

Programmable DC Electronic Load

RMX-400x Series

PROGRAMMING MANUAL



ISO-9001 CERTIFIED MANUFACTURER

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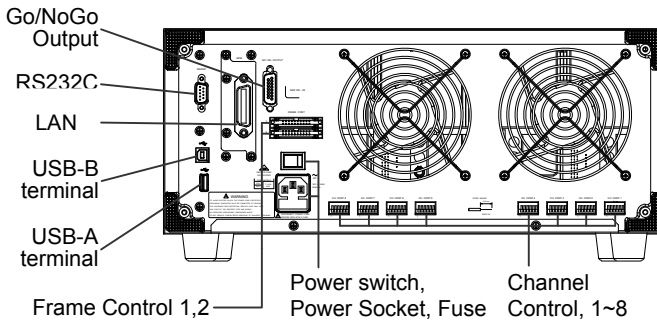
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INTERFACE OVERVIEW

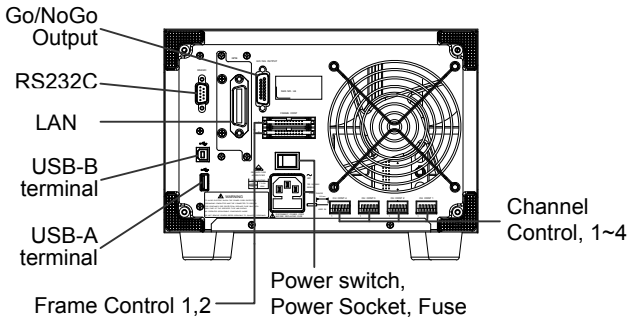
This manual describes how to use the RMX-400x remote command functionality and lists the command details. The Overview chapter describes how to configure the RMX-400x USB/RS232 remote control interface.

Rear Panel Overview

RMX-4002



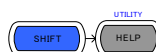
RMX-4000



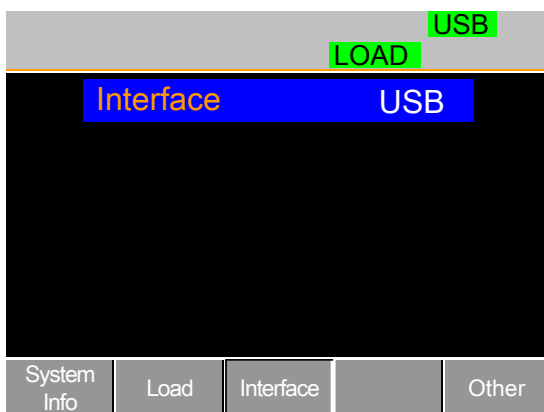
Configuring the USB Interface

USB Connection	PC side connector	Type A, host
	RMX-4000 side connector	Type B, device
	Speed	1.1/2.0 (full speed)

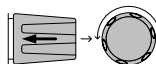
- Panel Operation
1. Press the Shift and Help keys to access the Utility menu.



2. Press F3 (Interface Menu).



3. If the interface is not USB, use the selector knob to choose USB.



4. Connect the USB cable to the USB-B slave port on the rear.



5. When the PC asks for the USB driver, select `pel_cdc_2000.inf` (downloadable from the RMX-400x product page on the National Instruments website, ni.com).
6. On the PC, activate a terminal application such as MTTY (Multi-Threaded TTY). To check the COM port number, refer to the Device Manager in the PC. For Windows XP, select Control Panel → System → Hardware tab.
7. Run this query command via the terminal application:

`*idn?`

This command should return the manufacturer, model number, serial number, and firmware version in the following format:

NATIONAL INSTRUMENTS, RMX-4002, NI
00000001, V2.08T

8. You have finished configuring the command interface. Refer to the other chapters for more details.

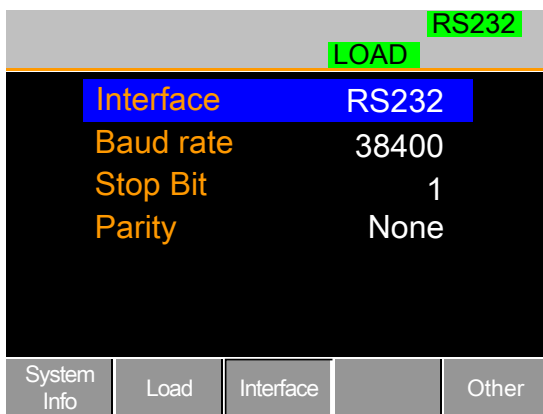
RS232C Interface Configuration

RS232C Configuration	Connector	DB-9, Male
	Baud rate	2400, 4800, 9600, 19200, 38400
	Parity	None, Odd, Even
	Data bit	8 (fixed)
	Stop bit	1, 2

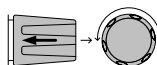
Panel Operation 1. Press the Shift and Help keys to access the Utility menu.

2. Press F3 (Interface Menu).

F3



3. If the interface is not set to RS232, use the selector knob to change the interface to RS232.



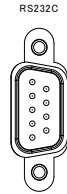
4. Edit the baud rate, stop bit, and parity.

Baud rate 2400, 4800, 9600, 19200, 38400

Stop bit range 1,2

Parity range None, Odd, Even

5. Connect the RS232C cable to the rear panel port DB-9 male connector.



Terminal Application

Invoke a terminal application such as MTTY (Multi-Threaded TTY).

- For RS232C, set the COM port, baud rate, stop bit, data bit, and parity accordingly.

To check the COM port No. for RS232C, refer to the Device Manager in the PC. For Windows XP, select Control Panel → System → Hardware tab.

6. Ensure the terminal application has the following settings:

Baud rate – as per RMX-400x settings

Com port – as per PC settings (Device Manager)

Parity – None

Data bits – 8

Stop bits – None

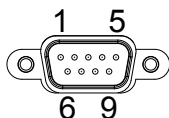
Functionality Run this query command via the terminal:
Check

*idn?

This should return the manufacturer, model number, serial number, and firmware version in the following format:

NATIONAL INSTRUMENTS, RMX-4000/4002, NI
00000001, V2.08T

Pin Assignment



2: RxD (Receive data)

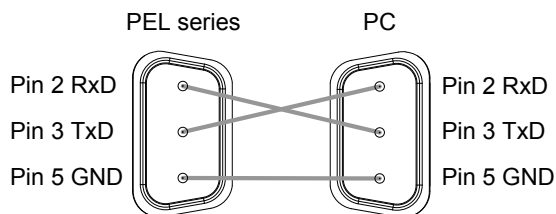
3: TxD (Transmit data)

5: GND

1, 4, 6, 7, 8, 9: No connection

PC Connection

Use the Null Modem connection as shown in the following diagram.



C

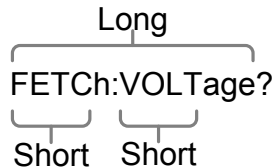
OMMAND OVERVIEW

The Command overview chapter lists all the RMX-400x commands and command queries. The command syntax section describes the basic rules you must apply when using commands.

Command Syntax

Compatible Standard	• IEEE488.2, 1992 (fully compatible) • SCPI, 1994 (partially compatible)
Command Types	There are several different instrument commands and queries. A command sends instructions or data to the electronic load, and a query receives data or status information from the electronic load.
Command Types	
Simple	A single command with/without a parameter
Example	*OPC
Compound	Two or more commands separated by a colon (:) with/without a parameter
Example	UTILITY:SOUND 1
Query	A query is a simple or compound command followed by a question mark (?). A parameter (data) is returned.
Example	UTILITY:SOUND?

Command Forms Commands and queries have two different forms, long and short. The command syntax is written with the short form of the command in capitals and the remainder (long form) in lower case.



You can write the commands in capitals or lower case, as long as the short or long forms are complete. An incomplete command will not be recognized.

Below are examples of correctly written commands.

LONG FETCh:VOLTage? FETCH:VOLTAGE?
 fetch:voltage?

SHORT FETC:VOLT? fetc:volt?

Square Brackets Commands that contain squares brackets indicate that the contents are optional. The command function is the same with or without the square bracketed items, as shown below.

Example:

:LOAD[:STATe]

= :LOAD:STATe

= :LOAD

Command :PROGram:CHAIIn <NR1>LF 1: Command header

Format

┌──────────┐ ┌──┐ ┌──┐ ┌──┐ 2: Single space

1

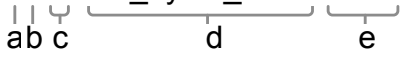
2

3

4

3: Parameter

4: Message terminator

Parameter	Type	Description	Example
	<Boolean>	Boolean logic	0, 1
	<NR1>	integers	0, 1, 2, 3
	<NR2>	decimal numbers	0.1, 3.14, 8.5
	<NR3>	floating point	4.5e-1, 8.25e+1
	<NRf>	any of NR1, 2, 3	1, 1.5, 4.5e-1
	<NRf+>	NRf type including MIN (minimum) and MAX (maximum) limits of the parameter	1, 1.5, 4.5e-1 MAX, MIN
	<aard>	Arbitrary ASCII characters	
	<block data>	IEEE-488.2 binary block data. The block data is comprised of five parts:	
		$\#216<16_bytes_data><NL>$  a. Initialization character (#) b. Digit length (in ASCII) of the number of bytes c. Number of bytes d. Binary data e. New line character	
Message Terminator	LF^END	Line feed code (hexadecimal 0A) with END message	
	LF	Line feed code	
	<dab>^END	Last data byte with END message	

List of Commands in Functional Order

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	*OPC	26
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COMMAND DETAILS

The Command Details chapter describes the detailed syntax, equivalent panel operation, and example for each command. For the list of all commands, refer to page 14. Before programming the RMX-400x electronic load, become familiar with the Status registers, detailed on page 173.

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Common Commands

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*OPC	26
*RCL	27
*RDT?	27
*RST	29
*SAV	29
*SRE	29
*STB?	30
*TST?	30

*CLS	Status Command
Description	Clears: - Channel Status Register - Channel Summary Register - Questionable Status Register - Standard Events Register - Operation Status Register - Error Queue When the *CLS command follows a program message terminator <nl>, the following is cleared: - Output Queue - MAV bit Refer to page 173.
Syntax	*CLS
Example	*CLS

***ESE**
Status Command

Description The Standard Event Status Enable command determines which events in the Standard Event Status Event register can set the Event Summary Bit (ESB) of the Status Byte register. Any bit positions set to 1 enable the corresponding event. Any enabled events set bit 5 (ESB) of the Status Byte register. Refer to page 180.

Syntax ***ESE <NRf>**

Parameter	<NRf>	Bit(s) Set	<NRf>	Bit(s) Set
	4	QYE	32	CME
	8	DDE	64	~
	16	EXE	128	~

Example ***ESE 40** Sets CME and DDE events in the Standard Event Status Event Register.

Query Syntax ***ESE?**

Return Parameter	<NR1>	Bit(s) Set	<NR1>	Bit(s) Set
	4	QYE	32	CME
QYE	8	DDE	64	~
	16	EXE	128	~

Example ***ESE?** Returns the settings in the Standard Event Status Enable Register. Here CME and QYE are enabled.
 40

***ESR?**
Status Command

Description	Reads the Standard Event Status Register. This command also clears the Standard Event Status Register. Refer to page 179.			
Query Syntax	*ESR?			
Return Parameter	<NR1>	Bit(s) Set	<NR1>	Bit(s) Set
	4	QYE	32	CME
	8	DDE	64	~
	16	EXE	128	~
Example	*ESR? 48		The return value is the status reading of the standard Event Status Register.	

*IDN?

System Command

Description	Returns the electronic load identification.			
Query Syntax	*IDN?			
Return Parameter	<aard>	Data	<aard>	Data
	NATIONAL INSTRUMENTS	Manufacturer	NI 00000001	Serial No.
	RMX-4002	Model	V2.08T	Firmware Version
Example	*IDN? NATIONAL INSTRUMENTS, RMX-4002, NI 00000001, V2.08T		Returns the mainframe identification string.	

*OPC

Status Command

Description	This command sets the OPC (Operation Command Bit) bit (bit 0) of the Standard Event Status Register after the mainframe has completed all pending operations. Refer to page 179.
-------------	--

Syntax	*OPC			
Example	*OPC		Sets the OPC bit.	
Query Syntax	*OPC?			
Return Parameter	<NR1>	Operation	<NR1>	Operation
	0	Pending	1	Complete
Query Example	*OPC? 1		All pending operations are completed.	

*RCL Status Command

Description	The Recall Instrument State command restores the instrument settings from a previously saved memory setting.		
Syntax	*RCL <NRf>		
Parameter	<NRf>	Recall Memory Setting	
	1~120	1~120	
Example	*RCL 1		Recalls setting memory 1.

*RDT? System Command

Description	Returns the load module type in each channel in order from 1~8. If no frame is present, a 0 is returned.		
Query Syntax	*RDT?		
Return Parameter	<aard>	Occupied channel	
	2020L	RMX-4003 left channel	
	0	Empty channel	

Query Example	<code>*RDT? 0,0,2020L,2020R,0,0,0,0</code>	Channels 1-2 and 5-8 are empty; the RMX-4003 load module occupies channels 3-4.
---------------	--	---

*RST Status Command

Description	Resets the mainframe by forcing the ABORT, *CLS, and LOAD:PROT:CLE command.
Syntax	*RST
Example	*RST

*SAV All-Channels

Description	Saves the data memory into the specified save slot.		
Syntax	*SAV <NR1>		
Parameter	<NR1> 1~120	Save slot 1~120	
Example	*SAV 2	Saves data memory to save slot 2.	

*SRE Status Command

Description	The Service Request Enable Command determines which events in the Status Byte Register can set the MSS (Master summary bit). Any bit set to “1” causes the MSS bit to be set. Refer to page 181 for details.			
Syntax	*SRE <NRf>			
Parameter	<NRf> 4 8 16	Bit(s) Set CSUM QUES MAV	<NRf> 32	Bit(s) Set ESB
Example	*SRE 12	Sets bits CSUM and QUES in the Service Request Enable register.		

Query Syntax	*SRE?			
Return Parameter	<NR1>	Bit(s) Set	<NRf>	Bit(s) Set
	4	CSUM	32	ESB
	8	QUES		
	16	MAV		
Example	*SRE? 48		Returns settings of the Service Request Enable Register. Here ESB and MAV are returned.	

***STB?** Status Command

Description	Reads the Status Query Byte Register. The *STB? command does not clear the register. If the Master Summary Status bit (MSS) is set, it indicates there is a reason for a service request.			
Query Syntax	*STB			
Return Parameter	<NRf>	Bit(s) Set	<NRf>	Bit(s) Set
	4	CSUM	32	ESB
	8	QUES	64	MSS
	16	MAV		
Query Example	*STB? 36		Returns status of a byte query in the Status Byte Register. Here CSUM and ESB are returned.	

***TST?** Status Command

Description	Performs a system self-test and returns 0 if all tests passed. 1 is returned if a test failed.			
Query Syntax	*TST?			
Return Parameter	<NR1>	Test result	<NR1>	Test result

	0	Pass	1	Fail
Example	*TST? >0			

Abort Subsystem

:ABORT.....32

:ABORT	All- Channel Command
--------	-------------------------

Description	Turns all electronic loads to OFF.
-------------	------------------------------------

Syntax	:ABORT
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Example	:ABORT
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:CHANnel[:LOAD]		Channel-Specific Command
Description	Selects the channel that the channel-specific commands use. This command does not change the channel in the display screen.	
Syntax	:CHANnel[:LOAD] <NRf+>	
Parameter	<NRf+> 1~8 MAX MIN	Channel selected CH1 ~ CH8 CH8 CH1
Example	:CHAN 1	Sets channel 1 as the specific channel.
	:CHAN:LOAD 1	Sets channel 1 as the specific channel.
Query Syntax	:CHANnel? [LIST]	
Return Parameter	<NR1> 1~8 LIST	Current specific channel CH1 ~ CH8 Lists available channels
Query Example	:CHAN? LIST	Channel 1 and 2 are available.
	1, 2	

:CHANnel:SYNCon		Channel-Specific Command
Description	Turns independent mode on or off for the channel.	
Syntax	:CHANnel:SYNCon {ON 1 OFF 0}	
Parameter	ON/1 OFF/0	ON OFF
Example	:CHAN:SYNCon ON	Enables the current channel to receive synchronized commands.
Query Syntax	:CHANnel:SYNCon?	
Return Parameter	<NR1> 0 1	Sync Status Independent mode is OFF Independent mode is ON
Query Example	:CHAN:SYNCon? 0	Independent mode is set to OFF for the channel.

