HP 86140 Series
Optical Spectrum Analyzer

Error Messages

Overview

This document describes the status listings of the HP 86140 series optical spectrum analyzers. Status conditions for the optical spectrum analyzer are grouped into categories.

Error

Indicates the instrument is malfunctioning. Measurement accuracy is probably affected. Errors can be caused by either a hardware or a firmware problem. The instrument requires repair at a Hewlett-Packard service center.

Status error

Indicates an internal hardware function is unavailable or not operating within specifications. This is usually a temporary problem, such as a temperature control loop being unsettled. Status errors cannot be cleared by the user. When the condition causing the error is corrected the error will go away.

Warning

A warning is displayed when the optical spectrum analyzer cannot satisfy a request from the user. Parameter entries that are out of range, illegal or unrecognized remote commands or missing hardware options can cause a warning to be displayed. A warning can be displayed if a requested measurement, for example AutoMeasure, cannot be performed due to a missing input signal.

UNCAL

This message alerts the user the requested instrument setup can cause an invalid measurement. For example, manually setting the sweep time to a value that is too fast for other instrument settings.

Notice

A user alert indicating something in the state of the instrument has changed. For example, if the user specifies a particular value for the current duty cycle, a notice will be displayed when the optical spectrum analyzer modifies the pulse width .

The following table lists the error numbers and their definitions.

Number Range	Definition
−1 to −999	Standard SCPI errors
1000 to 2999	OSA notices
3000 to 4999	Application specific notices
5000 to 7999	OSA warnings
8000 to 9999	Application specific warnings
10000 to 11999	OSA status errors
12000 to 13999	Application specific status errors
20000 to 21999	OSA errors
22000 to 23999	Application specific errors
30000 to 32767	Firmware errors

Error Reporting Behavior

Errors are displayed in an on-screen dialog box. To continue operation, the user must acknowledge the error by pressing a button.

Status errors are displayed with a descriptive line in the lower-left corner of the graticule. Immediately press the System key below the display, and then press the *Help* softkey to the right of the display to display more information. A softkey menu is displayed that includes, *Show Critical Errors*, *Show HW Errors*, *Show Warnings*, and *Show Notices*. If there are any errors, warnings or notices, one or more of these keys are enabled. Press the key to display a more complete description of the condition causing the message.

Warnings and notices are displayed in a status line at the bottom of the screen. They are cleared when any front-panel key, other than the System key, is pressed, or they will clear automatically after a few seconds. To view warnings and notices, press the front-panel System key, the *Help* softkey and then the *Show Warnings* or *Show Notices* softkey. UNCAL is displayed as red text in the lower-right corner of the graticule. It is only displayed when a condition exists that can lead to an inaccurate measurement. There are cases when valid measurements can be made while an UNCAL condition exists, but the operator should use caution.

SCPI-Defined Errors

These error messages and descriptions were copied from the *SCPI 1997 Volume 2: Command reference*. The sentences enclosed in brackets "[ ]" are copied from the error descriptions in the SCPI reference. References are also made to IEEE 488.2 sections for further clarification of events.

Not all the available SCPI error messages were utilized in the optical spectrum analyzer. Only those pertinent to the instrument were implemented.

Note that some of the error messages do not contain descriptions or help messages. These error numbers are reserved for future expansion. This document is subject to further change and development.

Standards related information

Further information on the Standard Commands for Programmable Instruments (SCPI) standard is available from the SCPI consortium.

Contact:

Fred Bode, Executive Director
SCPI Consortium
8380 Hercules Drive, Suite P3
La Mesa, CA 91942
Phone: (619) 697-8790
FAX: (619) 697-5955
CompuServe Number: 76516,254
Fbode@vxinl.com

For more detailed information on the IEEE 488.2 Standard, order a reference copy.

Contact:

> The Institute of Electrical and Electronics Engineers, Inc.
> 345 East 47th Street
> New York, New York 10017-2394
> Phone: (800) 678-IEEE (US) 8 a.m. – 4:30 p.m. (EST)
> (908) 981-1393 (International)
> Fax: (908) 981-9667

Standard SCPI errors (–1 to –999)

All positive numbers are instrument-dependent. All negative numbers are
reserved by the SCPI standard with certain standard error/event codes
described in this document. The value, zero, is also reserved to indicate that
no error or event has occurred.

Error/event numbers

The system-defined error/event numbers are chosen on an enumerated ("1 of
N") basis. The SCPI-defined error/event numbers and the <error/event
description> portions of the full queue item are listed here. The first error/
event described in each class (for example, –100, –200, –300, –400) is a
"generic" error. In selecting the proper Error/event number to report, more
specific error/event codes are preferred, and the generic error/event is used
only if the others are inappropriate.

Command errors

An <error/event number> in the range [–199 , –100] indicates that an
IEEE 488.2 syntax error has been detected by the instrument's parser. The
occurrence of any error in this class shall cause the command error bit (bit 5)
in the event status register (IEEE 488.2, section 11.5.1) to be set.

One of the following events has occurred:

• An IEEE 488.2 syntax error has been detected by the parser. That is, a control-
ler-to-device message was received which is in violation of the IEEE 488.2 stan-
dard. Possible violations include a data element which violates the device

listening formats or whose type is unacceptable to the device.

- An unrecognized header was received. Unrecognized headers include incorrect device-specific headers and incorrect or unimplemented IEEE 488.2 common commands.

- A Group Execute Trigger (GET) was entered into the input buffer inside of an IEEE 488.2 <PROGRAM MESSAGE>.

Events that generate command errors shall not generate execution errors, device-specific errors, or query errors; see the other error definitions in this chapter.

Table 1-1. Command Errors (1 of 4)

Error Number	Error Description [description/explanation/examples]
−101	desc = "Invalid character" help = "" [A syntactic element contains a character which is invalid for that type; for example, a header containing an ampersand, SETUP&. This error might be used in place of errors −114, −121, −141, and perhaps some others.]
−102	desc = "Syntax error" help = "" [An unrecognized command or data type was encountered for example, a sting was received when the instrument does not accept strings.]
−103	desc = "Invalid separator" help = "" [The parser was expecting a separator and encountered an illegal character; for example, the semicolon was omitted after a program message unit, *EMC 1:CH1:VOLTS 5.]
−104	desc = "Wrong Parameter Type" help = "" [The parser recognized a data element different than one allowed; for example, numeric or string data was expected but block data was encountered.]
−105	desc = "GET not allowed" help = "" [A Group Execute Trigger was received within a program message (see IEEE 488.2, 7.7).]

