interconnect fixtures. This mainframe also complies with the VXI Specification by providing injector surface rails used by the HP QUIC easy module insertion and extraction system. HP's industry-leading Pressurized Air Channel cooling technology is integrated into this C-size mainframe.

This mainframe provides for easy airflow and power supply serviceability via the rear panel. The backplane features solid state automatic daisy-chain jumpering for VMEbus grant and interrupt acknowledge lines, eliminating the need for hand selection of switch settings. It is also compatible with the HP backplane connector shield kit (p/n HP E1400-80920).

Refer to the HP Website for instrument driver availability and downloading instructions, as well as for recent product updates, if applicable.

General Characteristics

Airflow and Power Supply Serviceability

- Power input and cooling air intake is through the rear
- Power supply is serviceable through the rear panel
- Cooling air exhaust is through the sides and top
- Three air filters are mounted on the rear panel, accessible without tools for cleaning
- Cableless power supply interconnect to the backplane eliminates risk of miswiring

Product Specifications

VXI Characteristics

VXI device type:	Mainframe
Data transfer bus:	All per VXIbus Specification, Rev. 1.4
Size:	C
Slots:	13
Connectors:	P1/2
Shared memory:	n/a
VXI busses:	All per VXIbus Specification, Rev. 1.4

Remote Monitoring

A connector on the rear panel provides access to all the power supply voltages, remote on/standby, ACFAIL, SYSRESET, and +5VSTDBY.

Mechanical Specifications

	mm	inches
Height without bottom feet:	310	12.2
Height with bottom feet:	323	12.7
Height with cable tray:	352 or 396	13.9 or 15.7
Width:	426	16.8
Depth without rear feet:	586	23.1
Depth with rear feet:	602	23.7
Weight:	21 kg / 46 lbs	

Allow at least 100 mm (4 in) in front of the mainframe for terminal modules and cabling. Allow 1 rack unit (EIA) = 1.75 inches for top ventilation.

Power Specifications

Power output:

The power supply generates backplane logic signals ACFAIL* and SYSRESET* in full compliance with the VXI Specification, Revision 1.4.

DC Output Voltage	Pk Current at 40 °C I _{MP}	Pk Current at 55 °C I _{MP}	Dymanic Current I _{MD}
+5 V	65 A	60 A	9.0 A
+12 V	14 A	12 A	2.5 A
−12 V	14 A	12 A	2.5 A
+24 V	14 A	12 A	5.0 A
−24 V	12 A	10 A	5.0 A
−5.2 V	65 A	60 A	8.5 A
−2 V	35 A	30 A	4.5 A
Temp.	Available Power 120–240 Vac ⁽¹⁾	Usable Power 120–240 Vac Input ⁽²⁾	Usable Power 100 Vac Input ⁽²⁾
25 °C	1690 W	900 W	650 W
40 °C	1690 W	800 W	650 W
55 °C	1488 W	700 W	650 W

(1) Sum of voltages times the currents—not always usable due to thermal shutdown.

(2) Total output before thermal protection shutdown.

Power Supply Protection

All outputs are protected from over-temperature, over-voltage, over-current, short-to-ground, and short to other supplies. Protection made is full shutdown. Recovery occurs when standby or line is recycled.

Power Input

Input voltage:	100 Vac to 240 Vac
Input frequency:	50 Hz to 400 Hz
Inrush current:	40 A max
+5VSTDBY:	1 A max (user-supplied; power taps located on rear for input of standby voltage and ground to backplane)

Note: Cannot be used on GFI circuit.

Cooling

Temperature rise:	10 °C (through a 60 W module with typical density), 15 °C (through a 75 W module)
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Environmental and Regulatory

Acoustic Noise

Low-speed fan:	48 dBA sound pressure (at bystander position)
High-speed fan:	56 dBA sound pressure (at bystander position)

Shielding

Intermodule:	Intermodule gasketing provided per VXI Rev. 1.4, B.7.2.3
Backplane:	Backplane connector shields per VXI Rev. 1.4, B.7.2.3 (available as Opt 918 and as a separate accessory, HP E1400-80920)
Intermodule chassis:	Intermodule chassis shields per VXI Rev. 1.4, B.7.3.4 (available as a separate product, HP E1409B)

Electromagnetic Compliance

To ensure compliance with RFI levels specified in standards EN55011 and CISPR11, the Backplane Connector Shields must be installed in the mainframe. Order Option 918 to get shields installed at the factory.

The HP E1409B C-Size Chassis Shield allows grounded shielding between mainframe slots in the HP E1401A/B and E1421B VXI Mainframes. This shield fits between slots – not using up a mainframe slot.