:CHANnel:SYNCon:ALL		All-Channels
Description	Turns independent mode on or off for all the channels.	
Syntax	:CHANnel:SYNCon:ALL {ON 1 OFF 0}	
Parameter	ON/1 OFF/0	ON for all channels OFF for all channels
Example	:CHAN:SYNCon:ALL ON	Enables all channels to receive synchronized commands

:CHANnel:ID?			Channel-Specific Command	
Description	Queries the load module identity.			
Query Syntax	:CHANnel:ID?			
Return Parameter	<aard> NATIONAL INSTRUMENTS RMX4003R	Data Manufacturer Channel load id	<aard> NI 00000001 V2.08T	Data Serial Number Firmware Version
Query Example	:CHAN:ID? NATIONAL INSTRUMENTS,RMX- 4003,NI 00000001,V2.08T		Returns the load module identification string.	
:CHANnel:DISPlay			Channel-Specific Command	
Description	Sets or queries which channel is active on the mainframe display.			
Syntax	:CHANnel:DISPlay <NRf+>			
Parameter	<NRf+> 1~8 MAX MIN		Channel displayed CH1 ~ CH8 Last channel First channel	
Example	:CHAN:DISP 1		Sets to the active channel on the display to ch1.	
Query Syntax	:CHANnel:DISPlay? [MAX MIN]			
Return Parameter	<NR1> 1~8 MAX/MIN		Channel displayed CH1 ~ CH8 Returns the allowable maximum or minimum	

Query Example	:CHAN:DISP? 1	Channel 1 is currently active on the display.
:CHANnel:MEMo		Channel-Specific Command
Description	Creates or returns the “memo” displayed on the System Information screen in the Utility menu. This memo applies to only this specific channel. The memo replaces the serial number information in the System Information screen.	
Syntax	:CHANnel:MEMo <string>	
Parameter/ Return parameter	<string>	String containing memo
Example	:CHAN:MEM “this is a memo”	Sets to the memo to “this is a memo”.
Query Syntax	:CHANnel:MEMo?	
Query Example	:CHAN:MEM? this is a memo	Returns the memo message.
:MEMo?		Channel-Specific Query
Description	Creates or returns the “memo” displayed on the System Information screen in the Utility Menu. This memo applies to the mainframe. The memo replaces the serial number information in the System Information screen.	
Syntax	:MEMo <string>	
Parameter/ Return parameter	<string>	String containing memo
Example	:MEM “this is a memo”	Set the memo to “this is a memo”.
Query Syntax	:MEMo?	

Query Example	:MEM? this is a memo	Returns the memo message.
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CONFIGURE Subsystem

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:CONFigure:VOLTage:ON		Channel-Specific Command
Description	Sets Von (voltage on value). The allowable Von values are channel and load module specific.	
Syntax	:CONFigure:VOLTage:ON <NRf>[MV V KV]	
Parameter	<NRf>[MV V KV]	Von
	3	3 V
	30MV	30 mV
	30V	30 V

Example	:CONF:VOLT:ON 30MV	Set Von to 30 mV.
Query Syntax	:CONFigure:VOLTage:ON?	
Return Parameter	<NR2> 1 unit = 1 V 1	Von value (volts) 1 V
Query Example	:CONF:VOLT:ON? 0.03	Von is set as 30 mV (0.03 V).

:CONFigure:VOLTage:RANGe Channel-Specific
Command

Description	Sets Voltage range for CC mode.	
Syntax	:CONFigure:VOLTage:RANGe <Nrf>[V] L H	
Parameter	<Nrf>[V], L, H	Range
	16	Low range*
	80V	High range*
	L	Low range
	H	High range
	*Load module dependent, RMX-4003 shown.	

Example	:CONF:VOLT:RANG L	Sets the range to Low for the channel.
Query Syntax	:CONFigure:VOLTage:RANGe?	
Return Parameter	<NR2> 16 125 80 500	Range Low RMX-4003, 4004, 4005 Low RMX-4006 High RMX-4003, 4004, 4005 High RMX-4006
Query Example	:CONF:VOLT:RANG? 500	Returns the voltage range. In this case, high for the RMX-4006.

:CONFigure:VOLTage:LATch		Channel-Specific Command
Description	Turn Von Latch on or off for the specific channel.	
Syntax	:CONFigure:VOLTage:LATch {OFF o ON 1}	
Parameter	{OFF o ON 1}	Von Latch
	OFF/o	Off
	ON/1	On
Example	:CONF:VOLT:LAT 1	Sets Von latch to ON.
Query Syntax	:CONFigure:VOLTage:LATch?	
Return Parameter	<NR1>	Von latch status
	0	Latched Off
	1	Latched On
Query Example	:CONF:VOLT:LAT?	Von latch is set to ON.
	1	

:CONFigure:AUTO:LOAD		All Channels
Description	Configures the electronic load for Auto Load On or Off at start up.	
Syntax	:CONFigure:AUTO:LOAD {OFF o ON 1}	
Parameter	{OFF o ON 1}	Auto Load
	OFF/o	Off
	ON/1	On
Example	:CONF:AUTO:LOAD ON	Configures Auto Load to On.
Query Syntax	:CONFigure:AUTO:LOAD?	
Return Parameter	<NR1>	Auto Load Status
	0	Off
	1	On

Query Example	:CONF:AUTO:LOAD?	Auto load is On.
	1	

:CONFigure:AUTO:MODE All Channels

Description	Configures the Auto Load mode as (run) Program or Load.	
Syntax	:CONFfigure:AUTO:MODE PROGRAM/o, LOAD/1	
Parameter	PROGRAM/o, LOAD/1 PROGRAM/o LOAD/1	Auto Load Mode PROGRAM LOAD
Example	:CONF:AUTO:MODE 1	Configures Auto Load to LOAD
Query Syntax	:CONFfigure:AUTO:MODE?	
Return Parameter	<NR1> 0 1	Auto Load Type Status PROGRAM MODE LOAD MODE
Query Example	:CONF:AUTO:MODE? 1	Auto load mode is to LOAD mode.

:CONFigure:SOUND Channel-Specific Command

Description	Sets the sound of each load module on or off.	
Syntax	:CONFfigure:SOUND {OFF o ON 1}	
Parameter	OFF/o ON/1	Off On
Example	:CONF:SOUND ON	Configures the sound for the specific channel to On.
Query Syntax	:CONFfigure:SOUND?	

Return Parameter	<NR1>	SOUND Status
	0	Off
	1	On

Query Example	:CONF:SOUND?	Sound is off for the specific channel.
	0	

:CONFigure:REMOte All Channels

Description	Turns remote control on or off for all interfaces.	
Syntax	:CONFigure:REMOTE {OFF 0 ON 1}	
Parameter	OFF/0	Off
	ON/1	On
Example	:CONF:REM 1	Turns Remote control on.

:CONFigure:LOAD System Command

Description	Configures the load module selector knob as OLD or Updated.	
Syntax	:CONFigure:LOAD {OLD 0 UPDATED 1}	
Example	:CONF:LOAD UPDATED	Sets the load module selector knob as Updated.
Parameter	OLD/0	Old
	UPDATED/1	Updated
Example	:CONF:LOAD OLD	Configuration type set as OLD.
Query Syntax	:CONFigure:LOAD?	
Return Parameter	<NR1>	Configuration type
	0	Old

	1	Updated
Query Example	:CONF:LOAD? 0	Sets the load module selector configuration type as OLD.
:CONFigure:PROTection:CURRent:STATe		Channel-Specific Command
Description	Sets the current protection for the specific channel on or off. The current protection can also be cleared.	
Syntax	:CONFigure:PROTection:CURRent:STATe {OFF 0 ON 1 CLEAR 2}	
Parameter	CLEAR/2 OFF/0 ON/1	Cleared Off On
Example	:CONF:PROT:CURR:STAT 1	Turns on current protection.
Query Syntax	: CONFigure:PROTection:CURRent:STATe?	
Return Parameter	<NR1> 0 1 2	Current Protection Off On Clear
Query Example	:CONF:PROT:CURR:STAT? 1	Current protection is turned on.

:CONFigure:PROTection:CURRent:LEVel		Channel-Specific Command
Description	Sets the current protection level for the current/specific channel. You can set the level to any applicable level or to the channel maximum/ minimum.	
Syntax	:CONFigure:PROTection:CURRent:LEVel <Nrf>[A] MIN MAX	

Parameter	<NRf>	Current Protection Level
	.3	300 mA
	0.3A	300 mA
	300mA	300 mA
	MIN	Sets to the minimum level
	MAX	Sets the current limit to the maximum level
Example	:CONF:PROT:CURRE:LEV MAX	Sets the current limit to 20.40 A (RMX-4003)
Query Syntax	: CONFIgure:PROTection:CURREnt:LEVel? [MIN MAX]	
Return Parameter	<NRf> 1 unit = 1 A	Current protection level
	1	1 A
	MAX/MIN	Returns the allowable maximum and minimum
Query Example	:CONF:PROT:CURRE:LEV? 0.30	Current protection level is at 300 mA.

Channel-Specific
Command

:CONFigure:PROTection:VOLTage:STATe

Description	Sets the voltage protection for the current/specific channel on or off. Also can clear the voltage protection.	
Syntax	:CONFigure:PROTection:VOLTage:STATe {OFF 0 ON 1 CLEAR 2}	
Parameter	CLEAR/2	Clear
	OFF/0	Off
	ON/1	On
Example	:CONF:PROT:VOLT:STAT 1	Turns on voltage protection.
Query Syntax	: CONFigure:PROTection:VOLTage:STATe?	
Return Parameter	<NR1>	Voltage Protection ion state
	0	Off
	1	On
	2	Clear
Query Example	:CONF:PROT:VOLT:STAT? 0	Voltage protection is currently off.

Channel-Specific
Command

:CONFigure:PROTection:VOLTage:LEVel

Description	Sets the voltage protection level for the current/specific channel. You can set the level to any applicable level or to the channel maximum/ minimum.	
Syntax	:CONFigure:PROTection:VOLTage:LEVel <NRf>[V] MIN MAX	
Parameter	<NRf>	Voltage Protection Level
	30	30 V
	30V	30 V

	MIN	Sets to the minimum level
	MAX	Sets the voltage limit to the maximum level
Example	:CONF:PROT:VOLT:LEV MAX	Sets the voltage limit to 81.6 V (RMX-4003).
Query Syntax	: CONFIgure:PROTection:VOLTage:LEVel? [MIN MAX]	
Return Parameter	<NRf> 1 unit = 1 V	Voltage protection level
	1.00	1.00 V
	MAX/MIN	Returns the allowable maximum and minimum
Query Example	:CONF:PROT:VOLT:LEV? 81.6000	Voltage protection level is at 81.6 V.
:CONFIgure:PROTection:POWEr:STATe		Channel-Specific Command
Description	Sets the power protection for the current/specific channel on or off. Also can clear the power protection.	
Syntax	:CONFIgure:PROTection:POWEr:STATe {OFF 0 ON 1 CLEAR 2}	
Parameter	CLEAR/2	Cleared
	OFF/0	Off
	ON/1	On
Example	:CONF:PROT:POW:STAT 1	Turns on power protection.
Query Syntax	: CONFIgure:PROTection:POWEr:STATe?	
Return Parameter	<NR1>	Power Protection
	0	Off
	1	On
	2	Clear
Query Example	:CONF:PROT:POW:STAT? 1	Power protection is currently on.

:CONFigure:PROTection:POWer:LEVel		Channel-Specific Command
Description	Sets the power protection level for the current/specific channel. You can set the level to any applicable level or to the channel maximum/minimum.	
Syntax	:CONFigure:PROTection:POWer:LEVel <NRf>[W] MIN MAX	
Parameter	<NRf> 200 200W MIN MAX	Power Protection Level 200 W 200 W Sets to the minimum level Sets the power limit to the maximum level
Example	:CONF:PROT:POW:LEV MAX	Sets the power limit to 102 W (RMX-4003).
Query Syntax	: CONFigure:PROTection:POWer:LEVel? [MIN MAX]	
Return Parameter	<NRf> 1 unit = 1 W MAX/MIN	Power protection level Returns the power protection level in watts Returns the allowable maximum and minimum
Query Example	:CONF:PROT:POW:LEV? 75	Power protection level is at 75 W.

:CONFigure:PROTection:UVP:CLEar		All-Channel Command
Description	Clears the under voltage power protection status.	
Syntax	:CONFigure:PROTection:UVP:CLEar	
Example	:CONF:PROT:UVP:CLE	Clears the under voltage protection.

:CONFIgure:PROTEction:UVP:LEVel Channel-Specific Command

Description	Sets the under voltage protection level for the current/specific channel. You can set the level to any applicable level or to the channel maximum/minimum.	
Syntax	:CONFIgure:PROTEction:UVP:LEVel <NRf>[W] MIN MAX	
Parameter	<NRf>	UVP Level
	20	20 V
	20V	20 V
	MIN	Sets to the minimum level (OFF)
	MAX	Sets the voltage limit to the maximum level
Example	:CONF:PROT:UVP:LEV MIN	Sets the UVP limit to OFF.
Query Syntax	:CONFIgure:PROTEction:UVP:LEVel? [MIN MAX]	
Return Parameter	<NRf>	Power protection level
	1 unit = 1 V	Returns the UVP level as volts
	MAX/MIN	Returns the allowable maximum and minimum
Query Example	:CONF:PROT:UVP:LEV? 75	UVP level is at 75 V.

:CONFIgure:RESPonse Channel-Specific Command

Description	Sets or queries the response rate for the specific channel.	
Syntax	:CONFIgure:RESPonse {NORMAL o FAST 1}	
Parameter	NORMAL/o	Normal

	FAST/1	Fast
Example	:CONF:RESP 0	Response set to normal.
Query Syntax	: CONFigure:RESPonse?	
Return Parameter	<NR1>	Response
	0	Normal
	1	Fast
Query Example	:CONF:RESP? 1	Response is Fast.
:CONFigure:RESEt		Channel-Specific Command
Description	Recalls the original factory default settings.	
Syntax	:CONFigure:RESEt	
Example	:CONF:RESE	
:CONFigure:GROup:UNITs		Channel-Specific Command
Description	Sets or queries the number of single channel load modules (RMX-4005 or RMX-4006) that you can use in the parallel mode.	
Syntax	CONFigure:GROup:UNITs <NRf> MIN MAX	
Parameter	<NRf>	Number of units
	MIN	Sets to the minimum number
	MAX	Sets to the maximum number
Example	CONF:GRO:UNIT 2	Sets the parallel mode to 2 units.
Query Syntax	CONFigure:GROup:UNITs? [MIN MAX]	
Return Parameter	<NR1>	Returns the number of units

	MAX/MIN	Returns the allowable maximum and minimum
Query Example	:CONF:GRO:UNIT? 2	2 units are set for the parallel mode.
:CONFigure:GROup:MODE		Channel-Specific Command
Description	Sets or queries the parallel mode.	
Syntax	:CONFigure:GROup:MODE {SYNC 0 PARALLEL 1}	
Parameter	SYNC, 0	Sync mode
	PARALLEL, 1	Parallel mode
Example	:CONF:GRO:MODE 0	Sets the parallel mode to SYNC.
Query Syntax	:CONFigure:GROup:MODE?	
Return Parameter	0	Sync mode
	1	Parallel mode
Query Example	:CONF:GRO:MODE? 0	The parallel mode is currently set to SYNC.

Utility Subsystem

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:UTILITY:AUTO:LOAD System Command

Description	Sets the mainframe to auto mode. On startup, the mainframe turns loads/programs on.
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Syntax	:UTILITY:AUTO:LOAD {OFF 0 ON 1}
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Parameter	OFF/0	Turns auto loading off
	ON/1	Turns auto loading on

Example	:UTIL:AUTO:LOAD 1	Turns auto loading on.
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Query Syntax	:UTILITY:AUTO:LOAD?
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Return Parameter	<NR1>	Auto load status
	0	Auto loading is off
	1	Auto loading is on

Query Example	:UTIL:AUTO:LOAD? 1	The main frame is currently configured to auto load.
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:UTILity:AUTO:MODE

System Command

Description Sets the mainframe auto mode as load or program. Upon startup the mainframe can automatically turn on loads or automatically run the last program.