Table 1-1. Command Errors (2 of 4)

Error Number	Error Description [description/explanation/examples]
–108	desc = "Parameter not allowed" help = "" [More parameters were received than expected for the header; for example, the *EMC common command only accepts one parameter, so receiving *EMC 0,1 is not allowed.]
–109	desc = "Missing parameter" help = "" [Fewer parameters were received than required for the header; for example, the *EMC common command requires one parameter, so receiving *EMC is not allowed.]
–112	desc = "Program mnemonic too long" help = "" [The header contains more that twelve characters (see IEEE 488.2, 7.6.1.4.1).]
–113	desc = "Undefined header" help = "" [The header is syntactically correct, but it is undefined for this specific device; for example, *XYZ is not defined for any device.]
–120	desc = "Numeric Data Error" help = " [This error, as well as errors –121 through –129, are generated when parsing a data element which appears to be numeric, including the non-decimal numeric types. This particular error message should be used if the device cannot detect a more specific error.]
–121	desc = "Invalid character in number" help = "" [An invalid character for the data type being parsed was encountered; for example, an alpha in a decimal numeric or a "9" in octal data.]
–123	desc = "Exponent too large" help = "" [The magnitude of the exponent was larger than 32000 (see IEEE 488.2, 7.7.2.4.1).]
–124	desc = "Too many digits" help = "" [The mantissa of a decimal numeric data element contained more than 255 digits excluding leading zeros (see IEEE 488.2, 7.7.2.4.1).]

Table 1-1. Command Errors (3 of 4)

Error Number	Error Description [description/explanation/examples]
−128	desc = "Numeric data not allowed" help = "" [A legal numeric data element was received, but the device does not accept one in this position for the header.]
−131	desc = "Invalid suffix" help = "" The suffix does not follow the syntax described in IEEE 488.2, 7.7.3.2, or the suffix is inappropriate for this device.]
−134	desc = "Suffix too long" help = "" [The suffix contained more than 12 characters (see IEEE 488.2, 7.7.3.4).]
−138	desc = "Suffix not allowed" help = "" [A suffix was encountered after a numeric element which does not allow suffixes.]
−148	desc = "Character data not allowed" help = "" [A legal character data element was encountered where prohibited by the device.]
−150	desc = "String data error" help = "" [This error, as well as errors −151 through −159, are generated when parsing a string data element. This particular error message should be used if the device cannot detect a more specific error.]
−151	desc = "Invalid string data" help = "" A string data element was expected, but was invalid for some reason (see IEEE 488.2, 7.7.5.2); for example, an END message was received before the terminal quote character.]
−158	desc = "String data not allowed" help = "" [A string data element was encountered but was not allowed by the device at this point in parsing.]

Table 1-1. Command Errors (4 of 4)

Error Number	Error Description [description/explanation/examples]
–161	desc = "Invalid block data" help = "" [A block data element was expected, but was invalid for some reason (see IEEE 488.2, 7.7.6.2); for example, an END message was received before the length was satisfied.]
–168	desc = "Block data not allowed" help = "" [A legal block data element was encountered but was not allowed by the device at this point in parsing.]
–170	desc = "Expression error" help = "" [This error, as well as errors –171 through –179, are generated when parsing an expression data element. This particular error message should be used if the device cannot detect a more specific error.]
–171	desc = "Invalid expression" help = "" [The expression data element was invalid (see IEEE 488.2, 7.7.7.2); for example, unmatched parentheses or an illegal character.]
–178	desc = "Expression data not allowed" help = "" [A legal expression data was encountered but was not allowed by the device at this point in parsing.]
–181	desc = "Invalid outside macro definition" help = "" [Indicates that a macro parameter placeholder ($<number) was encountered outside of a macro definition.]
–183	desc = "Invalid inside macro definition" help = "" Indicates that the program message unit sequence, sent with a *DDT or *DMC command, is syntactically invalid (see IEEE 488.2, 10.7.6.3).]

Execution errors

An <error/event number> in the range [–299 , –200] indicates that an error has been detected by the instrument's execution control block. The occurrence of any error in this class shall cause the execution error bit (bit 4) in the event status register (IEEE 488.2, section 11.5.1) to be set.

One of the following events has occurred:

- A <PROGRAM DATA> element following a header was evaluated by the device as outside of its legal input range or is otherwise inconsistent with the device's capabilities.

- A valid program message could not be properly executed due to some device condition.

Execution errors shall be reported by the device after rounding and expression evaluation operations have taken place. Rounding a numeric data element, for example, shall not be reported as an execution error. Events that generate execution errors shall not generate Command Errors, device-specific errors, or Query Errors; see the other error definitions in this section.

Table 1-2. Execution Errors (1 of 3)

Error Number	Error Description [description/explanation/examples]
–200	desc = "Execution error" help = "" [This is the generic syntax error for devices that cannot detect more specific errors. This code indicates only that an Execution Error as defined in IE EE488.2, 11.5.1.1.5 has occurred.]
–213	desc = "INIT:IMM command ignored" help = "An initiate immediate remote command was received. The instrument was in continuous sweep mode when the command was received. The remote command is ignored unless the instrument is in single sweep mode. To select single sweep mode use the INIT:CONT OFF command."
–221	desc = "Settings Conflict Error" help = "A request was made but the instrument settings resulting from the request are in conflict with each other." [Indicates that a legal program data element was parsed but could not be executed due to the current device state (see IEEE 488.2, 6.4.5.3 and 11.5.1.1.5.)]

Table 1-2. Execution Errors (2 of 3)

Error Number	Error Description [description/explanation/examples]
−222	desc = "Data out of range" help = "A numeric value was entered which is outside the legal range of values for the parameter. The name of the parameter is listed at the end of the error message." [Indicates that a legal program data element was parsed but could not be executed because the interpreted value was outside the legal range as defined by the device (see IEEE 488.2, 11.5.1.1.5.)]
−222	desc = "Span out of range" help = "A numeric value was entered which is outside the legal range of values for the span setting. This occurs if the value is too large less than zero or between zero and 0.2nm. Zero span may not be entered by using the DOWN arrow key from 0.2nm; a numeric value of zero must be entered instead." [Indicates that a legal program data element was parsed but could not be executed because the interpreted value was outside the legal range as defined by the device (see IEEE 488.2, 11.5.1.1.5.)]
−223	desc = "Too much data" help = "" [Indicates that a legal program data element of block, expression, or string type was received that contained more data than the device could handle due to memory or related device-specific requirements.]
−224	desc = "Illegal parameter value" help = "" [Used where exact value, from a list of possibles, was expected.]
−257	desc = "File name error" help = "" [Indicates that a legal program command or query could not be executed because the file name on the device media was in error; for example, an attempt was made to copy to a duplicate file name. The definition of what constitutes a file name error is device-specific.]
−272	desc = "Macro Exec Error" help = "" [Indicates that a syntactically legal macro program data sequence could not be executed due to some error in the macro definition (see IEEE 488.2, 10.7.6.3.)]