EMC MIL-STD-461 Specifications

Within the requirements of MIL-STD-461 methods CE01, CE03 (relaxed 30 dB below 2 MHz, relaxed 10 dB between 2 and 15 MHz), CS01, CS02, CS06, RE01 (relaxed to 10 dB), RE02, RS02, and RS03

Available Current

	I _{MP}	I _{MD}
+5 V:	60.00	9.00
+12 V:	12.00	2.50
–12 V:	12.00	2.50
+24 V:	10.00	5.00
–24 V:	10.00	5.00
–5.2 V	60.00	8.50
–2 V:	30.0	4.50

Cooling/Slot

Watts/slot:	60 W (10 °C rise)
ΔP mm H ₂ O:	n/a
Air Flow liter/s:	n/a

Recess Rack-Mounting Configuration Guide

Find the column (A, B, C, etc.) that contains the desired rack-mounting components, then follow the column down for ordering information.

*See the Interconnect and Wiring section for details. (1) Recess rack mounting is preferred for VXI mainframes using modules with HP QUIC terminal blocks (see the Interconnect and Wiring section). Recess rack mounting allows room for these terminal blocks in a standard rack with a door.

Recommended Configurations

Desired Rack-Mounting Components	A	B	C	D	E	F	G	H	I	J	K	L	M	N
Basic Recessed Rack-Mount	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Mass Interconnect*•Direct Access ICA	*	*												
•Hinged ICA			*	*										
Smoked Acrylic Door	*				*	*	*	*	*					
Rack slides:	*		*		*					*				
Cable Tray •44.5 mm (1.75 in) or		*	*	*	*	*	*			*	*	*		
•88.9 mm (3.5 in):	*	*	*	*	*	*	*			*	*	*		
Handles:					*	*		*		*	*		*	

You Need to Order

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	For reorders use part number
Option 908: Flange Kit							X		X			X		X	HP 5062-3981
Option 909: Handle and Flange Kit					X	X		X		X	X		X		HP 5062-3987
Option 914: Cable Tray Kit					X	X	X			X	X	X			HP E1400-80004
Option 915: Smoked Acrylic Door Kit					X	X	X	X	X						HP E1400-80915
Option 916: Recess Mount Kit					X	X	X	X	X	X	X	X	X	X	HP E1401-80916
HP E3665A: Rail Kit (preferred for HP E366xA Racks)				X			X	X	X	X		X	X	X	HP E3665A
Option 917: VXI Support Rail Kit		X		X			X	X	X	X		X	X	X	HP E1401-80917
Rail Kit from non-HP rack Vendor		X		X			X	X	X	X		X	X	X	Not sold by HP
HP 1494-0058: Heavy Duty Rack Slide Kit:**	X		X		X					X					HP 1494-0058
HP 1494-0064: Slide brackets (For non-HP Racks):	X		X		X					X					HP 1494-0064
HP E3722A: Hinged ICA*			X	X											HP E3722A
HP E1400-80002: Cable Access Panel- 44.5 mm (1.75 in)						X	X	X			X	X	X		HP E1400-80002
HP 40101A: Filter Panel 44.5 mm (1.75 in)						X	X	X			X	X	X		HP 40101A

**Cable Tray Kit is required

Bench Top Mounting

Find the column (A, B, or C) that contains the desired rack-mounting components, then follow the column down for ordering information.

Recommended Configurations

Desired rack mounting components	A	B	C
Benchtop:	*	*	*
Cable tray:			
•44.5 mm (1.75 in or)	*	*	
•88.9 mm (3.50 in):			
Handles:	*		*

You Need to Order

	A	B	C	For reorders use part number
Option 907 Handle Kit:	X		X	HP 5062-3993
Option 914: Cable Tray Kit	X	X		HP E1400-80004

Select one of the choices within the shaded area.

Flush Rack-Mounting

Find the column (A, B, C, etc.) that contains the desired rack-mounting components, then follow the column down for ordering information.