Syntax :UTILity:AUTO:MODE {PROGRAM|0|LOAD|1}

Parameter	PROGRAM/0	Sets the auto load mode to program
	LOAD/1	Sets the auto load mode to load

Example :UTIL:AUTO:MODE 1 Auto load mode is set to load.

Query Syntax :UTILity:AUTO:MODE?

Return Parameter	<NR1>	Auto load mode
	0	Program
	1	Load

Query Example :UTIL:AUTO:MODE?
0 Auto load mode is set to program.

:UTILity:SOUND

System Command

Description Turns the sound on/off for the mainframe/load modules.

Syntax :UTILity:SOUND {OFF|0|ON|1}

Parameter	OFF/0	Turns sound off
	ON/1	Turns sound on

Example :UTIL:SOUN 1 Turns sound on.

Query Syntax :UTILity:SOUND?

Return Parameter	<NR1>	Sound
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	0	Off
	1	On
Query Example	:UTIL:SOUN? 0	Sound is currently set to off.

:UTILity:REMOte System Command

Description	Turns the remote control on or off.	
Syntax	:UTILity:REMOte {OFF 0 ON 1}	
Parameter	OFF/0	Turns Remote control off
	ON/1	Turns remote control on
Example	:UTIL:REM 1	Turns remote control on.

:UTILity:REMOte:MODE System Command

Description	Sets the remote mode to fast or normal. In fast mode, the panel interface is deactivated with an interface time of no more than 10 ms. Normal mode has an interface time of 30~130 ms. In normal mode, the display interface continues to update the screen in real time.	
Syntax	:UTILity:REMOte:MODE {NORMAL 0 FAST 1}	
Parameter	NORMAL/0	NORMAL
	FAST/1	FAST
Example	:UTIL:REM:MODE 1	Turns remote mode to fast.

.:UTILITY:TIME		System Command
Description	Sets the date and time on the mainframe.	
Syntax	.:UTILITY:TIME [aard]	
Parameter	[aard] “201511131300” 1 2 3	1 Year 2 Month/Day 3 Time (24 hours)
Example	:UTIL:TIME “201501031343” Sets the time to 1:00 p.m., January 3, 2015.	
Query Syntax	.:UTIL:TIME?	
Return Parameter	[aard] 2015/11/13/13:00 1 2 3	1 Year 2 Month/Day 3 Time (24 hours)
Query Example	:UTIL:TIME? 2015/11/13/13:00	The date is November 13, 2015. The time is 1:00 p.m.

.:UTILITY:LOAD		System Command
Description	Sets the knob control style. You can set the load module control knobs to operate independently (OLD style) to the mainframe or with the mainframe (UPDATED).	
Syntax	.:UTILITY:LOAD {OLD o Updated 1}	
Parameter	OLD/o UPDATED/1	Old Updated
Example	:UTIL:LOAD 1	Set the knob style to independent.

Query Syntax	:UTILity:LOAD?	
Return Parameter	<NR1>	Knob style
	0	Old
	1	Updated
Query Example	:UTIL:LOAD? 1	The knob style is set to Updated.

:UTILity:IDENTify System Command

Description	Flashes a message "I am Here!" on the mainframe display. This command is useful to identify an RMX-400x mainframe in a group. Pressing any key on the mainframe also turns off the message.	
Syntax	:UTILity:IDENTify {OFF 0 ON 1}	
Parameter	OFF/0	Turns message off
	ON/1	Turns message on
Example	:UTIL:IDEN 1	Turns on the message.

:UTILity:FRAME System Command

Description	Turns Frame Link on or off.	
Syntax	:UTILity:FRAME {OFF 0 ON 1}	
Parameter	{OFF 0 ON 1}	Frame Link
	OFF/0	off
	ON/1	on
Example	:UTIL:FRAM 1	Turns Frame Link on.
Query Syntax	:UTILity:FRAME?	
Return Parameter	<NR1>	Frame Link
	0	Off
	1	On

Query Example :UTIL:FRAM?

Frame Link is on.

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Current Subsystem

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:CURRent:STATic:RECall		Channel-Specific Command
Description	Sets or queries whether A Value or B Value is the currently active value in CC static mode.	
Syntax	:CURRent:STATic:RECall {A o B 1}	
Parameter	A/o	A
	B/1	B
Example	:CURR:STAT:REC 1	Makes B Value the active value.
Query Syntax	:CURRent:STATic:RECall?	
Return Parameter	<NR1>	Value
	0	A

	1	B
Query Example	:CURR:STAT:REC?	A Value is active.
	0	
	:CURRent:STATic:L1/L2	Channel-Specific Command
Description	Sets the A/B Value for constant current static mode, where L1 is A Value and L2 is B Value. The command is range dependent. If the current range is Low, the command applies to only the low-range settings.	
Syntax	:CURRENT:STATic:L1 L2 <NRf+>[A]	
Parameter	<NRf+>[A] L1 1 Sets A Value to 1 A L2 2 Sets B Value to 2 A L1 1A Sets A Value to 1 A (single channel only) L1 MIN Sets A Value to the minimum level for the specific channel L1 MAX Sets A Value to the maximum level for the specific channel	
Example	:CURR:STAT:L1 1	Sets A Value to 1 A for the current range.
Query Syntax	:CURRent:STATic:L1?/L2? [MAX MIN]	
Return Parameter	<NR2> [MAX MIN] 1 unit = 1 A Returns the A Value (L1) or B Value (L2) current MAX/MIN Returns the allowable maximum and minimum	

Query Example	:CURR:STAT:L2? MAX 10.2	Returns the maximum current allowed for the channel. (RMX-4003)
Query Example	:CURR:STAT:L2? 2	Returns the current setting (2 A) for B Value.
.:CURRent:STATic:RISE/FALL		Channel-Specific Command
Description	Sets the slew rate for constant current static mode. The command is range dependent. If the current range is Low, the command applies to only the low range settings.	
Syntax	.:CURRent:STATic:RISE/FALL <NRf+>[A/μs]	
Parameter	<NRf+>[A/μs]	Slew rate
	RISE/FALL 0.078 A/μs	Sets the rising/falling slew rate to 0.078 A/μs
	RISE/FALL 1	Sets the rising/falling slew rate to 1 A/μs
	RISE/FALL MIN	Sets to the slowest rising/falling slew rate
	RISE/FALL MAX	Sets to the fastest rising/falling slew rate
Example	:CURR:STAT:RISE .01	Sets the rising slew rate to 0.01 A/μs.
Query Syntax	: CURRent:STATic:RISE/FALL? [MIN MAX]	
Return Parameter	<NR2> [MAX MIN]	Slew rate
	1 unit=1 A/μs	Returns the slew rate
	MAX/MIN	Returns the allowable maximum and minimum
Query Example	:CURR:STAT:RISE? MIN 0.078	The minimum value for the rising slew rate is 0.078 A/μs for the specific channel.

Query Example :CURR:STAT:RISE? The rising slew rate is
0.16800 0.168 A/μs for the
specific channel.

:CURRent:STATic:LOW:AVALue/BVALue Channel-Specific
Command

Description Sets the low range A/B Value for constant current
static mode.

Syntax :CURRent:STATic:LOW:AVALue/BVALue <NRf+>[A]

Parameter	NRf+[A]	
	AVALue 1	Sets A Value to 1 A (low range only)
	BVALue 2	Sets B Value to 2 A (low range only)
	AVALue 1A	Sets A Value to 1 A (low range only)
	AVALue MIN	Sets A Value to the minimum level for the specific channel
	AVALue MAX	Sets A Value to the maximum level for the specific channel

Example :CURR:STAT:LOW:AVAL 1 Sets low range CC static
mode A Value to 1 A.

Query Syntax :CURRent:STATic:LOW:AVALue/BVALue? [MAX|MIN]

Return Parameter	<NR2> [MAX MIN]	Current
	1 unit = 1 A	Returns the A or B Value current
	MAX/MIN	Returns the allowable maximum and minimum

Query Example :CURR:STAT:LOW:BVAL? Returns the maximum
MAX current allowed for the
2 channel. (RMX-4003)

:CURRent:STATic:LOW:RISE/FALL		Channel-Specific Command
Description	Sets the low range rising/falling slew rates.	
Syntax	:CURRent:STATic:LOW:RISE/FALL <NRf+>[A/μs]	
Parameter	<NRf+>[A/μs]	Slew rate
	RISE/FALL 0.078 A/μs	Sets the rising/falling slew rate to 0.078 A/μs
	RISE/FALL 1	Sets the rising/falling slew rate to 1 A/μs
	RISE/FALL MIN	Sets to the slowest rising/falling slew rate
	RISE/FALL MAX	Sets to the fastest rising/falling slew rate
Example	:CURR:STAT:LOW:RISE .001	Sets the rising slew rate to 0.001 A/μs.
Query Syntax	: CURRent:STATic:LOW:RISE/FALL? [MIN MAX]	
Return Parameter	<NR2> [MAX MIN]	Slew rate
	1 unit=1 A/μs	Returns the slew rate
	MAX/MIN	Returns the allowable maximum and minimum
Query Example	:CURR:STAT:LOW:RISE? MIN 0.078	For low range CC mode, the Minimum value for the rising slew rate is 0.078 A/μs for the specific channel.

:CURRent:STATic:HIGH:AVALue/BVALue		Channel-Specific Command
Description	Sets the high range A/B Value for constant current static mode.	
Syntax	:CURRent:STATic:HIGH:AVALue/BVALue <NRf+>[A]	

Parameter	NRf+[A]	
	AVALue 10	Sets A Value to 10 A (high range only)
	BVALue 20	Sets B Value to 20 A (high range only)
	AVALue MIN	Sets A Value to the minimum level for the specific channel
	A Value MAX	Sets A Value to the maximum level for the specific channel
Example	:CURRent:STATic:HIGH:AV ALue 10	Sets high range CC static mode A Value to 10 A.
Query Syntax	:CURRent:STATic:HIGH:AVALue/BVALue? [MAX MIN]	
Return Parameter	<NR2> [MAX MIN]	Auto load mode
	MAX/MIN	Returns the allowable maximum and minimum
	1 unit= 1 A	Returns the A or B Value current
Query Example	:CURR:STAT:HIGH:BVALu e? MAX 20.4000	Returns the maximum current allowed for the channel in high range mode. (RMX-4003)
	:CURRent:STATic:HIGH:RISE/FALL	Channel-Specific Command
Description	Sets the high range rising/falling slew rate.	
Syntax	:CURRent:STATic:HIGH:RISE/FALL <NRf+>[A/μs]	
Parameter	<NRf+>[A/μs]	Slew rate
	RISE/FALL 0.8A/μs	Sets the rising/falling slew rate to 0.8 A/μs
	RISE/FALL 1	Sets the rising/falling slew rate to 1 A/μs

	RISE/FALL MIN	Sets to the slowest rising/falling slew rate
	RISE/FALL MAX	Sets to the fastest rising/falling slew rate
Example	:CURR:STAT:HIGH:RISE 1.1	Sets the rising slew rate to 1.1 A/μs.
Query Syntax	:CURRent:STATic:HIGH:RISE/FALL? [MIN MAX]	
Return Parameter	<NR2> [MAX MIN]	Slew rate
	1 unit=1 A/μs	Returns the slew rate
	MAX/MIN	Returns the allowable maximum and minimum
Query Example	:CURR:STAT:HIGH:RISE? MAX 0.8000	For high range CC mode, the maximum value for the rising slew rate is 0.8000 A/μs for the specific channel.
.:CURRent:DYNamic:L1/L2		Channel-Specific Command
Description	Sets the current levels (Level 1 and 2) for CC dynamic mode. The command is range dependent. If the current range is Low, the settings apply to only low range.	
Syntax	:CURRent:DYNamic:L1/L2 <NRf+>[A]	
Parameter	NRf+[A]	Current
	L1 1	Sets L1 to 1 A
	L2 2	Sets L2 to 2 A
	L2 2A	Sets L2 to 2 A
	L1/L2 MIN	Sets L1 or L2 to the minimum level for the specific channel

	L1/L2 MAX	Sets L1 or L2 to the maximum level for the specific channel
Example	:CURR:DYN:L1 10	In CC dynamic mode, Set L1 (level 1) to 10 A.
Query Syntax	:CURRent:DYNamic:L1/L2? [MIN MAX]	
Return Parameter	<NR2> [MAX MIN]	Current
	MAX/MIN	Returns the allowable maximum and minimum
	1 unit= 1 A	Returns the current of L1/L2, or the maximum or minimum current allowed
Query Example	:CURR:DYN:L2? 2.0400	Returns current for the specific channel.
:CURRent:DYNamic:RISE/FALL		Channel-Specific Command
Description	Sets the rising/falling slew rate for CC dynamic mode for the specific channel and range.	
Syntax	:CURRent:DYNamic:RISE/FALL <NRf+>[A/μs]	
Parameter	<NRf+>[A/μs]	Slew rate
	RISE/FALL 0.8A/μs	Sets the rising/falling slew rate to 0.8 A/μs
	RISE/FALL 1	Sets the rising/falling slew rate to 1 A/μs
	RISE/FALL MIN	Sets to the slowest rising/falling slew rate
	RISE/FALL MAX	Sets to the fastest rising/falling slew rate
Example	:CURR:DYNA:RISE 1.1	Sets the rising slew rate to 1.1 A/μs.
Query Syntax	: CURRent:DYNamic:RISE/FALL? [MIN MAX]	

Return Parameter	<NR2> [MAX MIN] 1 unit=1 A/μs MAX/MIN	Slew rate Returns the slew rate Returns the allowable maximum or minimum
Query Example	:CURR:DYN:FALL? MIN 0.0003	Shows the minimum allowable value for the falling slew rate as 0.0003 A/μs for the specific channel and range.
.:CURRent:DYNamic:T1/T2		Channel-Specific Command
Description	Sets the timers T1 or T2 for CC dynamic mode for the specific channel and range.	
Syntax	.:CURRent:DYNamic:T1/T2 <NRf+>[S ms]	
Parameter	<NRf+>[S] T1/T2 0.1S T1/T2 1 T1/T2 MIN T1/T2 MAX	Time Sets the T1/T2 time to 0.1 s Sets T1/T2 to 1 s Sets the T1/T2 to the minimum value Sets the T1/T2 time to the maximum time
Example	:CURR:DYNA:T1 .1S	Sets the T1 time to 100 ms for the specific channel.
Query Syntax	: CURRent:DYNamic:T1/T2? [MIN MAX]	
Return Parameter	<NR2> [MAX MIN] 1 unit=1 s MAX/MIN	Time Returns T1/T2 time. Returns the allowable maximum and minimum.

Query Example	:CURR:DYN:LOW:T1?	Returns the T1 time of 2.5 s.
	2.5	
	:CURR:DYN:LOW:T1? MIN	Returns the minimum T1 time allowable for the specific channel and range.
	0.000025	

:CURRent:DYNamic:LOW:L1/L2 Channel-Specific Command

Description Sets the low range current levels (Level 1 and 2) for CC dynamic mode.

Syntax :CURRent:DYNamic:LOW:L1/L2 <NRf+>[A]

Parameter	NRf+[A]	Current
	L1 1	Sets L1 to 1 A (low range only)
	L2 2	Sets L2 to 2 A (low range only)
	L2 2A	Sets L2 to 2 A. (low range only)
	L1/L2 MIN	Sets L1 or L2 to the minimum level for the specific channel
	L1/L2 MAX	Sets L1 or L2 to the maximum level for the specific channel

Example :CURR:DYN:LOW:L1 10 In low range CC dynamic, Set L1 (level 1) to 10 A.