Table 1-2. Execution Errors (3 of 3)

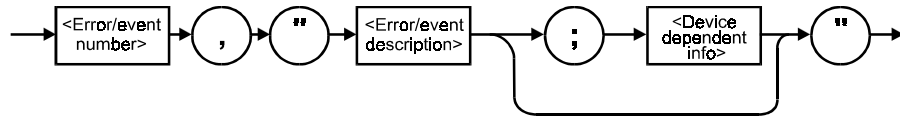| Error Number	Error Description [description/explanation/examples]
–273	desc = "Illegal macro label" help = "" [Indicates that the macro label defined in the *DMC command was a legal string syntax, but could not be accepted by the device (see IEEE 488.2, 10.7.3 and 10.7.6.2); for example, the label was too long, the same as a common command header, or contained invalid header
–276	desc = "Macro recursion error" help = "" [Indicates that a syntactically legal macro program data sequence could not be executed because the device found it to be recursive (see IEEE 488.2, 10.7.6.6).]
–277	desc = "Macro redefinition not allowed" help = "" [Indicates that a syntactically legal macro label in the *DMC command could not be executed because the macro label was already defined (see IEEE 488.2, 10.7.6.4).]
–278	desc = "Macro header not found" help = "" [Indicates that a syntactically legal macro label in the *GMC? query could not be executed because the header was not previously defined.]

Device-specific errors

An <error/event number> in the range [–399, –300] or [1, 32767] indicates the instrument has detected an error which is not a command error, a query error, or an execution error; some device operations did not properly complete, possibly due to an abnormal hardware or firmware condition. These codes are also used for self-test response errors. The occurrence of any error in this class should cause the device-specific error bit (bit 3) in the event status register (IEEE 488.2, section 11.5.1) to be set. The meaning of positive error codes is device-dependent and may be enumerated or bit mapped; the <error message> string for positive error codes is not defined by SCPI and available to the device designer. Note that the string is not optional; if the designer does not wish to implement a string for a particular error, the null string should be sent (for example, 42,""). The occurrence of any error in this class should cause the device-specific error bit (bit 3) in the event status register (IEEE

488.2, section 11.5.1) to be set. Events that generate device-specific errors
shall not generate command errors, execution errors, or query errors; see the
other error definitions in this section.

Table 1-3. Device-Specific Errors

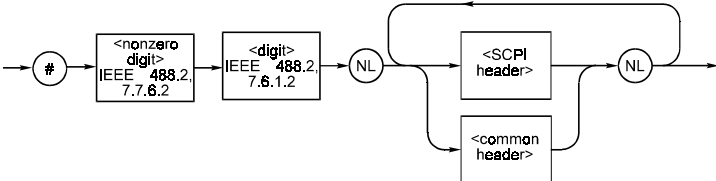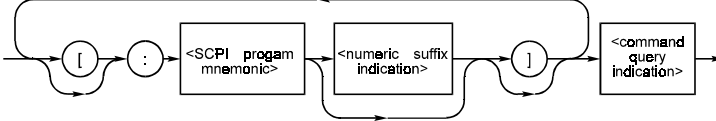| Error Number	Error Description [description/explanation/examples]
−310	desc = "System error" help = "" [Indicates that some error, termed "system error" by the device, has occurred. This code is device-dependent.]
−321	desc = "Out of memory" help = "" [An internal operation needed more memory than was available.]

Query errors

An <error/event number> in the range [−499, −400] indicates that the output
queue control of the instrument has detected a problem with the message
exchange protocol described in IEEE 488.2, chapter 6. The occurrence of any
error in this class shall cause the query error bit (bit 2) in the event status reg-
ister (IEEE 488.2, section 11.5.1) to be set. These errors correspond to mes-
sage exchange protocol errors described in IEEE 488.2, section 6.5.

One of the following is true:

- An attempt is being made to read data from the output queue when no output
is either present or pending.

- Data in the output queue has been lost.

Events that generate query errors will not generate command errors, execu-
tion errors, or device-specific errors; see the other error definitions in this sec-
tion.

Table 1-4. Query Errors

Error Number	Error Description [description/explanation/examples]
–400	Query error [This is the generic query error for devices that cannot detect more specific errors. This code indicates only that a Query Error as defined in IEEE 488.2, 11.5.1.1.7 and 6.3 has occurred.]

→ (#) → <nonzero digit> IEEE 488.2, 7.7.6.2 → <digit> IEEE 488.2, 7.6.1.2 → (NL) → <SCPI header> / <common header> → (NL) →

| –410 | Query INTERRUPTED
[Indicates that a condition causing an INTERRUPTED Query error occurred (see IEEE 488.2, 6.3.2.3); for example, a query followed by DAB or GET before a response was completely sent.] |

→ [→ : → <SCPI program mnemonic> → <numeric suffix indication> →] → <command query indication> →

–420	Query UNTERMINATED [Indicates that a condition causing an UNTERMINATED Query error occurred (see IEEE 488.2, 6.3.2.2); for example, the device was addressed to talk and an incomplete program message was received.]
–430	Query DEADLOCKED [Indicates that a condition causing an DEADLOCKED Query error occurred (see IEEE 488.2, 6.3.1.7); for example, both input buffer and output buffer are full and the device cannot continue.]
–440	Query UNTERMINATED after indefinite response [Indicates that a query was received in the same program message after an query requesting an indefinite response was executed (see IEEE 488.2, 6.5.7.5).]

OSA Notices

System control-related error messages or warnings

The OSA system changed a setting and generated a warning that the operation was performed.

Table 1-5. System Control Errors or Warnings

Error Number	Error Description [description/explanation/examples]
1000	desc = "Sensitivity forced to Auto" help = "Sensitivity has been forced to the Auto setting because another instrument setting was made which does not permit sensitivity to be in the Manual setting."
1001	desc = "Old Mezzanine board in system" help = "This OSA has an old mezzanine board installed. It is not necessary to upgrade the mezzanine board but the software will not be able to correctly determine which light source options are available."
1002	desc = "No Delta Marker Amplitude for" help = "The delta marker amplitude display has been turned off due to a units mismatch. The amplitude units of the reference marker are different than those of the delta marker. Values in differing units cannot be compared."
1003	desc = "Trace length increased" help = "Trace length has been increased because the wavelength limit function was turned off. The minimum trace length is larger when the wavelength limit function is off and trace length was below the new minimum value."
2999	desc = "The Notices list has overflowed" help = "The Notices list has overflowed. The last entries received have been deleted."