Recommended Configurations

Desired rack-mounting Components	A	B	C	D	E
Basic Flush Rack-Mount	*	*	*	*	*
Cable Tray					
•44.5 mm (1.75 in) or	*	*	*		
•88.9 mm (3.5 in):					
Handles:	*	*		*	
Rack slides:	*				

You Need to Order

	A	B	C	D	E	For reorders use part number
Option 908: Flange Kit			X	X		HP 5062-3981
Option 909: Handle and Flange Kit	X	X		X		HP 5062-3987
Option 914: Cable Tray Kit	X	X	X			HP E1400-80004
HP E3665A: Rail Kit (preferred for HP E366XA racks)		X	X	X	X	HP E1401-80917
Option 917: VXi Support Rail Kit		X	X	X	X	HP E1401-80917
Rail Kit from non-HP rack Vendor		X	X	X	X	Not supplied by HP
HP 1494-0058: Heavy-Duty Rack Slide Kit:	X					HP 1494-0058
HP 1494-0064: Slide Brackets (For non-HP racks):	X					HP 1494-0064
HP E1400-80002: Cable Access Panel-44.5mm (1.75 in)	X	X	X			HP E1400-80002
HP 40101A: Filler Panel 44.5mm (1.75 in)	X	X	X			HP 40101A

Select one of the choices within the shaded area.

Mainframe Options and Rack-mount Configuration Examples

The following is a sample mainframe order including mainframe options from the HP E1401B Ordering Guide and a rack-mount configuration taken from the Recess Rack-mounting Configuration Guide. Begin by selecting the correct chart for Bench Top Mounting, Flush Rack-mounting, or Recess Rack-mounting as desired. Check off the rack-mount components you will need and find the vertical column that matches your configuration. Follow that column down to find option and part numbers for ordering.

Recess Rack-mount Configuration

Rack-mount components selected in column F: Smoked Acrylic Door, Cable Tray, Handles. Place order for:

Mainframe Options

Description	Product No.
C-Size VXi Mainframe	HP E1401B
Module Installation (standard settings)	HP E1401B 500
Additional Service Manual	HP E1401B 0B1
Warranty Conversion To 1-Year On-Site ⁽¹⁾	HP E1401B W01
Spare Power Supply Module	HP 0950-2283
Install Backplane Connector Shields	HP E1401B 918

Rack-mount Options

Description	Product No.
Handle and Flange Kit	HP E1401B 909
Cable Tray Kit	HP E1401B 914
Smoked Acrylic Door Kit	HP E1401B 915
Recess Mount Kit	HP E1401B 916

Select one of the following based on the rack system you use:

Description	Product No.
Rail Kit (use with HP E366XA Racks)	HP E3665A
VXi Support Rail Kit	HP E3665A 917
Rail kit from non-HP rack vendor	n/a

Select any of the following based on need for cable access:

Description	Product No.
Cable Access Panel (44.5 mm (1.75 in))	HP E1400-80002
Filler Panel (44.5 mm (1.75 in))	HP 40101A

(1) 3-Year return-to-HP warranty is standard.

(2) For any HP rack.

Flush Rack-mount Configuration

Components selected in column A: cable Tray (either 44.5 mm or 88.9 mm), Handles, Rack Slides. Place order for:

Mainframe Options

Description	Product No.
C-Size VXi Mainframe	HP E1401B
Module Installation (standard settings)	HP E1401B 918
Additional Service Manual	HP E1401B 918
Warranty Conversion to 1-year on-site ⁽¹⁾	HP E1401B 918
Spare Power Supply Module	HP 0950-2283
Install Backplane Connector Shields	HP E1401B 918

Rack-mount Options

Description	Product No.
Handle and Flange Kit	HP E1401B 909
Cable Tray Kit	HP E1401B 914

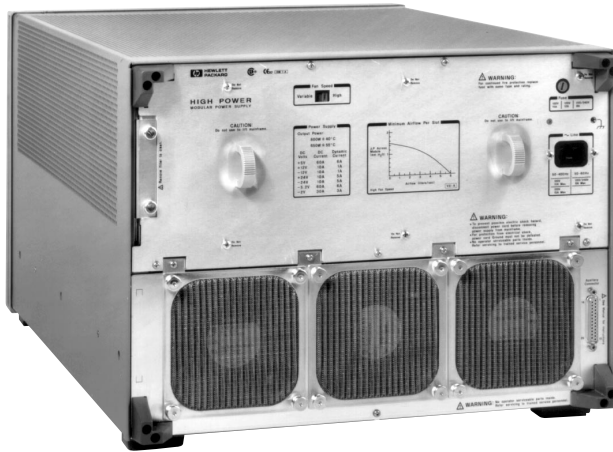
Select one of the following based on the rack system you use:

Description	Product No.
Heavy Duty Rack Slide Kit	HP 1494-0058
Slide Brackets (for non-HP racks)	HP 1494-0064

Select any of the following based on need for cable access:

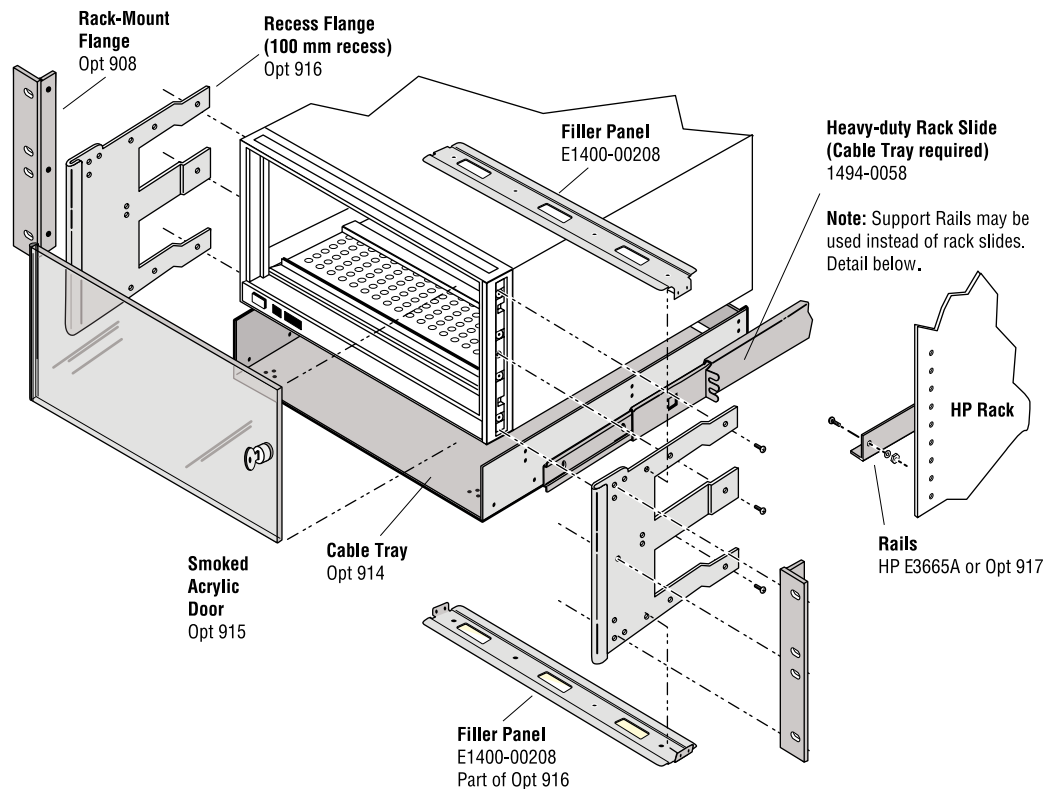
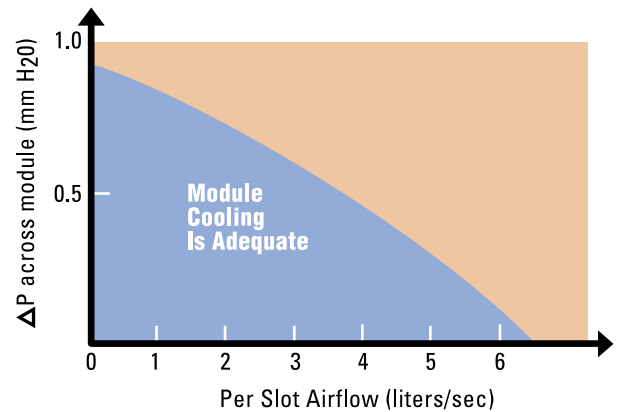
Description	Product No.
Cable Access Panel (44.5 mm (1.75 in))	HP E1400-80002
Filler Panel (44.5 mm (1.75 in))	HP 40101A

(1) 3-Year return-to-HP warranty is standard.



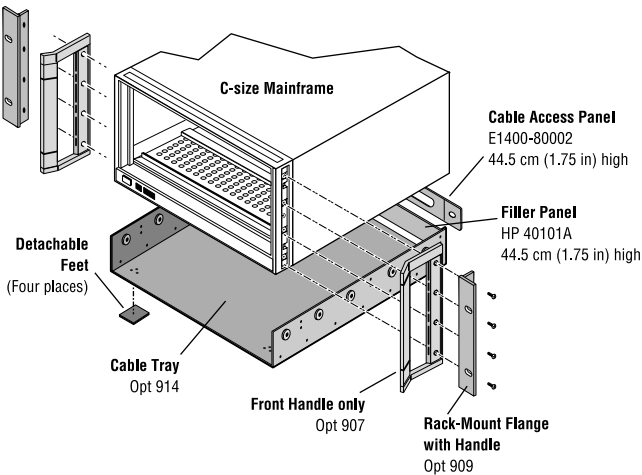
Recess and Flush Rack-Mounting Details

Note: Nonrecess rack-mounting is possible simply by mounting Rack Flanges directly to the mainframe. The Smoked Acrylic Door, however, may not be used except in the recess mounted mode with the Recess Mount Kit (Opt 916). The cable tray is optional.