Query Syntax :CURRent:DYNamic:LOW:L1/L2? [MIN|MAX]

Return Parameter	<NR2> [MAX MIN]	Current
	1 unit= 1 A	Returns the current of L1/L2, or the maximum or minimum current allowed

	MAX/MIN	Returns the allowable maximum and minimum
Query Example	:CURR:DYN:LOW:L2? 2.0400	Returns current for the specific channel.
.:CURRent:DYNamic:LOW:RISE/FALL		Channel-Specific Command
Description	Sets the low range rising/falling slew rate for CC dynamic mode for the specific channel.	
Syntax	.:CURRent:DYNamic:LOW:RISE/FALL <NRf+>[A/μs]	
Parameter	<NRf+>[A/μs]	Slew rate
	RISE/FALL 0.8 A/μs	Sets the rising/falling slew rate to 0.8 A/μs
	RISE/FALL 1	Sets the rising/falling slew rate to 1 A/μs
	RISE/FALL MIN	Sets to the slowest rising/falling slew rate
	RISE/FALL MAX	Sets to the fastest rising/falling slew rate
Example	:CURR:DYNA:LOW:RISE 1.1	Sets the rising slew rate to 1.1 A/μs.
Query Syntax	: CURRent:DYNamic:LOW:RISE/FALL? [MIN MAX]	
Return Parameter	<NR2> [MAX MIN]	Slew rate
	1 unit=1 A/μs	Returns the slew rate
	MAX/MIN	Returns the allowable maximum or minimum
Query Example	:CURR:DYN:LOW:FALL? MIN 0.0003	For low range dynamic CC mode, the minimum allowable value for the falling slew rate is 0.0003 A/μs for the specific channel.

:CURRent:DYNamic:LOW:T1/T2 Channel-Specific
Command

Description Sets the low range timers T1 or T2 for CC dynamic mode for the specific channel.

Syntax :CURRent:DYNamic:LOW:T1/T2 <NRf+>[S/ms]

Parameter	<NRf+>[S/ms]	Time
T1/T2 0.1S		Sets the T1/T2 time to 0.1 s
T1/T2 1		Sets T1/T2 to 1 s
T1/T2 MIN		Sets the T1/T2 to the minimum value
T1/T2 MAX		Sets the T1/T2 time to the maximum time

Example :CURR:DYNA:LOW:T1 .1S Sets the T1 time to 100 ms for the specific channel.

Query Syntax : CURRent:DYNamic:LOW:T1/T2? [MIN|MAX]

Return Parameter	<NR2> [MAX MIN]	Time
1 unit=1 s		Returns T1/T2 time
MAX/MIN		Returns the allowable maximum and minimum

Query Example :CURR:DYN:LOW:T1? Returns the T1 time of 2.5 s.
2.5
:CURR:DYN:LOW:T1? MIN Returns the minimum T1 time allowable for the specific channel.
0.000025

:CURRent:DYNamic:HIGH:L1/L2 Channel-Specific
Command

Description Sets the high range current levels (Level 1 and 2) for CC dynamic mode.

Syntax	:CURRent:DYNamic:HIGh:L1/L2 <NRf+>[A]	
Parameter	NRf+[A]	
	L1 10	Sets L1 to 10 A (high range only)
	L2 20	Sets L2 to 20 A (high range only)
	L1/L2 MIN	Sets L1 or L2 to the minimum level for the specific channel
	L1/L2 MAX	Sets L1 or L2 to the maximum level for the specific channel
Example	:CURR:DYN:HIGh:L1 10	In high range CC dynamic mode, sets L1 (level 1) to 10 A.
Query Syntax	:CURRent:DYNamic:HIGh:L1/L2? [MIN MAX]	
Return Parameter	<NR2> [MAX MIN]	Return value
	1 unit= 1 A	Returns the current of Level 1/ 2 (L1/L2)
	MAX/MIN	Returns the allowable maximum and minimum
Query Example	:CURR:DYN:HIGh:L2? MAX 20.4000	Returns the maximum current allowed for the channel. (RMX-4003)
:CURRent:DYNamic:HIGh:RISE/FALL		Channel-Specific Command
Description	Sets the high range rising/falling slew rate for CC dynamic mode for the specific channel.	
Syntax	:CURRent:DYNamic:HIGh:RISE/FALL <NRf+>[A/μs]	
Parameter	<NRf+>[A/μs]	Slew rate

	RISE/FALL 0.8 A/μs	Sets the rising/falling slew rate to 0.8 A/μs
	RISE/FALL 1	Sets the rising/falling slew rate to 1 A/μs
	RISE/FALL MIN	Sets to the slowest rising/falling slew rate
	RISE/FALL MAX	Sets to the fastest rising/falling slew rate
Example	:CURR:DYNA:HIG:RISE 1.1	Sets the rising slew rate to 1.1 A/μs.
Query Syntax	: CURRent:DYNamic:HIG:RISE/FALL? [MIN MAX]	
Return Parameter	<NR2> [MAX MIN]	Slew rate
	1 unit = 1 A/μs	Returns the slew rate
	MAX/MIN	Returns the allowable maximum and minimum
Query Example	:CURR:DYN:HIG:FALL? MAX 0.8	For high range dynamic CC mode, the maximum value for the falling slew rate is 0.8 A/μs for the specific channel.
.:CURRent:DYNamic:HIG:T1/T2		Channel-Specific Command
Description	Sets the timers T1 or T2 for CC dynamic mode for the specific channel in high range.	
Syntax	:CURRent:DYNamic:HIG:T1/T2 <NRf+>[S ms]	
Parameter	<NRf+>[S]	Time
	T1/T2 0.1S	Sets the T1/T2 time to 0.1 s
	T1/T2 1	Sets T1/T2 to 1 s
	T1/T2 MIN	Sets the T1/T2 to the minimum value

	T1/T2 MAX	Sets the T1/T2 time to the maximum time
Example	:CURR:DYNA:HIG:T1 10S	Sets the high range T1 time to 10 s for the specific channel.
Query Syntax	:CURRent:DYNamic:HIG:T1/T2? [MIN MAX]	
Return Parameter	<NR2> [MAX MIN]	Time
	1 unit=1 s	Returns T1/T2 time
	MAX/MIN	Returns the allowable maximum and minimum
Query Example	:CURR:DYN:HIG:T1?	Returns the T1 time of 2.5 s.
	2.5	
	:CURR:DYN:HIG:T1? MIN	Returns the minimum T1 time allowable for the specific channel.
	0.000025	

FETCH Subsystem

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:FETCh:VOLTage?		Channel-Specific Status Command
Description	This query returns the real-time voltage of the load module input for the specific channel.	
Syntax	:FETCh:VOLTage? <NR2>	
Parameter	<NR2> 1 unit = 1 V 8	Voltage 8 V
Query Example	:FETC:VOLT? 11.2	The specific channel has a voltage of 11.2 V at the input.

:FETCh:CURRent?		Channel-Specific Status Command
Description	This query returns the real-time current of the load module input for the specific channel.	
Syntax	:FETCh:CURRent? <NR2>	
Parameter	<NR2> 1 unit= 1 A 1	1 A
Query Example	:FETC:CURR? 1.2	The specific channel has a current of 1.2 A at the load module input.

:FETCh:POWer?		Channel-Specific Status Command
Description	This query returns the real-time power of the load module input for the specific channel.	
Syntax	:FETCh:CURRent? <NR2>	
Parameter	<NR2> 1 unit= 1 A	
	1	1 A
Query Example	:FETC:POW? 1.2	The specific channel is at 1.2 W.

:FETCh:STATus?		Status Command
Description	This query returns the load module status. The returned value is the Channel Status Register bit weight. Refer to page 173.	
Syntax	:FETCh:STATus? <NR1>	
Parameter	<NR1>	Condition
	1	OC
	2	OV
	4	OP
	8	RV
	16	OT
	32	G/N
	64	UVP
	16-128	Not Used
Query Example	:FETC:STAT? 2	Over voltage (OV) protection has been triggered for the specific channel.

:FETCh:ALLVoltage?		All-Channel Status Command
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Description	This query returns the voltage values of all the load modules/channels in order from 1-8 (RMX-4002)/1-4 (RMX-4000).
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Syntax	:FETCh:ALLVoltage?	
Parameter	<aard> CH1,CH2,CH3,CH4,CH5,C H6,CH7,CH8	Returns all voltage values from all channels, 1-8 (RMX-4002)/1-4 (RMX-4000)
Query Example	:FETC:ALLV? 2.5000, 3.0000, 0.0000, 0.0000, 0.0000, 0.0000, 5.500, 0.0000	Channels 1 and 2 have voltages of 2.5 V and 3 V, respectively. Channels 3-6 and 8 have no voltage, and channel 7 is 5.5 V.
:FETCh:ALLCurrent?		All-Channel Status Command
Description	This query returns the current values of all the load modules/channels in order from 1-8 (RMX-4002)/1-4 (RMX-4000).	
Syntax	:FETCh:ALLCurrent? <aard>	
Parameter	<aard> CH1,CH2,CH3,CH4,CH5,C H6,CH7,CH8	Returns all current values from all channels, 1-8 (RMX-4002)/1-4 (RMX-4000)
Query Example	:FETC:ALLC? 0.0000, 0.0000, 0.0000, 0.0000, 0.0000, 0.0000, 1.2000, 3.5600	Channels 1 to 6 have no current. Channels 7 and 8 have 1.2 A and 3.56 A, respectively.
:FETCh:ALLPower?		All-Channel Status Command
Description	This query returns the power values of all the load modules/channels in order from 1-8 (RMX-4002)/1-4 (RMX-4000).	

Syntax :FETCH:ALLPower? <aard>

Parameter	<code><aard></code> <code>CH1,CH2,CH3,CH4,CH5,C</code> <code>H6,CH7,CH8</code>	Returns all power values from all channels, 1-8 (RMX-4002)/1-4 (RMX-4000)
Query Example	<code>:FETC:ALLP?</code> <code>0.0000, 0.0000, 10.200,</code> <code>5.5000</code>	Channels 1 to 2 have no power. Channels 3 and 4 have 10.2 W and 5.5 W, respectively.

LOAD Subsystem

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		Channel-Specific Command
:LOAD[:STATe]		
Description	This command turns the electronic load on/off for the specific channel.	
Syntax	:LOAD[:STATe] {ON 1 OFF 0}	
Parameter	ON/1	Load On
	OFF/0	Load Off
Example	:LOAD ON	Turns the specific channel load on.
Query Syntax	:LOAD[:STATe]?	
Return Parameter	<NR1>	Load module
	1	Load is On
	0	Load is Off
Query Example	:LOAD?	Turns the specific channel load on.

		Channel-Specific Command
:LOAD:SHORT[:STATe]		
Description	This command shorts the electronic load on/off for the specific channel.	

Syntax	:LOAD:SHORT[:STATe] {ON 1 OFF 0}	
Parameter	ON/1	Shorting is On
	OFF/0	Shorting is Off
Example	:LOAD:SHOR ON	Short circuits the load module channel.
Query Syntax	:LOAD:SHORT[:STATe]?	
Return Parameter	<NR1>	Short load module
	1	Shorting is activated
	0	Shorting is deactivated
Query Example	:LOAD:SHOR?	Shorting is deactivated on the specific channel.
	0	

Channel-Specific
Command

:LOAD:SHORT:KEY

Description	You can set the SHORT key to toggle or hold mode.	
Syntax	:LOAD:SHORT:KEY {TOGGLE 1 HOLD 0}	
Parameter	TOGGLE/1	Sets the SHORT key to toggle mode
	HOLD/0	Sets the SHORT key to hold mode
Example	:LOAD:SHOR:KEY 1	Set the SHORT key to toggle.
Query Syntax	:LOAD:SHORT:KEY?	
Return Parameter	<NR1>	Mode
	1	Toggle mode is active
	0	Hold mode is active
Query Example	:LOAD:SHOR:KEY?	Hold mode is active for the specific channel.
	0	

:LOAD:PROTection?			Channel-Specific Command	
Description		Returns the protection levels for electronic load.		
Query Syntax		:LOAD:PROTection?		
Query Example		:LOAD:PROT?	Clears the Channel Status Register.	
Return Parameter	<NR1>	Condit ion	<NR1>	Condition
	1	OC	16	OT
	2	OV	32	G/N
	4	OP	64	UVP
	8	RV	16-128	Not Used
Query Example		:LOAD:PROT? 0	Returns the Channel Status Register status. Here 0 is returned, indicating no protection settings have been tripped.	
:LOAD:PROTection:CLEar			Channel-Specific Command	
Description		This command clears the Channel Status Register for the specific channel. Refer to page 173.		
Syntax		:LOAD:PROTection:CLEar		
Example		:LOAD:PROT:CLE	Clears the Channel Status Register.	
:LOAD:TIME?			Channel-Specific Command	
Description		This command displays the total load on time. If the load is on, the load time when the command was issued is displayed.		
Query Syntax		:LOAD:TIME?		

Return Parameter	<NR1>1 unit = 1 s 2.2	Load on time 2.2 s
Query Example	:LOAD:TIME? 5.1	Returns the load on time as 5.1 s.
:LOAD:DElay		Channel-Specific Command
Description	Sets or queries the load delay time for the specific channel.	
Syntax	:LOAD:DElay <NRf>[S]	
Parameter	<NRf>[S] 0.1S	Time Sets the delay time to 0.1 s
Example	:LOAD:DEL 0.1s	Sets the delay time to 0.1 s.
Query Syntax	:LOAD:DEL?	
Return Parameter	<NR2>	Delay time in seconds
Query Example	:LOAD:DEL? 0.10000	Returns the delay time for the current channel.
:LOAD:TYPE		All Channels
Description	Sets or queries which load type is the active type.	
Syntax	:LOAD:TYPE {LOAD 0 PROGRAM 1 SEQUENCE 2}	
Parameter	LOAD/0 PROGRAM/1 SEQUENCE/2	Normal load Program Sequence
Example	:LOAD:TYPE: 1	Program is active.
Query Syntax	:LOAD:TYPE?	

Return Parameter	<NR1>	Type
	0	Normal load
	1	Program
	2	Sequence
Query Example	:LOAD:TYPE?	The normal load type is active.
	0	

Measure Subsystem

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:MEASure:VOLTage?		Channel-Specific Command
Description	This query returns the specific channel's measured voltage.	
Query Syntax	:MEASure:VOLTage? <NR2>	
Return Parameter	<NR2> 1 unit = 1 V 0.5000	Voltage at the load input 0.5000 V
Query Example	:MEAS:VOLT? 8.5600	A voltage of 8.56 V is measured at the specific channel load input.

:MEASure:CURREnt?		Channel-Specific Command
Description	This query returns the specific channel's measured current.	
Query Syntax	:MEASure:CURREnt? <NR2>	
Return Parameter	<NR2> 1 unit = 1 A 1.0000	Current at the load input 1.0000 A
Query Example	:MEAS:CURRE? 1.5	A current of 1.5 A is measured at the specific channel load input.

:MEASure:POWer?		Channel-Specific Command
Description	This query returns the specific channel's measured power.	
Query Syntax	:MEASure:POWer? <NR2>	
Return Parameter	<NR2> 1 unit = 1 W 1.0000	Power at the load input 1.0000 W
Query Example	:MEAS:POW? 1.5	1.5 W is measured at the specific channel load input.

