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Command Quick Reference

The following tables summarize SCPI and IEEE-488.2 Common (*) commands for the HP E1413A 64-Channel High-Speed A/D.

SCPI Command Quick Reference	
Command	Description
ABORt	Stops scanning immediately and sets trigger system to idle state (scan lists are unaffected)
ARM	
[:IMMediate]	Arm if ARM:SOUR is BUS or HOLD (software ARM)
:SOURce BUS | EXT | HOLD | IMM | SCP | TTLTrg<n>	Specify the source of Trigger Timer ARM
:SOURce?	Return current ARM source
CALCulate	
:AVERage	
[:STATe] ON | OFF	Enables/disables channel measurement averaging
[:STATe]?	Returns the state of channel averaging
:COUNt *<n>*	Sets the number of measurements averaged to produce a stored reading
:COUNt?	Returns the current setting of measurements per reading
:CLIMits	
:FAIL	
[:CUMulative]?	Returns composite limit test status since module was INITed
:CURRent?	Returns composite limit test status for last completed scan list
:FLIMits	
[:CHANnels]	
[:CUMulative]?	Returns all channel's limit test status since module was INITed
:CURRent?	Returns all channel's limit test satus for last completed scan list
:POINts	
[:CUMulative]?	Returns count of channels exceeding limit tests since module INITed
:CURRent?	Returns count of channels exceeding limit tests for last completed scan
:LIMit	
[:STATe] ON | OFF,(@*<ch_list>*)	Enables/diasables all limit testing
[:STATe]? (@*<channel>*)	Returns state of limit testing
:FAIL	
[:CUMulative]? (@*<channel>*)	Returns limit test status for *channel* since module was INITed
:CURRent? (@*<channel>*)	Returns limit test status for *channel* for last completed scan list
:LOWer	
[:STATe] ON | OFF,(@*<ch_list>*)	Enables/diasables lower limit testing
[:STATe]? (@*<channel>*)	Returns state of lower limit testing
:DATA *<lower_lim>*,(@*<ch_list>*)	Sets lower limit for specified channels
:DATA? (@*<channel>*)	Returns lower limit setting for specified channel
:UPPer	
[:STATe] ON | OFF,(@*<ch_list>*)	Enables/diasables upper limit testing
[:STATe]? (@*<channel>*)	Returns state of upper limit testing
:DATA *<upper_lim>*,(@*<ch_list>*)	Sets upper limit for specified channels
:DATA? (@*<channel>*)	Returns upper limit setting for specified channel
CALibration	
:CONFigure	Prepare to measure on-board references with an external multimeter
:RESistance	Configure to measure reference resistor
:VOLTage *<range>*, ZERO | FSCale	Configure to measure reference voltage range at zero or full scale
:SETup	Performs Channel Calibration procedure
:SETup?	Returns state of CAL:SETup operation (returns error codes or 0 for OK)