OSA Warnings

Table 1-6. OSA Warnings (1 of 11)

Error Number	Error Description [description/explanation/examples]
5000	desc = "AutoMeasure cannot find an input signal" help = "The auto-measure procedure cannot find a usable input signal. Make sure you have a signal connected to the optical input. Auto-measure will not work with very small input signals. They must be measured manually."
5001	desc = "AutoAlign cannot find an input signal" help = "The auto-align procedure cannot find a usable input signal. Make sure you have a signal connected to the optical input."
5002	desc = "Cal aborted: there is no active marker" help = "A wavelength calibration using the wavelength of the active marker was requested. The calibration cannot be made because all markers are turned off. Place a marker on the calibration signal and try again."
5003	desc = "Cal aborted: trace resolution is inadequate" help = "A wavelength calibration using the wavelength of the active marker was requested. The calibration cannot be done because the resolution of the marker's trace is inadequate. Trace resolution is defined as wavelength span divided by (trace points − 1) and must be less than 10pm. This problem can be corrected by one or more of the following steps: 1. Reduce wavelength span 2. Increase number of trace points"
5004	desc = "Cal aborted: wavelength correction too large" help = "A wavelength calibration was requested. The calibration was aborted since the correction needed is larger than 2nm. Make sure you have the correct index of refraction set. If the wavelength error is still this large the OSA may need to be serviced. The wavelength calibration function is not intended to apply large arbitrary offsets. Use the wavelength offset function for this purpose."

Table 1-6. OSA Warnings (2 of 11)

Error Number	Error Description [description/explanation/examples]
5005	desc = "Cal aborted: amplitude correction too large" help = "An amplitude calibration was requested. The calibration was aborted since the correction needed is more than +3dB or less than –10dB. Make sure you have done an Auto-Align prior to calibration. If the amplitude error is still this large the OSA may need to be serviced. The amplitude calibration function is not intended to apply large arbitrary offsets. Use the amplitude offset function for this purpose."
5006	desc = "Cal aborted: cannot find an input signal" help = "The calibration procedure cannot find an input signal close enough to the wavelength and/or amplitude specified. Make sure the wavelength and/or amplitude specified for calibration are correct and verify that an input signal of the correct wavelength and/or amplitude is connected to the optical input."
5007	desc = "Calibration aborted: signal disappeared" help = "The calibration procedure found a signal which subsequently disappeared. Make sure the calibration signal is connected to the optical input and try again."
5008	desc = "Calibration was not successful" help = "The requested calibration procedure did not complete successfully. Verify the instrument setup and the presence of a valid calibration signal. This problem can sometimes be caused by removing or changing the amplitude of the calibration signal during the calibration procedure. In rare cases this error can occur after the OSA has received a severe mechanical shock. Try running AutoAlign"
5009	desc = "I/O error" help = "An error occurred while processing an input/output request"
5010	desc = "The floppy disk is full" help = "There is not enough free space left on the floppy disk to contain the new file(s). Either make room on the existing floppy by deleting unwanted files or try a different floppy disk."
5011	desc = "There is no disk in the floppy disk drive" help = "An operation was requested which uses the floppy disk. There is no disk detected in the floppy disk drive. If there is a disk in the drive it may be of a format which cannot be read. This problem can be fixed by inserting a disk in the floppy disk drive or replacing the current disk with one which is properly formatted."

Table 1-6. OSA Warnings (3 of 11)

Error Number	Error Description [description/explanation/examples]
5012	desc = "The floppy disk is not formatted" help = "An operation was requested which uses the floppy disk. The disk currently in the drive does not appear to be formatted. Use the format utility to format the disk or replace it with a formatted disk."
5013	desc = "The floppy disk is write protected" help = "An operation was requested which writes to the floppy disk. The disk currently in the drive is write-protected. Turn off write protection on the current floppy disk or replace it with another disk."
5014	desc = "The internal memory is full" help = "An operation was requested which uses internal memory. There is not enough free space left in internal memory for this operation. You must make room by deleting one or more files."
5015	desc = "Up/down keys will not alter the span when it is zero" help = "The up/down step keys may not be used to alter the span setting when it is zero. A non-zero numeric value must be entered for span in order to leave zero span mode."
5016	desc = "Incompatible measurement file" help = "An attempt was made to recall a measurement file which is incompatible with the current version of software."
5017	desc = "The requested file does not exist" help = "An attempt was made to access a file which does not exist. Check the spelling of the file name against the listing of available files."
5020–5030	desc = "I/O Error" help "An unexpected error occurred during the I/O operation. Please try the operation again. If the operation involves the floppy disk drive, try a different floppy disk. If the error persists, please make a note of the error number and contact the nearest Hewlett-Packard Instrument support center for assistance. In the U.S., call (800) 403-0801. See the *HP 86140 series Users Guide* for a listing of the HP sales and service offices.
5031	desc = "Could not initialize floppy" help => "A request was made to initialize a floppy disk. The operation did not succeed. Check to see that there is a floppy disk inserted in the drive and that the disk is not write protected. This can also be caused by a defective floppy disk."

Table 1-6. OSA Warnings (4 of 11)

Error Number	Error Description [description/explanation/examples]
5032–5043	desc = "I/O Error" help "An unexpected error occurred during the I/O operation. Please try the operation again. If the operation involves the floppy disk drive, try a different floppy disk. If the error persists, please make a note of the error number and contact the nearest Hewlett-Packard Instrument support center for assistance. In the U.S., call (800) 403-0801. See the *HP 86140 series Users Guide* for a listing of the HP sales and service offices.
5044	desc = "Please cycle power to synchronize system time" help = "The system time clock has been set backwards. Due to internal system requirements it is necessary to cycle power before continuing. Please turn power off and back on again. This must be done to ensure proper system operation."
5045	desc = "Sweep limit markers too close together" help = "The sweep limit function is on and the line markers are too close together. The OSA cannot limit the sweep range to such a small value. The current sweep may be using a wider range than requested. Move the line markers farther apart or turn off sweep limit to resolve this problem."
5046	desc = "AutoAlign cannot find input signal at marker" help = "The auto-align procedure could not find a usable input signal. If there is an active marker auto-align will attempt to align at the marker wavelength without searching for a signal peak. This error can also occur if the input signal amplitude is very low or if the OSA has received a large mechanical shock or if the input signal is removed after the auto-align procedure has begun. Be sure a signal is connected to the optical input. If there is an active marker make sure it is placed on the input signal or turn off all markers."
5047	desc = "Signal disappeared during AutoAlign" help = "The auto-align procedure did not complete. The input signal disappeared during the auto-align procedure. Make sure the input signal is connected to the optical input and try again."
5048	desc = "Wrong trace X axis units for peak to center" help = "The peak-to-center function was requested. This function will only execute if the active trace X axis has units of meters (um nm pm). Change the active trace to one with an X axis in meters or re-measure the active trace in a non-zero span."