:MEASure:SCAN		Channel-Specific Command
Description	This command allows the mainframe to scan all the load modules.	
Syntax	:MEASure:SCAN {OFF 0 ON 1}	
Parameter	OFF/0	Disabled
	ON/1	Enabled
Example	:MEAS:SCAN 0	Disable scanning.
Query Syntax	:MEASure:SCAN? <NR1>	
Return Parameter	<NR1>	Scan
	0	Disabled
	1	Enabled
Query Example	:MEAS:SCAN?	Returns the scanning status. Here scanning is enabled.
	1	

:MEASure:ALLVoltage?		All-Channel Command
Description	This query measures the voltage values of all the load modules/channels in order from 1-8 (RMX-4002)/1-4 (RMX-4000).	
Query Syntax	:MEASure:ALLVoltage? <aard>	
Query Parameter	<aard> 1 unit = 1 V	Returns all the voltage values from all the channels, 1-8 (RMX-4002)/1-4 (RMX-4000).
	CH1,CH2,CH3,CH4,CH5,CH6,CH7,CH8	

Query Example	:MEAS:ALLV? 2.5000, 3.0000, 0.0000, 0.0000, 0.0000, 0.0000, 5.500, 0.0000	Channels 1 and 2 have voltages of 2.5 V and 3 V, respectively. Channels 3-6 and 8 have no voltage, and channel 7 is 5.5 V.
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:MEASure:ALLCurrent?	All-Channel Command
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Description	This query returns the current measured of all the load modules/channels in order from 1-8 (RMX-4002)/1-4 (RMX-4000).
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Query Syntax	:MEASure:ALLCurrent? <aard>
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Query Parameter	<aard> 1 unit = 1 A CH1,CH2,CH3,CH4,CH5, CH6,CH7,CH8	Returns all the current values from all the channels, 1-8 (RMX-4002)/1-4 (RMX-4000).
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Query Example	:MEAS:ALLC? 0.0000, 0.0000, 0.0000, 0.0000, 0.0000, 0.0000, 1.2000, 3.5600	Channels 1 to 6 have no current. Channels 7 and 8 have 1.2 A and 3.56 A, respectively.
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:MEASure:ALLPower?	All-Channel Command
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Description	This query returns the power measured of all the load modules/channels in order from 1-8 (RMX-4002)/1-4 (RMX-4000).
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Query Syntax	:MEASure:ALLPower? <aard>
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Query Parameter	<aard> 1 unit = 1 W CH1,CH2,CH3,CH4,CH5, CH6,CH7,CH8	Returns all the power values from all the channels, 1-8 (RMX-4002)/1-4 (RMX-4000).
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Query Example	:MEAS:ALLP? 0.0000, 0.0000, 0.0000, 0.0000, 0.0000, 0.0000, 1.5000, 3.2000	Channels 1 to 6 have no power. Channels 7 and 8 have 1.5 W and 3.2 W, respectively.
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MODE Subsystem

:MODE..... 87

:MODE		Channel-Specific Command
Description	This command sets the operating mode of the specific channel. Some modes are load module dependent.	
Syntax	:MODE {CCL CCH CCDL CCDH CRL CRH CRDL CRDH CV CPL CPH CVL CVH}	
Parameter	CCL	CC static mode, low range
	CCH	CC static mode, high range
	CCDL	CC dynamic mode, low range
	CCDH	CC dynamic mode, high range
	CRL	CR static mode, low range
	CRH	CR static mode, high range
	CRDL	CR dynamic mode, low range
	CRDH	CR dynamic mode, high range
	CV	CV mode
	CPL	CP static mode, low range
	CPH	CP static mode, high range
	CVL	CV static mode, low range
	CVH	CV static mode, low range
Example	:MODE CCL	Set the specific channel to low range constant current static mode.
Query Syntax	:MODE?	
Return Parameter	CCL	CC static mode, low range

CCH	CC static mode, high range
CCDL	CC dynamic mode, low range
CCDH	CC dynamic mode, high range
CRL	CR static mode, low range
CRH	CR static mode, high range
CRDL	CR dynamic mode, low range
CRDH	CR dynamic mode, high range
CV	CV mode
CPL	CP static mode, low range
CPH	CP static mode, high range
CVL	CV static mode, low range
CVH	CV static mode, low range

Query Example :MODE?
CCH

The specific channel is currently set to CC static mode, high range.

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:OCP:EDIT:CHANnel?		Channel-Specific Command
Description	Sets or queries which channel is used to apply the OCP Test Automation parameters. Also refer to page 94 for setting the active channel.	
Syntax	:OCP:EDIT:CHANnel <NR1>	
Parameter	<NR1>	1-8
Example	:OCP:EDIT:CHAN 1	Sets channel 1 as the chosen channel.
Query Syntax	:OCP:EDIT:CHANnel?	
Return Parameter	<NR1>	1-8
Query Example	:OCP:EDIT:CHAN? 1	Channel 1 is the chosen channel.

		Channel-Specific Command
:OCP:CHANnel:RANGe		
Description	Sets or queries the channel range High (CC Mode High) or Low (CC Mode Low).	
Syntax	:OCP:CHANnel:RANGe {LOW 0 HIGH 1}	
Parameter	LOW/0	CC Mode Low range
	HIGH/1	CC Mode High range
Example	:OCP:CHAN:RANG 0	Sets the range to LOW.
Query Syntax	:OCP:CHANnel:RANGe?	
Return Parameter	0	CC Mode Low range
	1	CC Mode High range
Query Example	:OCP:CHAN:RANG? 0	The range is CC Mode Low.

		Channel-Specific Command
:OCP:CHANnel:STARt		
Description	Sets or queries the starting current value.	
Syntax	:OCP:CHANnel:STARt {<NRF>[A] MIN MAX}	
Parameter	<NRF>[A]	The current value in amps
	MAX	The maximum current value
	MIN	The minimum current value
Example	:OCP:CHAN:STAR MIN	Sets the start current to the minimum.
Query Syntax	:OCP:CHANnel:STARt? [MIN MAX]	
Return Parameter	<NR2>	Returns the starting current in amps.
Query Example	:OCP:CHAN:STAR? MIN 1.5	Returns the minimum starting current.

:OCP:CHANnel:END		Channel-Specific Command
Description	Sets the ending current value for the test. The value must be higher than the DUT OCP value.	
Syntax	:OCP:CHANnel:END {<NRF>[A] MIN MAX}	
Parameter	<NRF>[A]	The current value in amps
	MAX	The maximum current value
	MIN	The minimum current value
Example	:OCP:CHAN:END MIN	Set the ending current to the minimum.
Query Syntax	:OCP:CHANnel:END?	
Return Parameter	<NR2>	Returns the ending current in amps.
Query Example	:OCP:CHAN:END? 10.0	Returns the ending current.

:OCP:CHANnel:STEP:CURRent		Channel-Specific Command
Description	Sets the current step resolution for the OCP Test Automation.	
Syntax	:OCP:CHANnel:STEP:CURRent {<NRF>[A] MIN MAX}	
Parameter	<NRF>[A]	The current value in amps
	MAX	The maximum current value
	MIN	The minimum current value
Example	:OCP:CHAN:STEP:CURRent MIN	Set the step resolution to the minimum value.
Query Syntax	:OCP:CHANnel:STEP:CURRent?	
Return Parameter	<NR2>	Returns the current step resolution in amps

Query Example	:OCP:CHAN:STEP:CURR? 0.5	Returns the step resolution.
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:OCP:CHANnel:LAST	Channel-Specific Command
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Description	Queries or sets the current value for after the DUT OCP protection has been activated.
-------------	--

Syntax	:OCP:CHANnel:LAST {<NRf>[A] MIN MAX}
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Parameter	<NRf>[A]	The current value in amps
	MAX	The maximum current value
	MIN	The minimum current value

Example	:OCP:CHAN:LAST MAX	Set the current value to the maximum value.
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Query Syntax	:OCP:CHANnel:LAST?
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Return Parameter	<NR2>	Returns the current value in amps
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Query Example	:OCP:CHAN:LAST? 3.0	Returns the current value.
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:OCP:CHANnel:STEP:TIME	Channel-Specific Command
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Description	Queries or sets how long the step time is for the OCP Test Automation.
-------------	--

Syntax	:OCP:CHANnel:STEP:TIME {<NRf>[S] MIN MAX}
--------	---

Parameter	<NRf>[S]	The step time in seconds (50 ms~1600 s).
	MAX	The maximum step time
	MIN	The minimum step time

Example	:OCP:CHAN:STEP:TIME MIN	Set the step time to the maximum value.
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Query Syntax	:OCP:CHANnel:STEP:TIME?
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Return Parameter	<NR2>	Returns the step time in seconds
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Query Example :OCP:CHAN:STEP:TIME? Returns the step time.
10.0

:OCP:CHANnel:DElay Channel-Specific
Command

Description Queries or sets the test delay time for the OCP Test Automation function.

Syntax :OCP:CHANnel:DElay {<NRF>[S] | MIN | MAX}

Parameter	<NRF>[S]	The delay time in seconds (5 ms~160 s).
	MAX	The maximum delay time
	MIN	The minimum delay time

Example :OCP:CHAN:DEL MAX Set the delay time to the maximum value.

Query Syntax :OCP:CHANnel:DElay?

Return Parameter <NR2> Returns the delay time in seconds

Query Example :OCP:CHAN:DEL? Returns the delay time.
5.0

:OCP:CHANnel:TRIGger Channel-Specific
Command

Description Queries or sets the voltage trigger for when the power supply OCP has been triggered.

Syntax :OCP:CHANnel:TRIGger {<NRF>[V] | MIN | MAX}

Parameter	<NRF>[V]	The trigger voltage level
	MAX	The maximum trigger voltage
	MIN	The minimum trigger voltage

Example :OCP:CHAN:TRIG MAX Set the trigger voltage level to the maximum value.

Query Syntax :OCP:CHANnel:TRIGger?

Return Parameter <NR2> Returns the trigger voltage level in volts

Query Example :OCP:CHAN:TRIG? Returns the trigger level.
5.0

:OCP:CHANnel:ACTive Channel-Specific
Command

Description Queries or sets which bit(s) are the active channel for the OCP Test Automation function. More than one channel can be activated based on the bit weight of the parameter.

Syntax :OCP:CHANnel:ACTive {<NR1>0~255}

Parameter	<NR1> (BIT WEIGHT)	Channel number	<NR1> (BIT WEIGHT)	Channel number
	1	1	16	5
	2	2	32	6
	4	3	64	7
	8	4	128	8

Example :OCP:CHAN:ACT 3 Activates channel 1 and 2.

Query Syntax :OCP:CHANnel:ACTive?

Return Parameter	<NR1> (BIT WEIGHT)	Channel number	<NR1> (BIT WEIGHT)	Channel number
	1	1	16	5
	2	2	32	6
	4	3	64	7
	8	4	128	8

Query Example :OCP:CHAN:ACT? Returns channel 4 as
4 the active channel.

:OCP:STATus? Query

Description Queries the OCP Test Automation function status.

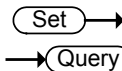
Query Syntax	:OCP:STATus? {0 1}	
Return Parameter	0	Test ended
	1	OCP test active
Query Example	:OCP:STAT? 0	The test has ended.
.:OCP:SAVE		Channel-Specific Command
Description	Saves the current OCP Test Automation parameters.	
Syntax	:OCP:SAVE	
.:OCP:RESult?		Query
Description	Returns the OCP Test Automation results.	
Query Syntax	:OCP:RESult?	
Query Example	:OCP:RES? Ch1 OCP Voltage, Ch1 OCP Current, Ch2 OCP Voltage, Ch2 OCP Current, Ch3 OCP Voltage, Ch3 OCP Current, Ch4 OCP Voltage, Ch4 OCP Current, Ch5 OCP Voltage, Ch5 OCP Current, Ch6 OCP Voltage, Ch6 OCP Current, Ch7 OCP Voltage, Ch7 OCP Current, Ch8 OCP Voltage, Ch8 OCP Current	This is an example of the results returned for the RMX-4002.
.:OCP:RUN		Command
Description	Turns the OCP Test Automation function on or off.	
Syntax	:OCP:RUN { 0 OFF 1 ON }	
Parameter	0/OFF	Turn off

	1/ON	Turn on
Example	:OCP:RUN OFF	Turn the test off.

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:PROGram:STATe



Description	Sets or queries the state of the program function.	
Syntax	:PROGram:STATe {ON OFF PAUSE CONTINUE NEXT}	
Query Syntax	:PROGram:STATe? {{ON,STOP RUN PAUSE} OFF}	
Parameter	ON OFF PAUSE RUN NEXT CONTINUE	Turn program on Program off Program pause Program running Next step in the program Program continue
Return Parameter	ON,STOP ON,PAUSE ON,RUN OFF	Program is on, stopped Program is paused Program is running Program is off

Example	:PROGram:STATe ON Turns “Program” on.
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Query example	:PROGram:STATe? >OFF “Program” is off.
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.:PROGram:FILE	Program Number Specific
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Description	Sets the program number.
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Syntax	:PROGram:FILE <NR1>
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Parameter	<NR1> 1~12	Program number Number 1~12
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Example	:PROG:FILE 5	Sets the program number to 5.
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Query Syntax	:PROGram:FILE?
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Return Parameter	<NR1> 1-12	Mainframe scanning Returns the current program number
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Query Example	:PROG:FILE? 5	The set program number is 5.
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.:PROGram:SEQuence	Program Number Specific
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Description	Sets the sequence number for the current program number.
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Syntax	:PROGram:SEQuence <NR1>
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Parameter	<NR1> 1~10	Sequence number Number 1~10
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Example	:PROG:SEQ 1	Sets the sequence number to 1 for the current program number.
Query Syntax	:PROG:SEQ?	
Return Parameter	<NR1> 1-10	Mainframe scanning Returns the current sequence number
Query Example	:PROG:SEQ? 1	The set sequence number is 1.
.:PROG:MEMory		Program Number Specific
Description	Sets the memory number used for the current program/sequence.	
Syntax	.:PROG:MEMory <NR1>	
Parameter	<NR1> 1~120	Memory number Number 1~120
Example	:PROG:MEM 1	Sets the memory number to 001.
Query Syntax	:PROG:MEMory?	
Return Parameter	<NR1> 1-120	Mainframe scanning Returns the current program number
Query Example	:PROG:MEM? 1	The memory number for the current program/sequence is 001.
.:PROG:SEQ:SHORT:CHANnel		Program Number Specific

Description	Simulates short circuits for load channels for the current sequence number.
-------------	---

Syntax	:PROG:SEQ:SHORT:CHANnel <NR1>
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Parameter	<NR1> (BIT WEIGHT)	Channel number	<NR1> (BIT WEIGHT)	Channel number
	1	1	16	5
	2	2	32	6
	4	3	64	7
	8	4	128	8

Example	:PROG:SEQ:SHOR:CHAN 12	Simulates a short circuit for channels 3 and 4.
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Query Syntax	:PROG:SEQ:SHORT:CHANnel? <NR1>
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Return Parameter	<NR1> (BIT WEIGHT)	Short Channel number	<NR1> (BIT WEIGHT)	Short Channel number
	1	1	16	5
	2	2	32	6
	4	3	64	7
	8	4	128	8

Query Example	:PROG:SEQ:SHOR:CHAN? 12	Return channels 3 and 4 are set as shorted for the program sequence.
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:PROG:SEQ:SHORT:TIME	Program Number Specific
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Description	Sets the short time (seconds) for the current program sequence.
-------------	---

Syntax	:PROG:SEQ:SHORT:TIME <NRf>[S]
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Parameter	<NRf>[S]	Short Time
	0.0	0 s = OFF
	0.1~60	0.1~60 s

	0.1~60S	0.1~60 s
Example	:PROG:SEQ:SHOR:TIME 0.5	The short time for the program sequence is set to .5 s.
Query Syntax	:PROG:SEQ:SHOR:TIME? <NR2>	
Return Parameter	<NR2> 1 unit = 1 second 0.0~60	Short Time Returns the short time for the program sequence
Query Example	:PROG:SEQ:SHOR:TIME? 5	The short time for the program sequence is 5 s.
:PROG:SEQ:MODE		Program Number Specific
Description	Sets the program sequence to Auto, Manual, or Skip mode.	
Syntax	:PROG:SEQ:MODE {MANUAL AUTO SKIP}	
Parameter	MANUAL AUTO SKIP	Manual mode: program sequence is run manually Auto mode: program sequence is run automatically Skip mode: current program sequence is skipped
Example	:PROG:SEQ:MODE: AUTO	The current program sequence is set to Auto mode.
Query Syntax	:PROG:SEQ:MODE?	
Return Parameter	MANUAL AUTO SKIP	Manual mode Auto mode Skip mode

Query Example	:PROG:SEQ:MODE? AUTO	The current program sequence is set to AUTO.
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Program Number
Specific

Description	Activates or selects the active load modules.
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Syntax :PROGrama:ACTive <NR1>

Parameter	<NR1> (BIT WEIGHT)	Active Channel	<NR1> (BIT WEIGHT)	Active Channel
	1	1	16	5
	2	2	32	6
	4	3	64	7
	8	4	128	8

Example	:PROG:ACT 4	Activates channel 3.
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Query Syntax :PROGram:ACTive? <NR1>

Return Parameter	<NR1> (BIT WEIGHT)	Active Channel	<NR1> (BIT WEIGHT)	Active Channel
	1	1	16	5
	2	2	32	6
	4	3	64	7
	8	4	128	8

Query Example	:PROG:ACT?	Channels 3 and 4 are active.
12		

..:PROG	Program Number
ram:CHA	Specific

Description	Chains the current program number to a specified program number.
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Syntax :PROGram:CHAI n <NR1>

Parameter	<NR1>	Program
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	1-12 0	1-12 No chain/End chain
Example	:PROG:CHA 6	Chains the current program number to program number 6.
Query Syntax	:PROG:CHAI? <NR1>	
Return Parameter	<NR1> 1-12 0	Program 1-12 No chain/End chain
Query Example	:PROG:CHA? 6	Returns the program number to which the current program is chained.
.:PROG:ONTime		Program Number Specific
Description	Sets the on-time for the program number. 0.1~60 s.	
Syntax	:PROG:ONTime <NRf>[S]	
Parameter	<NRf>[S] 0.1-60 0.1-60 s	Program On Time 0.1~60 s 0.1~60 s
Example	:PROG:ONT 10S	Set the on-time for the current program number to 10 s.
Query Syntax	:PROG:ONTime? <NR2>	
Return Parameter	<NR2> 0.1-60	Program On Time 0.1~60 s
Query Example	:PROG:ONT? 10	Returns the on-time for the current program number in seconds.