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Command Quick Reference

SCPI Command Quick Reference	
Command	Description
:STORe ADC | TARE	Store cal constants to Flash RAM for either A/D calibration or those generated by the CAL:TARE command
:TARE (@<*ch_list*>)	Calibrate out system field wiring offsets
:RESet	Resets cal constants from CAL:TARE back to zero for all channels
:TARE?	Returns state of CAL:TARE operation (returns error codes or 0 for OK)
:VALue	
:RESistance <*ref_ohms*>	Send to instrument the value of just measured reference resistor
:VOLTage <*ref_volts*>	Send to instrument the value of just measured voltage reference
:ZERO?	Correct A/D for short term offset drift (returns error codes or 0 for OK)
DIAGnostic	
:CHECksum?	Perform checksum on Flash RAM and return a '1' for OK, a '0' for corrupted or deleted memory contents
:COMMand	
:SCPWRITE <*reg_addr*>,<*reg_data*>	Writes values to SCP registers
:CUSTom	
:LINear <*table_ad_range*>,<*table_block*>,(@<*ch_list*>)	Loads linear custom EU table
:PIECewise <*table_ad_range*>,<*table_block*>,(@<*ch_list*>)	Loads piecewise custom EU table
:REFerence:TEMPerature	Puts the contents of the Reference Temperature Register into the FIFO
:INTerrupt[:LINe] <*intr_line*>	Sets the VXIbus interrupt line the module will use
:INTerrupt[:LINe]?	Returns the VXIbus interrupt line the module is using
:OTDetect[:STATe] ON | OFF, (@<*ch_list*>)	Controls "Open Transducer Detect" on SCPs contained in <*ch_list*>
:OTDetect[:STATe]? (@<*channel*>)	Returns current state of OTD on SCP containing <*channel*>
:QUERy	
:SCPREAD <*reg_addr*>	Returns value from an SCP register
:VERSion?	Returns manufacturer, model, serial#, revision #, and date e.g. HEWLETT-PACKARD,E1413A,1413A00001,A.01.00, Wed Jul 08 11:06:22 MDT 1992
FETCh?	Return readings stored in VME Memory (format set by FORM cmd)
FORMat	
[:DATA] <*format*>[, <*size*>]	Set format for response data from [SENSe:]DATA?
ASCii[, 7]	Seven bit ASCII format (not as fast as 32-bit because of conversion)
PACKed[, 64]	Same as REAL, 64 except NaN, +INF, and -INF format compatible with HP BASIC
REAL[, 32]	IEEE 32-bit floating point (requires no conversion so is fastest)
REAL, 64	IEEE 64-bit floating point (not as fast as 32-bit because of conversion)
[:DATA]?	Returns format: REAL, +32 | REAL, +64 | PACK, +64 | ASC, +7
INITiate	
:CONTinuous ON | OFF	When ON, module returns to Waiting for Trigger state after each scan When OFF, module goes to Trigger Idle state after each scan
[:IMMediate]	Put module in Waiting for Trigger state (ready to make one scan)
INPut	
:FILTer	Control filter Signal Conditioning Plug-ons
[:LPASs]	
:FREQuency <*cutoff_freq*>,(@<*ch_list*>)	Sets the cutoff frequency for active filter SCPs
:FREQuency? (@<*channel*>)	Returns the cutoff frequency for the channel specified
[:STATe] ON | OFF, (@<*channel*>)	Turn filtering OFF (pass through) or ON (filter)
[:STATe]? (@<*channel*>)	Return state of SCP filters
:GAIN <*chan_gain*>,(@<*ch_list*>)	Set gain for amplifier-per-channel SCP
:GAIN? (@<*channel*>)	Returns the channel's gain setting
:LOW <*wvolt_type*>,(@<*ch_list*>)	Controls the connection of input LO on a Strain Bridge (Opt. 21 SCP)
:LOW? (@<*channel*>)	Returns the LO connection for the Strain Bridge at *channel*

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SCPI Command Quick Reference	
Command	**Description**
MEMory	
:VME	
:ADDRess *<mem_address>*	Specify address of VME memory card to be used as reading storage
:ADDRess?	Returns address of VME memory card
:SIZE *<mem_size>*	Specify number of bytes of VME memory to be used to store readings
:SIZE?	Returns number of VME memory bytes allocate to reading storage
:STATe 1 | 0 | ON | OFF	Enable or disable reading storage in VME memory at INIT
:STATe?	Returns state of VME memory, 1=enabled, 0=disabled
OUTPut	
:CURRent	
:AMPLitude *<amplitude>*,(@*<ch_list>*)	Set the Current Source SCP channel to 488μA (MAX) or 30μA (MIN)
:AMPLitude? (@*<channel>*)	Returns the setting of the Current Source SCP channel
:STATe ON | OFF,(@*<ch_list>*)	Enable or disable the Current Source SCP channels
:STATe? (@*<channel>*)	Returns the state of the Current Source SCP channel
:SHUNt ON | OFF,(@*<ch_list>*)	Adds shunt resistance to leg of Bridge Completion SCP channels
:SHUNt? (@*<channel>*)	Returns the state of the shunt resistor on Bridge Completion SCP channel
:TTLTrg	
:SOURce FTRigger | LIMit | SCPlugon | TRIGger	Sets the internal trigger source that can drive the VXIbus TTLTrg lines
:SOURce?	Returns the source of TTLTrg drive.
:TTLTrg<n>	
[:STATe] ON | OFF	When module triggered, source a VXIbus trigger on TTLTrg<n>
[:STATe]?	Returns whether the TTL trigger line specified by n is enabled
:VOLTage	
:AMPLitude *<amplitude>*,(@*<ch_list>*)	Set the Strain Bridge excitation voltage (Option 21)
:AMPLitude? (@*<channel>*)	Returns the setting of the setting of excitation voltage on SCP
ROUTe	
:SCAN LIST1 | LIST2 | LIST3 | LIST4 | LISTL	Selects the Scan List to be used in the next measurement set
:SEQuence	
:DEFine LIST1 | LIST2 | LIST3 | LIST4 | LISTL | ALL,(@*<ch_list>*)	Specify order of channel measurements for Scan LISTn or all Scan Lists
:POINts? LIST1 | LIST2 | LIST3 | LIST4 | LISTL	Returns the number of points (channels) in Scan LISTn
SAMPle	
:TIMer LIST1 | LIST2 | LIST3 | LIST4 | LISTL | ALL,*<interval>*	Sets the time interval in seconds between channel measurements for Scan LISTn, or all four Scan Lists
:TIMer? LIST1 | LIST2 | LIST3 | LIST4 | LISTL	Returns the timer interval in seconds for Scan LISTn
[SENSe:]	
DATA	
:CVTable? (@*<ch_list>*)	Returns elements of Current Value Table specified by *ch_list*
:RESet	Resets all entries in the Current Value Table to IEEE "Not-a-number"
:FIFO	
[:ALL]?	Fetch all readings until instrument returns to trigger idle state
:COUNt?	Returns the number of measurements in the FIFO buffer
:HALF?	Returns 1 if at least 32,768 readings are in FIFO, else returns 0
:HALF?	Fetch 32,768 readings (half the FIFO) when available
:MODE BLOCK | OVERwrite	Set FIFO mode.
:MODE?	Return the currently set FIFO mode
:PART? *<n_readings>*	Fetch *n_readings* from FIFO reading buffer when available
:RESet	Reset the FIFO counter to 0
FILTer	
[:LPASs]	
[:STATe] ON | OFF	Enables/disables A/D's 6 KHz low-pass filter
[:STATe]?	Returns the state of the A/D's low-pass filter