Table 1-6. OSA Warnings (5 of 11)

Error Number	Error Description [description/explanation/examples]
5049	desc = "Wrong marker X axis units for active trace" help = "The active marker cannot be placed on the active trace because the desired X axis units do not match the X axis units of the active trace. This is normally caused by recalling a wavelength trace in zero span or a zero span trace in a wavelength span. It can also be caused by loading a trace with conflicting units by remote control."
5050	desc = "Trace not displayed: wrong X axis units" help = "View has been turned on for this trace but it cannot be displayed. The X axis units in the trace do not match the X axis units being displayed. This is normally caused by trying to view a wavelength trace in zero span or a zero span trace in a wavelength span. It can also be caused by loading a trace with conflicting units by remote control."
5051	desc = "AutoMeasure cannot find input signal at marker" help = "The auto-measure function was requested. The auto-measure at marker option was enabled but the active marker was not placed on a valid signal. A valid signal was found but the active marker is too far from that signal. To correct this problem place the marker on the desired signal turn off all markers or disable the auto-measure at marker function."
5052	desc = "Sweep time auto is not allowed in zero span" help = "The sweep time function was requested to switch from manual to auto while in zero span. Automatic sweep time coupling cannot be done in zero span. The desired sweep time must be set explicitly."
5053	desc = "Noise marker not allowed." help = "A request was made to enable the noise marker readout. The readout cannot be enabled for one of the following reasons. Noise markers cannot be used on traces which have X axis units other than meters. This typically occurs in zero span where the X axis units are seconds. Noise markers cannot be used on traces which have Y axis units other than power. This typically happens when trace math is on and the trace Y axis represents a ratio."
5054	desc = "Bandwidth markers are not allowed in zero span" help = "A request was made to enable the bandwidth marker readout while the OSA was in zero span. Bandwidth markers are not permitted when span is set to zero. If a bandwidth marker readout is required set span to a value greater than zero."

Table 1-6. OSA Warnings (6 of 11)

Error Number	Error Description [description/explanation/examples]
5055	desc = "Firmware Upgrade was not successful" help => "A firmware upgrade operation was requested. The firmware upgrade operation cannot be done at this time due to an internal software problem. " + <-.serviceCenterHelp
5056	desc = "Trajectory align cannot find input signal" help = "The trajectory align procedure cannot find a usable input signal. Make sure you have a signal connected to the optical input."
5057	desc = "Invalid settings for trajectory align" help = "The external trajectory align function was requested. It cannot be executed because the start and/or stop wavelength settings are invalid. Start and stop wavelengths must be between 600nm and 1700nm. In addition the difference between start and stop wavelengths (span) must be greater than 25nm. To correct this problem adjust the start and/or stop wavelength settings to be valid."
5058	desc = "Out of memory" help = "The OSA has run out of execution memory. An internal function was aborted due to lack of execution memory. The correction for this problem is to cycle power."
5059	desc = "Trajectory align: marginal input signal" help = "The trajectory align procedure was aborted due to an input signal with marginal amplitude. The input signal was large enough when the function began it's operation but later became too small. This usually happens when the signal is on the edge of being too small. To correct this problem increase the input signal level. If this is not possible then a slight increase in signal level can sometimes be achieved by cleaning optical fiber connectors."
5060	desc = "Trajectory align failed" help = "The trajectory align procedure failed. The trajectory adjustments computed were invalid. This is usually occurs after the OSA has received a large mechanical shock. To correct this problem try the trajectory align procedure again. If the error persists, contact the HP support center nearest your location."
5061	desc = "Invalid marker trace" help = "The marker could not be positioned. The marker is on a trace which does not contain any valid data. This is sometimes caused by a trace math result which is invalid."

Table 1-6. OSA Warnings (7 of 11)

Error Number	Error Description [description/explanation/examples]
5062	desc = "ADC Triggered Sweep Too Fast" help = "A sweep was taken with one of the ADC trigger modes enabled. The sweep rate was too fast to allow trace data to be acquired for every wavelength. To resolve this problem increase sweep time or increase the frequency the external trigger input signal."
5063	desc = "Key disabled during applications" help = "The key you pressed is not active while an application is running. Exiting the application should re-enable the key."
5064	desc = "Invalid measurement file" help = "An attempt was made to recall a measurement file which is contains invalid or corrupt data."
5065	desc = "Error detected in DSP sub-system" help = " The Digital Signal Processor has reported an unexpected error. Please record the hexadecimal number listed with the error and cycle power. If the error persists, contact the HP support center nearest your location."
6700	desc = "Math expression input parameter undefined." help = "A math expression could not be evaluated because one or more input arguments are undefined. Please check the spelling of all input arguments."
6701	desc = "Math expression input parameter has error." help = "A math expression could not be evaluated because an error is present on one or more of the input arguments. The error must be cleared before the expression can be evaluated."
6702	desc = "Math expression parameter has zero length." help = "A math expression could not be evaluated because one or more input arguments has a zero length. This is often caused when the subset of a trace contains no points such as when advanced line marker functions are turned on and the line markers are too close together. It can also be caused when peak/pit searches find no peaks or pits."
6720	desc = "Math expression input parameter has error." help = "A math expression could not be evaluated because of improper input arguments. This could be due to one or more input arguments having the wrong type or size or because one or more inputs are not defined."
6721	desc = "Internal error in marker search" help => "A marker search function has failed due to an internal software problem. Please try the operation again. If the error persists, contact the HP support center nearest your location."