:PROG:OFFTime		Program Number Specific
Description	Sets the off-time for the program number. 0.1~60 s.	
Syntax	:PROG:OFFTime <NRf>[S]	
Parameter	<NRf>[S]	Program Off Time
	0.0	0 s = OFF
	0.1~60	0.1~60 s
	0.1~60 s	0.1~60 s
Example	:PROG:OFFT 10S	Set the off-time for the current program number to 10 s.
Query Syntax	:PROG:OFFTime? <NR2>	
Return Parameter	<NR2> 1 unit = 1 s	Program Off Time
	0.0~60	0.0~60 s
Query Example	:PROG:OFFT? 10	Returns the off-time for the current program number in seconds.
:PROG:RUN		All-Channel Command
Description	Runs the current program number when set to on, and when set to off allows all program/sequence data to be programmed.	
Syntax	:PROG:RUN {OFF o ON 1}	
Parameter	OFF/o	OFF
	ON/1	ON
Example	:PROG:RUN 1	Runs the program.

:PROG:SAVE		All-Channel Command
Description	Saves the current program to memory.	
Syntax	:PROG:SAVE	
Example	:PROG:SAVE	Saves the program to memory.
:PROG:PFTime		Program Number Specific
Description	Sets the P/F-Time (pass/fail time) for the current program sequence in seconds.	
Syntax	:PROG:PFTime <NRf>[S]	
Parameter	<NRf>[S]	P/F Time
	0.0	0 s = OFF
	0.1~119.9	0.1~119.9 s
	0.1~119.9S	0.1~119.9 s
Example	:PROG:PFT 0.5	Sets the P/F-Time to 0.5 s
Query Syntax	:PROG:PFTime? <NR2>	
Return Parameter	<NR2> 1 unit = 1 s	Short Time
	0.0~119.9	Returns the P/F-Time for the program sequence.
Query Example	:PROG:PFTime? 5	The P/F-Time is 5 s.
:PROG:CHAI:START		Program Number Specific
Description	Sets or queries which program number is used as the “start” program in a program chain.	
Syntax	:PROG:CHAI:START <NR1>	
Parameter	<NR1>	Program number

	1-12	1~12
Example	:PROG:CHA:STAR 1	Set program #1 to start the chain.
Query Syntax	:PROGram:CHAI:n:STARt? <NR1>	
Return Parameter	<NR1>	Program number
	1-12	1~12
Query Example	:PROG:CHA:STAR? 5	Program #5 starts the chain.

Resistance Subsystem

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:RESistance[:STATic]:L1/L2		Channel-Specific Command
Description	Sets A/B Value for constant resistance mode, where L1 is A Value and L2 is B Value. This command applies to only current mode (static).	
Syntax	:RESistance[:STATic]:L1/L2 <NRf+>[OHM]	
Parameter	NRf+[OHM]	Resistance
	L1 10	Sets A Value to 10 Ω
	L2 20	Sets B Value* to 20 Ω
		*Single Channel
	L1 MIN	Sets A Value to the minimum level for the specific channel
	L1 MAX	Sets A Value to the maximum level for the specific channel

Example	:RES:L1 10	Sets CR static mode A Value to 10 Ω , depending on the specific range.
Query Syntax	:RESistance[:STATic]:L1/L2? [MAX MIN]	
Return Parameter	<NR2> [MAX MIN]	Resistance
	1 unit = 1 Ω /1 k Ω	Returns the resistance of the A or B Value
	MAX/MIN	Returns the allowable maximum and minimum
Query Example	:RES:L1? MAX 300	Returns the maximum resistance allowed for the channel. (RMX-4003)
.:RESistance[:STATic]:RISE/FALL		Channel-Specific Command
Description	Sets the rising/falling slew rate for CR mode. The command applies to the current mode (static/dynamic) and the current range (High/Low).	
Syntax	:RESistance[:STATic]:RISE/FALL <NRf+>[A/ μ s]	
Parameter	<NRf+>[A/ μ s]	Slew rate
	RISE/FALL 0.8A/ μ s	Sets the rising/falling slew rate to 0.8 A/ μ s
	RISE/FALL .8	Sets the rising/falling slew rate to 0.8 A/ μ s
	RISE/FALL MIN	Sets to the slowest rising/falling slew rate
	RISE/FALL MAX	Sets to the fastest rising/falling slew rate
Example	:RES:RISE 0.1	Sets the rising slew rate to 0.1 A/ μ s.
Query Syntax	:RESistance:RISE/FALL? [MIN MAX]	

Return Parameter	<NR2> [MAX MIN] 1 unit = 1 A/μs MAX/MIN	Slew rate Returns the slew rate Returns the allowable maximum and minimum
Query Example	:RES:RISE? MAX 0.8000	Returns the maximum value for the rising slew rate (0.8 A/μs).

Channel-Specific
Command

:RESistance:STATic:RECall

Description	Sets or queries whether A Value or B Value is the currently active value in CR static mode.	
Syntax	:RESistance:STATic:RECall {A o B 1}	
Parameter	A/o B/1	A B
Example	:RES:STAT:REC 1	Makes B Value the active value.
Query Syntax	:RES:STATic:RECall?	
Return Parameter	<NR1> 0 1	Value A B

Channel-Specific
Command

:RESistance:STATic:LOW:AVALue/BVALue

Description	Sets the low range A/B Value for constant resistance static mode.	
Syntax	:RESistance:STATic:LOW:AVALue/BVALue <NRf+>[OHM]	
Parameter	NRf+[OHM] AVALue 10	Resistance Sets A Value to 10 Ω (low range only)

	BVALue 20	Sets B Value to 20 Ω (low range only)
	AVALue MIN	Sets A Value to the minimum level for the specific channel
	AVALue MAX	Sets A Value to the maximum level for the specific channel
Example	:RES:STAT:LOW:BVAL 10	Sets low range CR static mode B Value to 10 Ω .
Query Syntax	:RESistance:STATic:LOW:AVALue/BVALue?	
Return Parameter	<NR2> [MAX MIN]	Resistance
	1 unit = 1 Ω	Returns the resistance of the A or B Value
Query Example	:RES:STAT:LOW:AVAL? MAX 300	Returns the maximum resistance allowed for the channel. (RMX-4003)
:RESistance:STATic:LOW:RISE/FALL		Channel-Specific Command
Description	Sets the low range rising/falling slew rate	
Syntax	:RESistance:STATic:LOW:RISE/FALL <NRf+>[A/ μ s]	
Parameter	<NRf+>[A/ μ s]	Slew rate
	RISE/FALL 0.8A/ μ s	Sets the rising/falling slew rate to 0.8 A/ μ s
	RISE/FALL .8	Sets the rising/falling slew rate to 0.8 A/ μ s
	RISE/FALL MIN	Sets to the slowest rising/falling slew rate
	RISE/FALL MAX	Sets to the fastest rising/falling slew rate

Example	:RES:STAT:LOW:RISE 0.1	Sets the rising slew rate to 0.1 A/μs.
Query Syntax	:RESistance:STATic:LOW:RISE/FALL? [MIN MAX]	
Return Parameter	<NR2> [MAX MIN] 1 unit =1 A/μs MAX, MIN	Slew rate Returns the slew rate Returns the allowable maximum and minimum
Query Example	:RES:STAT:LOW:RISE? MAX 0.8000	For low range CR mode, the maximum value for the rising slew rate is 0.8 A/μs for the specific channel.
Channel-Specific Command		
:RESistance:STATic:HIGH:AVALue/BVALue		
Description	Sets the high range A/B Value for constant resistance static mode.	
Syntax	:RESistance:STATic:HIGH:AVALue/BVALue <NRf+>[OHM]	
Parameter	NRf+[OHM] AVALue 10 BVALue 20OHM AVALue MIN AVALue MAX	Sets A Value to 10 Ω. (high range only) Sets B Value to 20 Ω. (high range only) Sets A Value to the minimum level for the specific channel Sets A Value to the maximum level for the specific channel
Example	:RES:STAT:HIGH:BVAL 10	Sets high range CR static mode B Value to 10 Ω.

Query Syntax	:RESistance:STATic:HIGH:AVALue/BVALue? [MAX MIN]	
Return Parameter	<NR2> [MAX MIN]	Resistance
	1 unit= 1 Ω	Returns the resistance of the A or B Value
Query Example	:RES:STAT:HIGH:BVAL? MAX 15000.0	Returns the maximum resistance allowed for the channel for B Value. (RMX-4003)
.:RESistance:STATic:HIGH:RISE/FALL		Channel-Specific Command
Description	Sets the high range rising/falling slew rate.	
Syntax	:RESistance:STATic:HIGH:RISE/FALL <NRF+>[A/ μ s]	
Parameter	<NRF+>[A/ μ s]	Slew rate
	RISE/FALL 0.8A/ μ s	Sets the rising/falling slew rate to 0.8 A/ μ s
	RISE/FALL 0..5	Sets the rising/falling slew rate to 0.5 A/ μ s
	RISE/FALL MIN	Sets to the slowest rising/falling slew rate
	RISE/FALL MAX	Sets to the fastest rising/falling slew rate
Example	:RES:STAT:HIGH:RISE 1.1	Sets the rising slew rate to 1.1 A/ μ s.
Query Syntax	:RESistance:STATic:HIGH:RISE/FALL? [MIN MAX]	
Return Parameter	<NR2> [MAX MIN]	Slew rate
	1 unit=1 A/ μ s	Returns the slew rate
	MAX/MIN	Returns the allowable maximum and minimum

Query Example	:RES:STAT:HIGH:RISE? MIN 0.8000	For high range CR mode, the minimum value for the rising slew rate is 0.8 A/μs for the specific channel.
	:RESistance:DYNamic:LOW:L1/L2	Channel-Specific Command
Description	Sets the low range resistance levels (Level 1 and 2) for CR dynamic mode.	
Syntax	:RESistance:DYNamic:LOW:L1/L2 <NRf+>[OHM]	
Parameter	NRf+[OHM]	Ohms
	L1 10	Sets L1 to 10 Ω. (low range only)
	L2 20OHM	Sets L2 to 20 Ω. (low range only)
	L1/L2 MIN	Sets L1 or L2 to the minimum level for the specific channel
	L1/L2 MAX	Sets L1 or L2 to the maximum level for the specific channel
Example	:RES:DYN:LOW:L1 10	In low range CR dynamic mode, Set L1 (level 1) to 10 Ω.
Query Syntax	:RESistance:DYNamic:LOW:L1/L2? [MIN MAX]	
Return Parameter	<NR2> [MAX MIN] 1 unit= 1 Ω	Resistance Returns the resistance of L1/L2.
Query Example	:RES:DYN:LOW:L2? MAX 300	Returns the maximum resistance allowed for the channel. (RMX-4003)

:RESistance:DYNamic:LOW:RISE/FALL
 Channel-Specific Command

Description	Sets the low range rising/falling slew rate for CR dynamic mode for the specific channel.	
Syntax	:RESistance:DYNamic:LOW:RISE/FALL <NRf+>[A/μs]	
Parameter	<NRf+>[A/μs]	Slew rate
	RISE/FALL 0.8A/μs	Sets the rising/falling slew rate to 0.8 A/μs
	RISE/FALL .1	Sets the rising/falling slew rate to 0.1 A/μs
	RISE/FALL MIN	Sets to the slowest rising/falling slew rate
	RISE/FALL MAX	Sets to the fastest rising/falling slew rate
Example	:RES:DYNA:LOW:RISE 0.1	Sets the rising slew rate to ~ 0.1 A/μs.
Query Syntax	:RESistance:DYNamic:LOW:RISE/FALL? [MIN MAX]	
Return Parameter	<NR2> [MAX MIN]	Slew rate
	1 unit=1 A/μs	Returns the slew rate
	MAX/MIN	Returns the allowable maximum and minimum
Query Example	:RES:DYN:LOW:FALL? MIN 0.8000	For low range dynamic CR mode, the minimum value for the falling slew rate is 0.8 A/μs for the specific channel.

:RESistance:DYNamic:LOW:T1/T2
 Channel-Specific Command

Description	Sets the timers T1 or T2 for CR dynamic mode for the specific channel in low range.
Syntax	:RESistance:DYNamic:LOW:T1/T2 <NRf+>[S ms]

Parameter	<Nrf+>[S]	Time T1/T2
	T1/T2 0.1S	Sets the T1/T2 time to 0.1 s
	T1/T2 1	Sets T1/T2 to 1 s
	T1/T2 MIN	Sets the T1/T2 to the minimum value
	T1/T2 MAX	Sets the T1/T2 time to the maximum time
Example	:RES:DYNA:LOW:T1 10S	Sets the T1 time to 10 s for the specific channel.
Query Syntax	:RESistance:DYNamic:T1/T2? [MIN MAX]	
Return Parameter	<NR2> [MAX MIN]	Time T1/T2
	1 unit=1 s	Returns T1/T2 time
	MAX/MIN	Returns the allowable maximum and minimum
Query Example	:RES:DYN:LOW:T1?	Returns the T1 time of 2.5 s.
	2.5	
	:CURR:DYN:LOW:T1? MIN	Returns the minimum T1 time allowable for the specific channel.
	0.000025	

:RESistance:DYNamic:HIGh:L1/L2		Channel-Specific Command
Description	Sets the high range resistance levels (Level 1 and 2) for CR dynamic mode.	
Syntax	:RESistance:DYNamic:HIGh:L1/L2 <Nrf+>[OHM]	
Parameter	Nrf+[OHM]	Resistance
	L1 10	Sets L1 to 10 Ω (high range only)
	L2 20OHM	Sets L2 to 20 Ω (high range only)

	L1/L2 MIN	Sets L1 or L2 to the minimum level for the specific channel
	L1/L2 MAX	Sets L1 or L2 to the maximum level for the specific channel
Example	:RES:DYN:HIG:L1 10	In high range CR dynamic mode, Set L1 (level 1) to 10 Ω .
Query Syntax	:RESistance:DYNamic:HIG:L1/L2? [MIN MAX]	
Return Parameter	<NR2> [MAX MIN] 1 unit= 1 Ω	Resistance Returns the resistance of Level 1/ 2 (L1/L2)
Query Example	:RES:DYN:HIG:L2? MAX 15000.0	Returns the maximum resistance allowed for the channel. (RMX-4003)
.:RESistance:DYNamic:HIG:RISE/FALL		Channel-Specific Command
Description	Sets the high range rising/falling slew rate for CR dynamic mode for the specific channel.	
Syntax	:RESistance:DYNamic:HIG:RISE/FALL <NRf+>[A/ μ s]	
Parameter	<NRf+>[A/ μ s]	Slew rate
	RISE/FALL 0.8A/ μ s	Sets the rising/falling slew rate to 0.8 A/ μ s
	RISE/FALL 1	Sets the rising/falling slew rate to 1 A/ μ s
	RISE/FALL MIN	Sets to the slowest rising/falling slew rate
	RISE/FALL MAX	Sets to the fastest rising/falling slew rate
Example	:RES:DYN:HIG:RISE 1.1	Sets the rising slew rate to 1.1 A/ μ s.