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Command Quick Reference

SCPI Command Quick Reference	
Command	**Description**
FUNCtion	Equate a function and range with groups of channels
:CUSTom [<*range*>,](@<*ch_list*>)	Links channels to custom EU conversion table loaded by DIAG:CUST:LIN or DIAG:CUST:PIEC commands
:REFerence [<*range*>,](@<*ch_list*>)	Links channels to custom reference temperature EU conversion table loaded by DIAG:CUST:PIEC commands
:TC <*type*>,[<*range*>,](@<*ch_list*>)	Links channels to custom temperature EU conversion table loaded by DIAG:CUST:PIEC, and performs ref temp compensation for <*type*>
:RESistance <*excite_current*>,[<*range*>,](@<*ch_list*>)	Configure channels for two-wire resistance measurement
:STRain	Links measurement channels as having read bridge voltage from:
:FBENding [<*range*>,](@<*ch_list*>)	Full BENding
:FBPoisson [<*range*>,](@<*ch_list*>)	Full Bending Poisson
:FPOisson [<*range*>,](@<*ch_list*>)	Full POisson
:HBENding [<*range*>,](@<*ch_list*>)	Half BENding
:HPOisson [<*range*>,](@<*ch_list*>)	Half Poisson
[:QUARter] [<*range*>,](@<*ch_list*>)	QUARter
RTD, 85 | 92	two-wire RTDs
TCouple, CUST | E | EEXT | J | K | N | S | T	thermocouples
THERmistor, 2250 | 5000 | 10000	two-wire thermistors
:TEMPerature <*sensor_type*>,<*sub_type*>, [<*range*>,](@<*ch_list*>)	Configure channels for temperature measurement types above: excitation current comes from Current Output SCP.
:VOLTage[:DC] [<*range*>,](@<*ch_list*>)	Configure channels for DC voltage measurement
RTD, 85 | 92	RTDs
THERmistor,5000	thermistors
:REFerence <*sensor_type*>,<*sub_type*>,[<*range*>,](@<*ch_list*>)	Configure channel for reference temperature measurements above:
:TEMPerature <*degrees_c*>	Specifies the temperature of a controlled temperature reference junction
:STRain	
:EXCitation <*excite_v*>,(@<*ch_list*>)	Specifies the Excitation Voltage by channel to the strain EU conversion
:EXCitation? (@<*channel*>)	Returns the Excitation Voltage set for <*channel*>
:GFACtor <*gage_factor*>,(@<*ch_list*>)	Specifies the Gage Factor by channel to the strain EU conversion
:GFACtor? (@<*channel*>)	Returns the Gage Factor set for <*channel*>
:POISson <*poisson_ratio*>,(@<*ch_list*>)	Specifies the Poisson Ratio by channel to the strain EU conversion
:POISson? (@<*channel*>)	Returns the Poisson Ratio set for <*channel*>
:UNSTrained <*unstrained_v*>,(@<*ch_list*>)	Specifies the Unstrained Voltage by channel to the strain EU conversion
:UNSTrained? (@<*channel*>)	Returns the Unstrained Voltage set for <*channel*>
STATus	
:OPERation	Operation Status Group: Bit assignments; 0=Calibrating, 4=Measuring, 8=Scan Complete, 10=FIFO Half Full, 11=Limit Exceeded
:CONDition?	Returns state of Operation Status signals
:ENABle <*enable_mask*>	Bits set to 1 enable status events to be summarized into Status Byte
:ENABle?	Returns the decimal weighted sum of bits set in the Enable register
[:EVENt]?	Returns weighted sum of bits that represent Operation status events
:PRESet	Presets both the Operation and Questionable Enable registers to 0
:QUEStionable	Questionable Data Status Group: Bit assignments; 8=Calibration Lost, 9=Trigger Too Fast, 10=FIFO Overflowed, 11=Over voltage, 12=VME Memory Overflow, 13=Setup Changed.
:CONDition?	Returns state of Questionable Status signals
:ENABle <*enable_mask*>	Bits set to 1 enable status events to be summarized into Status Byte
:ENABle?	Returns the decimal weighted sum of bits set in the Enable register