Table 1-6. OSA Warnings (8 of 11)

Error Number	Error Description [description/explanation/examples]
6722	desc = "Math expression input cannot be boolean." help = "A math expression could not be evaluated because one or more of the input arguments is boolean. This function does not allow boolean input arguments."
6723	desc = "Trace X axis values do not match." help = "A math expression could not be evaluated because the input arguments have differing X axis values. This function requires that all input arguments have identical X axis values. All trace inputs must be taken with identical start/stop settings."
6724	desc = "Error in source trace" help => "The source trace has an error. The error may possibly be that the source trace contains no points. Please try the operation again. If the error persists, contact the HP support center nearest your location."
6725	desc = "Trace lengths do not match." help = "A math expression could not be evaluated because the inputs have differing sizes (trace lengths). All inputs to this function must be of the same size."
6726	desc = "Trace lengths do not match." help = "A math expression could not be evaluated because the inputs have differing sizes (trace lengths). All inputs to this function must be of the same size."
6727	desc = "Y axis counts do not match." help = "A math expression could not be evaluated because the inputs have differing numbers of Y axis data. All input arguments to this function must have the same number of Y axis data points."
6728	desc = "Incorrect number of inputs for math expression" help = "A math expression could not be evaluated because the number of input arguments to the function is incorrect."
6729	desc = "Math expression expects units of dBm." help = "A math expression could not be evaluated because the input argument does not have the required Y axis units of dBm."
6730	desc = "Math expression expects units of watts." help = "A math expression could not be evaluated because the input argument does not have the required Y axis units of watts."

Table 1-6. OSA Warnings (9 of 11)

Error Number	Error Description [description/explanation/examples]
6731	desc = "Illegal combination of trace Y axis units" help = "A math expression could not be evaluated because the combination of Y axis units in the input arguments do not make sense. For example it is valid to divide watts by watts or to divide watts by a unitless value but it is invalid to divide a unitless value by watts."
6732	desc = "Illegal combination of trace X axis units" help = "A math expression could not be evaluated because the input arguments have differing X axis units. All input arguments must have identical X axis units. This commonly happens when trace math is attempted between a zero span trace (time units) and a non-zero span trace (wavelength units)."
6733	desc = "Invalid combination of Y axis units" help = "A math expression could not be evaluated because of an invalid combination of Y axis units. The math operation being performed only allows one of the arguments to have units. All other arguments must be unitless. The math operator is shown in parenthesis in the short message above. For example multiplying a trace in watts (dBm) by another trace in watts (dBm) is not permitted."
6734	desc = "Too many inputs have Y axis units" help = "A math expression could not be evaluated because of an invalid combination of inputs. Only one input argument is allowed to have non-blank Y axis units."
6735	desc = "Trace has too many Y axes" help = "A math expression could not be evaluated because of an invalid input. One of the arguments contains multiple sets of Y data. Only one set of Y data is allowed for this math function."
6736	desc = "Math expression expects boolean inputs." help = "A math expression could not be evaluated because of an invalid input. The math function requires all of it's arguments to be boolean. At least one of the arguments is not boolean."
6737	desc = "Invalid math constant" help = "During evaluation of a math expression an invalid constant was encountered. The constant has undefined or default settings for it's X and/or Y values."
6738	desc = "Out of memory" help = "A trace or math operation was requested. There is insufficient memory available to perform the operation. Try reducing trace length or cycle power."

Table 1-6. OSA Warnings (10 of 11)

Error Number	Error Description [description/explanation/examples]
6739	desc = "Too many peaks or pits" help = "A marker search operation was requested. There are too many valid pits or peaks in the current trace. Reduce the number of valid pits or peaks by increasing the peak or pit excursion setting."
6741	desc = "Constant with multiple Y values" help = "During evaluation of a math expression a constant was encountered which contains more than one Y value. Constants are only permitted to have one Y value."
6742	desc = "Requested amplitude not found" help = "A math expression to search for a specific amplitude in a trace did not succeed. There are no trace points with the desired amplitude."
6744	desc = "Excursion should be in dB" help = "The units for the excursion are not in dB."
6745	desc = "Log of a negative number is not allowed." help = "During evaluation of a math expression the logarithm of a negative number was encountered."
6746	desc = "Math expression contains a circular reference." help = "A new math expression was entered. The expression was rejected because it would create a circular reference. For example if trace math for trace C is set to (A-B) then setting trace math for trace B to (C+D) would create a circular reference."
6747	desc = "Next peak not found" help = "A next-peak search was requested. There are no more peaks on the current marker's trace in the requested direction. To find additional peaks reduce the marker peak excursion setting or adjust sensitivity."
6748	desc = "Next pit not found" help = "A next-pit search was requested. There are no more pits on the current marker's trace in the requested direction. To find additional pits reduce the marker pit excursion setting or adjust sensitivity."
6749	desc = "Peak not found" help = "A peak search was requested. There are no valid peaks on the current marker's trace. Try decreasing the marker peak excursion setting or adjust the sensitivity setting."

Table 1-6. OSA Warnings (11 of 11)

Error Number	Error Description [description/explanation/examples]
6750	desc = "Pit not found" help = "A pit search was requested. There are no valid pits on the current marker's trace. Try decreasing the marker pit excursion setting or adjust the sensitivity setting."
6751	desc = "Trace has no centroid" help = "The trace has no centroid. This may occur because the sum of trace points' amplitudes is zero or there a no trace points."
6752	desc = "The reference point is outside trace bounds" help = "The reference point's wavelength is either too small or too large. The reference point will be clipped to a trace endpoint."
6753	desc = "The window specified is invalid." help = "The window specified is invalid. The window should be a constant."
6754	desc = "Search failed: no data" help = "A marker search operation was requested. After clipping the trace data to screen limits and line marker limits (if enabled) there was no data to search. This can be caused when all trace data points are beyond current X axis screen limits or when there are no trace data points between the line markers. Trace data values which exceed the current Y axis screen limits will not cause this problem. Adjust the current X axis screen limits and/or move the line markers to include at least one trace data point."
6755	desc = "Attempt to divide by 0" help = "At least one point was attempted to be divided by 0. The result for these divisions has been set to not-a-number. Please realize that further calculations with not-a-number values are undefined."
6756	desc = "Syntax error; bad token: " help = "The grammar expression entered cannot be parsed. Please check the string entered. The bad token attempts to indicate where the error occurred. The end of line indicates that the OSA expected more information. Please consult the manual for additional help."
7998	desc = "Unknown error detected" help = "An unlisted error was reported by the instrument software. If this error persists contact Hewlett-Packard for assistance."
7999	desc = "The warning list has overflowed" help = "The Warning list has overflowed. The last entries received have been deleted."