Query Syntax	:RESistance:DYNamic:HIGh:FALL? [MIN MAX]	
Return Parameter	<NR2> [MAX MIN]	Slew rate
	1 unit=1 A/μs	Returns the slew rate
	MAX/MIN	Returns the allowable maximum and minimum
Query Example	:RES:DYN:HIGh:FALL?	For high range dynamic CR mode, the minimum value for the falling slew rate is 0.8 A/μs for the specific channel.
	MAX	
	0.8000	
:RESistance:DYNamic:HIGh:T1/T2		Channel-Specific Command
Description	Sets the timers T1 and T2 for high range dynamic CR mode.	
Syntax	:RESistance:DYNamic:HIGh:T1/T2 <NRf+>[S ms]	
Parameter	<NRf+>[S]	Timer T1/T2
	T1/T2 0.1S	Sets the T1/T2 time to 0.1 s
	T1/T2 1	Sets T1/T2 to 1 s
	T1/T2 MIN	Sets the T1/T2 to the minimum value
	T1/T2 MAX	Sets the T1/T2 time to the maximum time
Example	:RES:DYNA:HIGh:T1 10S	Sets the high range T1 time to 10 s for the specific channel.
Query Syntax	:RESistance:DYNamic:HIGh:T1/T2? [MIN MAX]	
Return Parameter	<NR2> [MAX MIN]	T1/T2 time
	1 unit=1 second	Returns T1/T2 time
	MAX/MIN	Returns the allowable maximum and minimum

Query Example	:RES:DYN:HIG ^H :T ₁ ?	Returns the T ₁ time of
	2.5	2.5 s.
	:RES:DYN:LOW:T ₁ ? MIN	Returns the minimum T ₁
	0.000025	time allowable for the specific channel.

RUN Subsystem

:RUN 119

:RUN	All-Channel Command
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Description	Turns on all the electronic loads.
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Syntax	:RUN
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Example	:RUN	Turns on all electronic loads.
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SHOW Subsystem

:SHOW[:DISPlay] dual channel 120

:SHOW[:DISPlay] single channel 121

:SHOW[:DISPlay] dual channel Channel-Specific
Command
(Dual channel module)

Description	Sets the specific channel's load module's display mode.
-------------	---

Syntax	:SHOW:DISPlay {LVI LVW LIW RVI RVW RIW LRV LRI LRW LRS LIRV LVRI LVRI}
--------	---

Parameter	LVI	Left channel, voltage/current
	LVW	Left channel, voltage/power
	LIW	Left channel, current/power
	RVI	Right channel, voltage/current
	RVW	Right channel, voltage/power
	RIW	Right channel, current/power
	LRV	Left and right channel voltage
	LRI	Left and right channel current
	LRW	Left and right channel power
	LRS	Left and right channel load on time
	LIRV	Left channel current, right channel voltage
	LVRI	Left channel voltage, right channel current

Example	:SHOW:DISP LVI	Show the left channel voltage and current on the load module display.
---------	----------------	---

`:SHOW[:DISPlay]` single channel
(Single channel module)

Channel-Specific
Command

Description	Sets the specific channel's load module's display mode.
-------------	---

Syntax	<code>:SHOW:DISPlay {VI, VW, IW, S}</code>
--------	--

Parameter	VI	Voltage/current
	VW	Voltage/power
	IW	Current/power
	S	Load on time

Example	<code>:SHOW:DISP VI</code>	Shows voltage and current on the load module display.
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SPECIFICATION Subsystem

:SPECification:UNIT	122
:SPECification[:PASS]?	123
:SPECification[:PASS]:CHANnel/ ALLChannel/VOLTage/CURRent?	123
:SPECification:VOLTage:H/L/C	124
:SPECification:CURRent:H/L/C	124
:SPECification:TEST:	125

:SPECification:UNIT		Channel-Specific Command
Description	Sets the Go/NoGo (specification) units as percentages or values.	
Syntax	:SPECification:UNIT {PERCENT o VALUE 1}	
Parameter	PERCENT/o	Percentages
	VALUE/1	Values
Example	:SPEC:UNIT PERCENT	Sets the Go/NoGo limits as percentages.
Query Syntax	:SPECification:UNIT? <NR1>	
Return Parameter	<NR1>	Go/NoGo Unit
	0	Percent
	1	Value
Query Example	:SPEC:UNIT? 0	The Go/NoGo (specification) units are set as percent.

:SPECification[:PASS]?		Channel-Specific Command
Description	Displays whether the Go/NoGo (specification) limit has passed/failed for the current channel used.	
Query Syntax	:SPECification[:PASS]?	
Return Parameter	<NR1>	Go/NoGo Specification
	0	Fail
	1	Pass
Query Example	:SPEC:PASS?	Go/NoGo has failed.
	0	
Query Example	:SPEC?	Go/NoGo has failed.
	0	

:SPECification[:PASS]:CHANnel/ ALLChannel/VOLTage/CURRent?		Channel-Specific Command
Description	Queries whether the voltage, current, current channel, or all channels have passed/failed the Go/NoGo (specification) limits. VOLTage→CC, CR mode, CURRent→CV, CP mode	
Query Syntax	:SPECification[:PASS]:CHANnel/ALLChannel/VOLTage/CURRent?	
Return Parameter	<NR1>	Go/NoGo Specification
	0	Fail
	1	Pass
Query Example	:SPEC:PASS:VOLT?	The test has exceeded the Go/NoGo voltage limits.
	0	

Query Example	:SPEC:VOLT? 0	The test has exceeded the Go/NoGo voltage limits.
	:SPECification:VOLTage:H/L/C	Channel-Specific Command
Description	Sets the high(H), low(L), and center(C) Go/NoGo voltage limit specifications. Applicable to CC and CR mode only.	
Syntax	:SPECification:VOLTage:H/L/C <NRf+>[V]	
Parameter	<NRf+>[V] 1 unit = 1 V	Go/NoGo voltage limit
	1	1 V
	1V	1 V
Example	:SPEC:VOLT:H 2V	Sets the Go/NoGo high voltage limit to 2 V.
Query Syntax	:SPECification:VOLTage:H/L/C? <NR2>	
Return Parameter	<NR2>	Go/NoGo voltage
	1 unit = 1 V	Returns the limit voltage
Query Example	:SPEC:VOLT:H? 2.000	The voltage limit is 2 V.
	:SPECification:CURRent:H/L/C	Channel-Specific Command
Description	Sets the high(H), low(L), and center(C) Go/NoGo current limit specifications. Applicable to CV mode only.	
Syntax	:SPECification:CURRent::H/L/C <NRf+>[A]	
Parameter	<NRf+>[A] 1 unit = 1 A	Go/NoGo current limit
	1	1 A
	1A	1 A
Example	:SPEC:CURR:H 1A	Sets the Go/NoGo high current limit to 1 A.

Query Syntax	:SPECification:CURRent:H/L/C? <NR2>	
Return Parameter	<NR2>	Go/NoGo voltage
	1 unit = 1 A	Returns the limit current
Query Example	:SPEC:CURR:H? 5.120	The current limit is 5.12 A.
:SPECification:TEST:		Channel-Specific Command
Description	Turns the Go/NoGo specification (SPEC) limits on/off.	
Syntax	:SPECification:TEST {OFF o ON 1}	
Parameter	OFF/o	OFF
	ON/1	ON
Example	:SPEC:TEST OFF	Turn Go/NoGo SPEC off for the specific channel.
Query Syntax	:SPECification:TEST?	
Return Parameter	<NR1>	Go/NoGo SPEC status
	0	Off
	1	On
Query Example	:SPEC:TEST? 1	Go/NoGo SPEC limits is on.

STATUS Subsystem

:STATus:CHANnel:CONDition?	126
:STATus:CHANnel:ENABLE	127
:STATus:CHANnel:EVENT?	127
:STATus:CHANnel:NTRansition/PTRansition	128
:STATus:CSUMmary:ENABLE	129
:STATus:CSUMmary:EVENT?	130
:STATus:QUEStionable:CONDition?	130
:STATus:QUEStionable:ENABLE	131
:STATus:QUEStionable[:EVENT]?	132
:STATus:QUEStionable:NTRansition/PTRansition...	132
:STATus:PREset	133

:STATus:CHANnel:CONDition?			Channel-Specific Command	
Description	Returns the Channel Status Condition Register status. The returned value is the Channel Status Condition Register bit weight. Refer to page 175 for details.			
Query Syntax	:STATus:CHANnel:CONDition?<NR1>			
Return Parameter	<NR1>	Condition	<NR1>	Condition
	1	OC	16	OT
	2	OV	32	G/N
	4	OP	64	UVP
	8	RV	128~65535	Not Used
Query Example	:STAT:CHAN:COND? 3		Indicates OC and OV conditions are true.	

:STATus:CHANnel:ENABle			Channel-Specific Command	
Description	Sets which events are enabled in the Channel Status Enable register. The mask values are the bit weights of the Channel Status Enable Register. Refer to page 175 for details.			
Syntax	:STATus:CHANnel:ENABle <NR1>			
Parameter	<NR1>	Event	<NR1>	Event
	1	OC	16	OT
	2	OV	32	G/N
	4	OP	64	UVP
	8	RV	128~65535	Not Used
Example	:STAT:CHAN:ENAB 12	Events OP (Bit 3) and RV (Bit 4) are enabled in the Channel Status Enable register.		
Query Syntax	:STATus:CHANnel:ENABle? <NR1>			
Return Parameter	<NR1>	Event	<NR1>	Event
	1	OC	16	OT
	2	OV	32	G/N
	4	OP	64	UVP
	8	RV	128~65535	Not Used
Query Example	:STAT:CHAN:ENAB?	The OP event is enabled.		

4

:STATus:CHANnel:EVENT?		Channel-Specific Command
Description	Returns the status of the Channel Status Event register for the specific channel. The Channel Status Event register is cleared on reading.	
Query Syntax	:STATus:CHANnel:EVENT? <NR1>	

Return Parameter	<NR1>	Event	<NR1>	Event
	1	OC	16	OT
	2	OV	32	G/N
	4	OP	64	UVP
	8	RV	128~65535	Not Used

Query Example	:STAT:CHAN:EVEN?	An over current (OC) event occurred since the last time the Channel Status Event register was read.
	1	

..STATus:CHANnel:NTRansition/	Channel-Specific
PTRansition	Command

Description	Determines whether a negative transition (NTR 1→0) or positive (PTR 0→1) transition in the Channel Status Condition register will set the corresponding event in the Channel Status Event register.
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The mask values are the Channel Status PTR/NTR filters' bit weights. Refer to page 175 for details.

Syntax :STATus:CHANnel:NTRansition/PTRansition <NR1>

Parameter	<NR1>	Condition	<NR1>	Condition
	1	OC	16	OT
	2	OV	32	G/N
	4	OP	64	UVP
	8	RV	128~65535	Not Used

Example :STAT:CHAN:NTR 12 OP (Bit 3) and RV (Bit 4) are set as negative transitions.

	:STAT:CHAN:PTR 1		OC (Bit 1) is set as a positive transition.	
Query Syntax	:STATus:CHANnel:NTRansition/PTRansition? <NR1>			
Return Parameter	<NR1>	Event	<NR1>	Event
	1	OC	16	OT
	2	OV	32	G/N
	4	OP	64	UVP
	8	RV	128~65535	Not Used
Query Example	:STAT:CHAN:NTR? 4		OP is set as a negative transition.	
:STATus:CSUMmary:ENABLE			Channel-Specific Command	
Description	Determines which channels in the Channel Summary Register group can set the CSUM bit of the Status Byte Register. The mask values are the bit weights of each corresponding channel in the Channel Summary Enable Register. Refer to page 176 for details.			
Syntax	:STATus:CSUMmary:ENABLE <NR1>			
Parameter	<NR1>	Event	<NR1>	Event
	1	CH1	16	CH5
	2	CH2	32	CH6
	4	CH3	64	CH7
	8	CH4	128	CH8
Example	:STAT:CSUM: 3		Events from channels 1 and 2 are enabled.	
Query Syntax	:STATus:CSUMmary:ENABLE? <NR1>			
Return Parameter	<NR1>	Event	<NR1>	Event
	1	CH1	16	CH5
	2	CH2	32	CH6

	4	CH3	64	CH7
	8	CH4	128	CH8

Query Example :STAT:CSUM:ENAB?
4

Only the events from channel 3 can set the CSUM bit in the Status Byte Register.

:STATus:CSUMmary:EVENT? Channel-Specific Command

Description Returns the Channel Summary Event register status. The Channel Summary Event register is cleared on reading.

Query Syntax :STATus:CSUMmary:EVENT? <NR1>

Return Parameter	<NR1>	Event	<NR1>	Event
	1	CH1	16	CH5
	2	CH2	32	CH6
	4	CH3	64	CH7
	8	CH4	128	CH8

Query Example :STAT:CSUM:EVEN?
4

An event from channel 3 occurred since the last time the Channel Summary Event register was read.

:STATus:QUESTionable:CONDition? Channel-Specific Command

Description Returns the status of the Questionable Status Condition register for the specific channel. Refer to page 177 for details.

Query Syntax :STATus:QUESTionable:CONDition? <NR1>

Return Parameter	<NR1>	Condition	<NR1>	Condition
	1	OC	16	OT

2	OV	32	G/N
4	OP	64	UVP
8	RV	128~65535	Not used

Query Example :STAT:QUES:COND?
2 OV (overvoltage) error.

:STATus:QUESTionable:ENABLE Channel-Specific Command

Description Sets which events are enabled in the Questionable Status Enable register. The mask values are the events' bit weights. Refer to page 177 for details.

Syntax :STATus:QUESTionable:ENABLE <NR1>

Parameter	<NR1>	Event	<NR1>	Event
	1	OC	16	OT
	2	OV	32	G/N
	4	OP	64	UVP
	8	RV	128~65535	Not used

Example :STAT:QUES:ENAB 12 Events OP (Bit 3) and RV (Bit 4) are enabled in the Questionable Status Enable register.

Query Syntax :STATus:QUESTionable:ENABLE? <NR1>

Return Parameter	<NR1>	Event	<NR1>	Event
	1	OC	16	OT
	2	OV	32	G/N
	4	OP	64	UVP
	8	RV	128~65535	Not used

Query Example :STAT:QUES:ENAB? The OP event is enabled.

..:STATus:QUESTionable[:EVENT]? Channel-Specific Command

Description	Returns the Questionable Status Event register status. The Questionable Status Event register is cleared on reading.			
Query Syntax	:STATus:QUESTionable[:EVENT]? <NR1>			
Return Parameter	<NR1>	Event	<NR1>	Event
	1	OC	16	OT
	2	OV	32	G/N
	4	OP	64	UVP
	8	RV	128~65535	Not used
Query Example	:STAT:QUES:EVEN? 1 An over current (OC) event occurred since the last time the Questionable Status Event register was read.			

..:STATus:QUESTionable:NTRansition/ PTRansition Channel-Specific Command

Description	Determines whether a negative transition (NTR 1→0) or positive (PTR 0→1) transition in the Questionable Status Condition register will set the corresponding event in the Questionable Status Event register. The mask values are the bit weights of the Questionable Status PTR/NTR filters. Refer to page 177 for details.			
Syntax	:STATus:QUESTionable:NTRansition/PTRansition <NR1>			
Parameter	<NR1>	Condition	<NR1>	Condition

	1	OC	16	OT
	2	OV	32	G/N
	4	OP	64	UVP
	8	RV	128~65535	Not used
Example	:STAT:QUES:NTR 5		OC (Bit 1) and OP (Bit 3) are set as negative transitions.	
	:STAT:CHAN:PTR 2		OV (Bit 2) is set as a positive transition.	
Query Syntax	:STATus:QUESTionable:NTRansition/PTRansition? <NR1>			
Return Parameter	<NR1>	Event	<NR1>	Event
	1	OC	16	OT
	2	OV	32	G/N
	4	OP	64	UVP
	8	RV	128~65535	Not used
Query Example	:STAT:QUES:NTR? 4		Returns which conditions (OP) have negative transitions.	
:STATus:PREset			Channel-Specific Command	
Description	The status preset command resets the Enable registers and NTR/PTR registers from the Channel Status and Questionable Status Register groups.			
Preset	Register		Preset	
	Channel Status Enable		All bits set to 1	
	Channel Status PTR		All bits set to 1	
	Channel Status NTR		All bits set to 0	
	Questionable Status Enable		All bits set to 0	
	Questionable Status PTR		All bits set to 1	

	Questionable Status NTR	All bits set to 0
Syntax	:STATus:PREset	
Example	:STAT:PRE	

Voltage Subsystem

:VOLTage:L1/L2.....	135
:VOLTage:RECall	136
:VOLTage:AVALue/BVALue.....	136
:VOLTage:CURRent	137
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:VOLTage:LOW:AVALue/BVALue	139
:VOLTage:HIGH:AVALue/BVALue	140
:VOLTage:LOW:CURRent	141
:VOLTage:HIGH:CURRent	141
:VOLTage:IMEasure.....	142

:VOLTage:L1/L2		Channel-Specific Command
Description	Sets the voltage of A Value or B Value in CV mode, where L1 is A Value and L2 is B Value.	
Syntax	:VOLTage:L1/L2 <NRf+>[V]	
Parameter	<NRf+>[V]	Voltage
	10	10 V
	10V	10 V
	MIN	Sets the voltage to the minimum value for the channel
	MAX	Sets the voltage to the maximum value for the channel
Example	:VOLT:L1 10V	Sets A Value to 10 V for the specific channel.
	:VOLT:L2 MAX	Sets B Value to the maximum allowed voltage for the specific channel.