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SCPI Command Quick Reference	
Command	Description
[:EVENt]?	Returns weighted sum of bits that represent Questionable Data events
SYSTem	
:CTYPe? (@<*channel*>)	Returns the identification of the SCP at *channel*
:ERRor?	Returns one element of the error queue "0" if no errors
:VERSion?	Returns the version of SCPI this instrument complies with
TRIGger	
:COUNt <*trig_count*>	Specify the number of trigger events that will be accepted
:COUNt?	Returns the current trigger count setting
[:IMMediate]	Triggers instrument when TRIG:SOUR is TIMer or HOLD (same as *TRG and IEEE 488.1 GET commands.
:SOURce BUS | EXT | HOLD | IMM | SCP | TIMer | TTLTrg<n>	Specify the source of instrument triggers
:SOURce?	Returns the current trigger source
:TIMer	Sets the interval between scan triggers when TRIG:SOUR is TIMer
:MODE ASYNchronous | SYNChronous	ASYNC; Trigger Timer runs only while module is INITed, SYNC; Trigger Timer runs continouosly
:MODE?	Returns setting of Trigger Timer Mode
[:PERiod] <*trig_interval*>	Sets the interval between scan triggers when TRIG:SOUR is TIMer
[:PERiod]?	Returns setting of trigger timer

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IEEE-488.2 Common Command Quick Reference			
Category	Command	Title	Description
Calibration	*CAL?	Calibrate	Performs internal calibration on all 64 channels out to the terminal module connector. Returns error codes or 0 for OK
Internal Operation	*IDN?	Identification	Returns the response: HEWLETT-PACKARD,E1413A,1413A<*serial number*>,<*revision number*>
	*RST	Reset	Resets all scan lists to zero length and stops scan triggering. Status registers and output queue are unchanged.
	*TST?	Self Test	Performs self test. Returns 0 to indicate test passed.
Status Reporting	*CLS	Clear Status	Clears all status event registers and so their status summary bits (except the MAV bit).
	*ESE <*mask*>	Event Status Enable	Set Standard Event Status Enable register bits mask.
	*ESE?	Event Status Enable query	Return current setting of Standard Event Status Enable register.
	*ESR?	Event Status Register query	Return Standard Event Status Register contents.
	*SRE <*mask*>	Service Request Enable	Set Service Request Enable register bit mask.
	*SRE?	Service Request Enable query	Return current setting of the Service Request Enable register.
	*STB?	Read Status Byte query	Return current Status Byte value.
Macros	*DMC <*name*>,<*cmd_data*>	Define Macro Command	Assigns one, or a sequence of commands to a macro.
	*EMC 1 | 0	Enable Macro Command	Enable/Disable defined macro commands.
	*EMC?	Enable Macros query	Returns 1 for macros enabled, 0 for disabled.
	*GMC? <*name*>	Get Macro query	Returns command sequence for named macro.
	*LMC?	Learn Macro query	Returns comma-separated list of defined macro names
	*PMC	Purge Macro Commands	Purges all macro commands
	*RMC <*name*>	Remove Individual Macro	Removes named macro command.
Synchronization	*OPC	Operation Complete	Standard Event register's Operation Complete bit will be 1 when all pending device operations have been finished.
	*OPC?	Operation Complete query	Places an ASCII 1 in the output queue when all pending operations have finished.
	*TRG	Trigger	Trigger s module when TRIG:SOUR is HOLD.
	*WAI	Wait to Complete	

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