Cable Tray Details

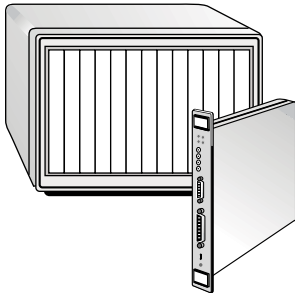
Note: Cable tray may be mounted in one of two positions, allowing either a 44.5 mm or 88.9 mm cable opening.



Ordering Information

Description	Product No.
C-Size VXI Mainframe	HP E1401B
Additional Service Manual	HP E1401B 0B1
Module Installation (standard settings)	HP E1401B 500
Front Handle Kit	HP E1401B 907
Flange Kit	HP E1401B 908
Handle and Flange Kit	HP E1401B 909
Cable Tray Kit	HP E1401B 914
Smoked Acrylic Door Kit	HP E1401B 915
Recess Mount Kit	HP E1401B 916
Support Rail Kit	HP E1401B 917
Install Backplane Connector Shields	HP E1401B 918
Japan - Japanese Localization	HP E1401B ABJ
Warranty Conversion To 1-Year On-Site ⁽¹⁾	HP E1401B W01
RSTRD 0950-2283 Power Supply 650W	HP E1401-69202
Filler Panel 1 Slot	HP E1400-60202
Panel, 3 Slot Filler	HP E1400-00203
Panel, 7 Slot Filler	HP E1400-00204
Front Handle Kit 12.25" System II Plus	HP 5062-3993
Rack Mount Kit Sys IIP 12.25" Ears W/O	HP 5062-3981
Rack Mount Kit Sys IIP 12.25" Ears & Frt	HP 5062-3987
Cable Tray Kit For Series C Mainframe	HP E1400-80004
VXI Door/Window Assy With Lock	HP E1400-80915
Recess Rack Mount Kit	HP E1401-80916
Rack Mount Rail Kit For Recess Mount	HP E1401-80917
Shield, Backplane Connector	HP E1400-80920
Rail Kit (use with HP E366XA Racks)	HP E3665A
Heavy Duty Rack Slide Kit	HP 1494-0058
Slide Brackets (for non-HP racks)	HP 1494-0064
Filler Panel (44.5 mm (1.75 in))	HP 40101A
Cable Access Panel (44.5 mm (1.75 in))	HP E1400-80002
Series C chassis shield for the E1401A	HP E1409B

HP E1401B
C-size Mainframe



HP E1406B
C-size HP-IB
Command Module

Related Literature

1998 Test System and VXI Products Data Book,
HP Pub. No. 5966-2812E

1998 Test System and VXI Products Catalog,
HP Pub. No. 5966-2815

Warranty

Standard Hewlett-Packard VXIbus hardware products are warranted against defects in materials and workmanship for a period of three years unless otherwise noted. HP software and firmware products that are designated by HP for use with a hardware product, when properly installed on that hardware product, are warranted not to fail to execute their programming instructions due to defects in materials and workmanship.

For a complete and detailed warranty statement please see the *HP Test System and VXI Products Data Book* or visit the HP Website at <http://www.hp.com/go/vxi>.

HP Website Directory

Main HP Website
<http://www.hp.com>

HP Test and Measurement
<http://www.hp.com/go/tmdir>

HP VXI Product Information
<http://www.hp.com/go/vxi>

HP VXI Channel Partners
<http://www.hp.com/go/vxichanpart>

HP VEE Application Website
<http://www.hp.com/go/hpvee>

Data Acquisition and Control Website
http://www.hp.com/go/data_acq

HP Instrument Driver Downloads
http://www.hp.com/go/inst_drivers

For more information about Hewlett-Packard test & measurement products, applications, services, and for a current sales office listing, visit our website, <http://www.hp.com/go/tmdir>. You can also contact one of the following centers and ask for a test and measurement sales representative.

United States:

Hewlett-Packard Company
Test and Measurement Call Center
P.O. Box 4026
Englewood, CO 80155-4026
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
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Japan:

Hewlett-Packard Japan Ltd.
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