Application-Specific Warnings

Table 1-7. Application-Specific Warnings (1 of 6)

Error Number	Error Description [description/explanation/examples]
8001	desc = "Incorrect application type is listed in spec file." help = "The application expects the first non-comment line of the specification file to contain the APPLICATION keyword followed by the application type. Either the APPLICATION keyword was missing or the wrong application type was specified for this particular application."
8002	desc = "A keyword cannot be used as a variable name." help = "The application has a list of keywords reserved for specification file use. These reserved words cannot be used as a name for one of the measurement parameters."
8003	desc = "The variable name has already been used." help = "The application allows new names to be assigned to measurement parameters. Once assigned these names can only be used as inputs to other measurements. Only the first ten characters are significant. The line number indicates where the problem was found. The word in the parentheses is the variable name causing the problem."
8004	desc = "Wrong number of input parameters." help = "The wrong number of inputs were found for a specification file command. The line number listed is where the problem was found in the specification file. The first number in parentheses is the number of inputs found and the second number is the number of inputs required."
8005	desc = "An input parameter has the wrong units." help = "One of the input parameters to the specification file has the wrong units specified. The line number listed is where the problem was found in the specification file. The first units listed in the parentheses was the units used by the parameter and the second units is the units required by the parameter. An empty pair of quotes '' indicates unitless."

Table 1-7. Application-Specific Warnings (2 of 6)

Error Number	Error Description [description/explanation/examples]
8006	desc = "The specification file cannot be imported." help = "An error occurred while trying to import the specification file. Refer to the previous warnings for more information on specific errors in the specification file."
8007	desc = "The specification file has a syntax error." help = "One of the specification file lines has a syntax problem. The problem occurred on the line number listed. The string in the parentheses caused the problem."
8008	desc = "A variable was used where a constant is expected." help = "A variable name was used as a parameter where only a constant value or the DEFAULT keyword is allowed. The line number indicates where the problem was found. The variable name in the parentheses caused the problem."
8009	desc = "The variable name has not been defined." help = "An undefined variable name was used as a parameter for a specification. All variables used as parameters must be defined in a specification statement preceding the variable's use. The line number indicates where the problem was found. The variable name in the parentheses is the undefined variable."
8010	desc = "A variable can be used only once per statement." help = "A variable name was used as multiple parameters for the same specification statement. The input parameter was ignored because using multiple references is not allowed. The line number indicates where the problem was found. The variable name in the parentheses is the variable causing the problem."
8011	desc = "A keyword was used where a variable is expected." help = "The application specification file has a list of reserved words which are used to specify the measurements to be made. These keywords cannot be used as input parameters for specification statements. The input parameter was ignored for this case. The line number indicates where the problem was found. The word in the parentheses is the reserved word causing the problem."
8012	desc = "A label is required to identify the spec file." help = "The label string is used to identify the specification file. It is required after specifying the application type. An empty string (pair of double quotes) is acceptable input."
8013	desc = "The specification file cannot be exported." help = "An error occurred while trying to export the specification file."

Table 1-7. Application-Specific Warnings (3 of 6)

Error Number	Error Description [description/explanation/examples]
8014	desc = "Print statement ignored: no path is specified" help = "The PRINT statement needs to be after a PATH statement to indicate which PATH data is to be printed. The PRINT statement at the line number specified came before any PATH statement. This PRINT statement will not trigger any printouts."
8015	desc = "DEFAULT cannot be used for a parameter." help = "A parameter cannot be specified as DEFAULT. The parameter needs to be either a previously defined variable name or an actual value. The bad parameter was found on the line number specified. The number in the parentheses is the number of the parameter causing the problem."
8016	desc = "A duplicate command is in the spec file." help = "Certain commands should be used only once in the specification file. The duplicate command was found on the line number specified. The command in the parentheses is the duplicate."
8017	desc = "A required command is missing from the spec file." help = "Certain commands must be used in the specification file. The missing command is listed in the parentheses. This command should be used only once in the file."
8018	desc = "The normalization interval limited to maximum." help = "The normalization interval has a maximum value of 24 and a minimum value of 0.1 hours. The interval specified in the specification file is outside this range. The specification file can still be used but the calibration interval will be 24 hours."
8019	desc = "The spec file could not be loaded." help = "The application found a problem with the specification file. Possible causes can include the following: the file is incompatible with the application the file is from a previous version of the application the file was corrupted. The file with the problem is specified within the parentheses. Try re-importing the specification file."
8020	desc = "The default spec file was loaded." help = "The default specification file for the application was loaded. This is done when the application is first started or if a problem occurred when trying to load another specification file. Refer to the previous warnings for information on any problems loading another file."

Table 1-7. Application-Specific Warnings (4 of 6)

Error Number	Error Description [description/explanation/examples]
8021	desc = "The spec file could not be found." help = "The application tried to load a specification file which could not be found in the internal memory. This may have occurred if the last file used by the application was deleted. The filename is specified within the parentheses."
8022	desc = "A closing quote is missing." help = "The specification file contained a line with an opening quote but no closing quote could be found."
8023	desc = "A default path name was used." help = "The imported specification file was given a default path name. All specification files must have at least one PATH statement before any of the measurement statements. A default path name was used either because some measurement statements were used before a PATH statement or there was no PATH statement at all in the file."
8024	desc = "A variable is expected." help = "The statement expected a variable as an input parameter. The line number indicates which statement did not have the proper input parameter type."
8025	desc = "The path name has already been used." help = "The application allows new names to be assigned to measurement paths. Once assigned these names can no longer be used by other measurement paths. Only the first thirty-two characters are significant. The line number indicates where the problem was found. The word in the parentheses is the path name causing the problem."
8026	desc = "A path name was used where a variable is expected." help = "The input parameters for measurement statements can take variables as inputs. These variables are the results of other measurement statements. A path name is the name of a measurement path not the result of a measurement and cannot be used as an input parameter. The input parameter was ignored for this case. The line number indicates where the problem was found. The word in the parentheses is the path name causing the problem."
8027	desc = "A parameter value was outside the legal range." help = "A parameter value was used which was outside the allowable range. The first number in the parentheses is the number of the parameter causing the problem. The other two numbers are the minimum and maximum values allowed. These values are in base units (e.g meters watts)."

Table 1-7. Application-Specific Warnings (5 of 6)

Error Number	Error Description [description/explanation/examples]
8028	desc = "A minimum non-zero span is required." help = "The application cannot run in a zero span setting. The start and stop wavelength must be separated by a minimum span. The line number indicates the line in the specification file which had a start and stop wavelength pair that did not meed the minimum span requirement."
8029	desc = "The requested function is not yet implemented." help = "The statement within the specification file is not implemented in this version of the application. The word in parentheses has been reserved for future use. The statement at the specified line number needs to be removed before the specification file can be imported."
8030	desc = "A SETUP statement is needed before SWEEP." help = "The wavelength limits of the SWEEP statement are checked against the wavelength limits in the SETUP statement. This check requires that the SETUP statement occur before the SWEEP statement. The line number indicates which SWEEP statement is not preceded by the SETUP statement."
8031	desc = "The SWEEP limits are outside the SETUP range." help = "The start and stop values for the SWEEP statement must be within the start and stop values of the SETUP statement. The line number indicates which SWEEP statement has values out of range. The number in the parentheses indicates which parameter is out of range."
8032	desc = "The units of the inputs are not compatible." help = "The units of the inputs to a math operation need to be compatible with the operation desired. Addition and subtraction need to have matching units. Multiplication needs to have a unitless parameter. Division needs a unitless denominator or the units for the numerator and denominator need to match. The line number indicates which statement had the mismatched input units."
8033	desc = "The reference point is outside the SETUP range." help = "The reference point value must be within the start and stop values of the SETUP statement. The line number indicates which statement had the value out of range."
8034	desc = "The values are associated with different axes." help = "The variables used in a basic math operation like ADD or DIV must be associated with the same data axis (e.g. wavelength or amplitude). Mixing the axes values within a single math operation is not allowed. The line number indicates which statement had the incompatible variables."

Table 1-7. Application-Specific Warnings (6 of 6)

Error Number	Error Description [description/explanation/examples]
8035	desc = "The search limits are outside the SETUP range." help = "The search limits for statements like PEAK or CENTER_OF_MASS must be within the start and stop values of the SETUP statement. The line number indicates which statement has values out of range. The number in the parentheses indicates which parameter is out of range."
8036	desc = "The specification units do not match." help = "The units for the minimum and maximum specification values need to match. The line number indicates which statement has the mismatching units."
8037	desc = "The specification units do not match the input units." help = "The units for the minimum and maximum specification values need to match the units for the input parameters. The line number indicates which statement has the mismatching units."

OSA Status Errors

Table 1-8. OSA Status Errors

Error Number	Error Description [description/explanation/examples]
10000	desc = "Sweep Uncalibrated" help = "The current setting of sweep time may be too fast. This could result in an invalid measurement. In certain cases it is possible to sweep faster than the coupled sweep time without compromising measurement accuracy. Please refer to the users manual and relevant application notes for more information."
11998	desc = "Too Many Hardware Status Errors" help = "The Hardware Status Error list has overflowed. Additional more recent items have been deleted."

OSA Errors

Table 1-9. OSA Errors (1 of 2)

Error Number	Error Description [description/explanation/examples]
20001	desc = "Error detected in ADC sub-system" help = "An error has been detected in the Analog-to-Digital converter subsystem. Please record the hexadecimal number listed with the error and cycle power. If the error persists, contact the nearest Hewlett-Packard Instrument support center for assistance. In the U.S., call (800) 403-0801. See the *HP 86140 series Users Guide* for a listing of the HP sales and service offices."
20002	desc = "Error detected in slit positioning system" help = "An error has been detected in the motor which controls the resolution bandwidth slit wheel. Please record the hexadecimal number listed with the error and cycle power. If the error persists, contact the nearest Hewlett-Packard Instrument support center for assistance. In the U.S., call (800) 403- 0801. See the *HP 86140 series Users Guide* for a listing of the HP sales and service offices."
20003	desc = "Error detected in grating positioning system" help = "An error has been detected in the motor which controls the diffraction grating. Please record the hexadecimal number listed with the error and cycle power. If the error persists, contact the nearest Hewlett-Packard Instrument support center for assistance. In the U.S., call (800) 403-0801. See the *HP 86140 series Users Guide* for a listing of the HP sales and service offices."
20004	desc = "Monochromator calibration data is invalid" help = "Factory calibration data for the monochromator is invalid. Please record the hexadecimal number listed with the error and cycle power. If the error persists, contact the nearest Hewlett-Packard Instrument support center for assistance. In the U.S., call (800) 403-0801. See the *HP 86140 series Users Guide* for a listing of the HP sales and service offices."

Table 1-9. OSA Errors (2 of 2)

Error Number	Error Description [description/explanation/examples]
20005	desc = "Trans-Impedance calibration data is invalid" help = "Factory calibration data for the trans-impedance amplifier is invalid. Please record the hexadecimal number listed with the error and cycle power. If the error persists, contact the nearest Hewlett-Packard Instrument support center for assistance. In the U.S., call (800) 403-0801. See the *HP 86140 series Users Guide* for a listing of the HP sales and service offices."
20006	desc = "Monochromator flatness calibration data is invalid" help = "Factory flatness data for the monochromator is invalid. Please record the hexadecimal number listed with the error and cycle power. If the error persists, contact the nearest Hewlett-Packard Instrument support center for assistance. In the U.S., call (800) 403-0801. See the *HP 86140 series Users Guide* for a listing of the HP sales and service offices."
20007	desc = "Sweep Timeout" help = "A sweep was started but did not finish in the expected amount of time. The trace data acquired during this sweep may not be valid. Try taking another sweep. If the error persists, contact the nearest Hewlett-Packard Instrument support center for assistance. In the U.S., call (800) 403-0801. See the *HP 86140 series Users Guide* for a listing of the HP sales and service offices."
21999	desc = "The Error list has overflowed" help = "The Error list has overflowed. The last entries received have been deleted."

Firmware Errors

Table 1-10. Firmware Errors

Error Number	Error Description [description/explanation/examples]
30000	desc = "Internal Communications Error" help = "An internal software error has occurred involving communications between different software processes. Please record this error including the extra text and cycle power. If the error persists, contact the nearest Hewlett-Packard Instrument support center for assistance. In the U.S., call (800) 403-0801. See the *HP 86140 series Users Guide* for a listing of the HP sales and service offices."
30001	desc = "Auto-Measure Software Error" help = "An error has been detected in the auto-measure software. There is an internal problem with the software. Please make a note of the text in parentheses at the end of the error message and cycle power. If the error persists, contact the nearest Hewlett-Packard Instrument support center for assistance. In the U.S., call (800) 403-0801. See the *HP 86140 series Users Guide* for a listing of the HP sales and service offices."

Error Messages
Firmware Errors