Query Syntax	:VOLTage:L1/L2? [MAX MIN]	
Return Parameter	<NR2> 1 unit = 1 V	Voltage
	10	Returns the voltage of the specific channel
	MAX/MIN	Returns the allowable maximum and minimum
Query Example	:VOLT:L1?	A Value is set to 5 V.
	5	
	:VOLT:L1? MAX	Returns the maximum settable voltage.
	81.6000	
.:VOLTage:RECall		Channel-Specific Command
Description	Sets or queries whether A Value or B Value is the currently active value in CV mode.	
Syntax	:VOLTage:RECall {A o B 1}	
Parameter	A/o	A
	B/1	B
Example	:VOLT:REC 1	Makes B Value the active value.
Query Syntax	:VOLTage:RECall?	
Return Parameter	<NR1>	Value
	0	A
	1	B
.:VOLTage:AVALue/BVALue		Channel-Specific Command
Description	Sets the voltage of A Value or B Value in CV mode.	
Syntax	:VOLTage:AVALue/BVALue <NRf+>[V]	
Parameter	<NRf+>[V]	Voltage
	10	10 V

	10V MIN MAX	10 V Sets the voltage to the minimum value for the channel Sets the voltage to the maximum value for the channel
Example	:VOLT:AVAL 10V	Sets A Value to 10 V for the specific channel
	:VOLT:BVAL MAX	Sets B Value to the maximum allowed voltage for the specific channel. (Single channel only.)
Query Syntax	:VOLTage:AVALue/BVALue? [MAX MIN]	
Return Parameter	<NR2> 1 unit = 1 V 10 MAX/MIN	Voltage Returns the voltage of the specific channel Returns the allowable maximum and minimum
Query Example	:VOLT:AVAL? 5 :VOLT:AVAL? MAX 81.6000	A Value is set to 5 V. Returns the maximum settable voltage.
:VOLTage:CURREnt		Channel-Specific Command
Description	Sets the current limit in CV mode.	
Syntax	:VOLTage:CURREnt <NRf+>[A]	
Parameter	<NRf+>[A] 1 1A	Current limit 1 A 1 A

	MIN	Sets the current limit to the minimum value for the channel
	MAX	Sets the current limit to the maximum value for the channel
Example	:VOLT:CURR 1A	Sets the current limit to 1 A for the specific channel.
	:VOLT:CURR MAX	Sets the current limit to the maximum limit for the specific channel.
Query Syntax	:VOLTage:CURRent? [MAX MIN]	
Return Parameter	<NR2> 1 unit = 1 A	Current limit
	1	Returns the current limit of the specific channel
	MAX/MIN	Returns the allowable maximum and minimum
Query Example	:VOLT:CURR? 5	The current limit is 5 A for the specific channel.
.:VOLTage:MODE		Channel-Specific Command
Description	Set the constant voltage response time for the specific channel.	
Syntax	:VOLTage:MODE {SLOW o FAST 1}	
Parameter	SLOW/o	Slow response time
	FAST/1	Fast response time
Example	:VOLT:MODE SLOW	Sets the response time to SLOW for the specific channel.

	:VOLT:MODE 1	Sets the response time to FAST for the specific channel.
Query Syntax	:VOLTage:MODE? <NR1>	
Return Parameter	<NR1>	Response Time
	0	Slow
	1	Fast
Query Example	:VOLT:MODE? 0	The specific channel is set to SLOW response time.
	:VOLTage:LOW:AVALue/BVALue	Channel-Specific Command
Description	Sets the low range A/B Value for constant voltage mode.	
Syntax	:VOLTage:LOW:AVALue/BVALue <NRf+>[W]	
Parameter	NRf+[W]	
	AVALue 1	Sets A Value to 1 V.
	BVALue 1V	Sets B Value to 1 V.
	AVALue MIN	Sets A Value to the minimum level for the specific channel.
	AVALue MAX	Sets A Value to the maximum level for the specific channel.
Example	:VOLTage:LOW:AVAL 1	Sets A Value to 1 V for the low range.
Query Syntax	:VOLTage:LOW:AVALue/BVALue? [MAX MIN]	
Return Parameter	<NR2> [MAX MIN]	Current
	1 unit = 1 volt	Returns the voltage of the A or B Value.

	MAX/MIN	Returns the allowable maximum and minimum.
Query Example	:VOLTage:LOW:AVALue? MAX 16.32	Returns the maximum voltage allowed for the channel/range.
	:VOLTage:HIGH:AVALue/BVALue	Channel-Specific Command
Description	Sets the high range A/B Value for constant voltage mode.	
Syntax	:VOLTage:HIGH:AVALue/BVALue <NRf+>[W]	
Parameter	NRf+[W]	
	AVALue 1	Sets A Value to 1 V.
	BVALue 1V	Sets B Value to 1 V.
	AVALue MIN	Sets A Value to the minimum level for the specific channel.
	AVALue MAX	Sets A Value to the maximum level for the specific channel.
Example	:VOLTage:HIGH:AVAL 1	Sets A Value to 1 V for the high range.
Query Syntax	:VOLTage:HIGH:AVALue/BVALue? [MAX MIN]	
Return Parameter	<NR2> [MAX MIN]	Current
	1 unit = 1 volt	Returns the voltage of the A or B Value.
	MAX/MIN	Returns the allowable maximum and minimum.
Query Example	:VOLTage:HIGH:AVALue? MAX 81.6	Returns the maximum voltage allowed for the channel/range.

:VOLTage:LOW:CURRent		Channel-Specific Command
Description	Sets the low range A/B Value for constant voltage mode.	
Syntax	:VOLTage:LOW:CURRent	
Parameter	NRf+[W]	
	AVALue 1	Sets A Value to 1 V.
	BVALue 1V	Sets B Value to 1 V.
	AVALue MIN	Sets A Value to the minimum level for the specific channel.
	AVALue MAX	Sets A Value to the maximum level for the specific channel.
Example	:VOLTage:LOW:AVAL 1	Sets A Value to 1 V for the low range.
Query Syntax	:VOLTage:LOW:AVALue/BVALue? [MAX MIN]	
Return Parameter	<NR2> [MAX MIN]	Current
	1 unit = 1 volt	Returns the voltage of the A or B Value.
	MAX/MIN	Returns the allowable maximum and minimum.
Query Example	:VOLTage:LOW: CURRent? MAX 2.04	Returns the maximum current allowed for the channel/range.
:VOLTage:HIGh:CURRent		Channel-Specific Command
Description	Sets the high range A/B Value for constant voltage mode.	
Syntax	:VOLTage:HIGh:CURRent	

Parameter	NRf+[W]	
	AVALue 1	Sets A Value to 1 V.
	BVALue 1V	Sets B Value to 1 V.
	AVALue MIN	Sets A Value to the minimum level for the specific channel.
	AVALue MAX	Sets A Value to the maximum level for the specific channel.
Example	:VOLTage:HIGH:AVAL 1	Sets A Value to 1 V for the high range.
Query Syntax	:VOLTage:HIGH:AVALue/BVALue? [MAX MIN]	
Return Parameter	<NR2> [MAX MIN]	Current
	1 unit = 1 volt	Returns the voltage of the A or B Value.
	MAX/MIN	Returns the allowable maximum and minimum.
Query Example	:VOLTage:HIGH: CURRent? MAX 20.4	Returns the maximum current allowed for the channel/range.
.:VOLTage:IMEasure		Channel-Specific Command
Description	Sets the current measurement range of constant voltage mode for the specific channel.	
Syntax	:VOLTage:IMEasure {L 0 H 1}	
Parameter	L/0	Low reange of current measurement.
	H/1	High range of current measurement.

Example	:VOLT:IME L	Sets the current measurement range to Low for the specific channel.
	:VOLT:IME 1	Sets the current measurement range to High for the specific channel.
Query Syntax	:VOLTage:IMEasure?<NR1>	
Return Parameter	<NR1>	The current measurement range of constant voltage mode for the specific channel.
	0	Low
	1	High
Query Example	:VOLT:IME? 0	The specific channel is set to low range for current measurement.

Power Subsystem

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:POWer:L1/L2		Channel-Specific Command
Description	Sets the A/B Value for constant power mode, where L1 is A Value and L2 is B Value. The command is range dependent. If the current range is Low, the command applies to only the low range settings.	
Syntax	:POWer:L1 L2 <NRf+>[W]	
Parameter	<NRf+>[W]	
	L1 1	Sets A Value to 1 W
	L2 2	Sets B Value to 2 W
	L1 1W	Sets A Value to 1 W (single channel only)
	L1 MIN	Sets A Value to the minimum level for the specific channel
	L1 MAX	Sets A Value to the maximum level for the specific channel
Example	:POW:L1 1	Sets A Value to 1 W
Query Syntax	:POW:L1?/L2? [MAX MIN]	
Return Parameter	<NR2> [MAX MIN]	Current

	1 unit = 1 W	Returns the power of the A Value (L1) or B Value (L2)
	MAX/MIN	Returns the allowable maximum and minimum
Query Example	:POW:L2? MAX 357.000	Returns the maximum power allowed for the channel. (RMX-4003)
:POWER:CURRent		Channel-Specific Command
Description	Sets the current limit for constant power mode. The command is range dependent. If the current range is Low, the command applies to only the low range settings.	
Syntax	:POWER:CURRent <NRf+>[A]	
Parameter	<NRf+>[A]	
	1	Sets the current limit to 1 A
	1A	Sets the current limit to 1 A
	MIN	Sets the current limit to the minimum level for the specific channel
	MAX	Sets the current limit to the maximum level for the specific channel
Example	:POW:CURR 1	Sets the current limit to 1 A.
Query Syntax	:POW:CURRent? [MAX MIN]	
Return Parameter	<NR2> [MAX MIN]	Current
	1 unit = 1 A	Returns the current limit
	MAX/MIN	Returns the allowable maximum and minimum

Query Example	:POW:CURR? 7.0	Returns the current limit for the specific channel
---------------	-------------------	---

:POW:RECall	Channel-Specific Command
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Description	Sets or queries whether A Value or B Value is the currently active value in CP mode.
-------------	--

Syntax	:POW:RECall A/o, B/1
--------	----------------------

Parameter	A/o, B/1	Value
	A/o	A
	B/1	B

Example	:POW:REC 1	Makes B Value the active value.
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Query Syntax	:POW:RECall?
--------------	--------------

Return Parameter	<NR1>	Value
	0	A
	1	B

Query Example	:POW:REC? 0	A Value is active.
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:POW:LOW:AVALue/BVALue	Channel-Specific Command
------------------------	-----------------------------

Description	Sets the low range A/B Value for constant power mode.
-------------	---

Syntax	:POW:LOW:AVALue/BVALue <NRf+>[W]
--------	----------------------------------

Parameter	NRf+[W]	
	AVALue 1	Sets A Value to 1 W
	BVALue 1W	Sets B Value to 1 W
	AVALue MIN	Sets A Value to the minimum level for the specific channel

	AVALue MAX	Sets A Value to the maximum level for the specific channel
Example	:POWER:LOW:AVAL 1	Sets A Value to 1 W for the low range.
Query Syntax	:POWER:LOW:AVALue/BVALue? [MAX MIN]	
Return Parameter	<NR2> [MAX MIN]	Current
	1 unit = 1 W	Returns the power of the A or B Value
	MAX/MIN	Returns the allowable maximum and minimum
Query Example	:POWER:LOW:BVAL? MAX 2	Returns the maximum power allowed for the channel/range.
	:POWER:LOW:CURREnt	Channel-Specific Command
Description	Sets the current limit for constant power mode for the low range only.	
Syntax	:POWER:LOW:CURREnt <NRf+>[A]	
Parameter	<NRf+>[A]	
	1	Sets the current limit to 1 A.
	1A	Sets the current limit to 1 A.
	MIN	Sets the current limit to the minimum level for the specific channel
	MAX	Sets the current limit to the maximum level for the specific channel
Example	:POW:CURR 1	Sets the current limit to 1 A.

Query Syntax	:POW:LOW:CURRent? [MAX MIN]	
Return Parameter	<NR2> [MAX MIN]	Current
	1 unit = 1 A	Returns the current limit
	MAX/MIN	Returns the allowable maximum and minimum
Query Example	:POW:LOW:CURR? 7.0	Returns the current limit for the specific channel.
.:POWer:HIGH:AVALue/BVALue		Channel-Specific Command
Description	Sets the high range A/B Value for constant power mode.	
Syntax	:POWer:HIGH:AVALue/BVALue <NRf+>[W]	
Parameter	NRf+[W]	
	AVALue 1	Sets A Value to 1 W
	BVALue 1W	Sets B Value to 1 W
	AVALue MIN	Sets A Value to the minimum level for the specific channel
	AVALue MAX	Sets A Value to the maximum level for the specific channel
Example	:POWer:HIGH:AVAL 1	Sets A Value to 1 W for the high range.
Query Syntax	:POWer:LOW:AVALue/BVALue? [MAX MIN]	
Return Parameter	<NR2> [MAX MIN]	Current
	1 unit = 1 W	Returns the power of the A or B Value
	MAX/MIN	Returns the allowable maximum and minimum

Query Example	:POWER:HIGH:BVAL? AX 2	Returns the maximum power allowed for the channel/range.
	:POWER:HIGH:CURREnt	Channel-Specific Command
Description	Sets the current limit for constant power mode for the high range only.	
Syntax	:POWER:HIGH:CURREnt <NRf+>[A]	
Parameter	<NRf+>[A]	
	1	Sets the current limit to 1 A
	1A	Sets the current limit to 1 A
	MIN	Sets the current limit to the minimum level for the specific channel
	MAX	Sets the current limit to the maximum level for the specific channel
Example	:POW:HIGH:CURREnt 1	Sets the current limit to 1 A.
Query Syntax	:POW:HIGH:CURREnt? [MAX MIN]	
Return Parameter	<NR2> [MAX MIN]	Current
	1 unit = 1 A	Returns the current limit
	MAX/MIN	Returns the allowable maximum and minimum
Query Example	:POW:HIGH:CURREnt? 7.0	Returns the current limit for the specific channel.

SYSTEM Subsystem

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:SYSTem:ERRor? System Command

Description	The System Error command returns all the system errors. Refer to the Error codes section (page 151) for a full description.
-------------	---

Query Syntax	:SYSTem:ERRor?
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Return Parameter	<character string> -102, "Syntax error" 1 2 Error 1 Error code number 2 Error code description
------------------	---

Query Example	:SYST:ERR? -102, "Syntax error"	Returns the next error in the Error Queue.
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:SYSTem:VERSion? System Command

Description	The system version command returns the SCPI version: year and SCPI version of that year.	
Query Syntax	:SYSTEM:VERSION?	
Return Parameter	<NRf> 2008.0	Year/ version

:SYSTEM:SETup

System Command

Description	Sets or returns the system setup for the current settings using block data. Refer to the command syntax on page 11 for more details.	
Syntax	:SYSTEM:SETup <block data>	
Parameter	<block data>	System setup data
Example	:SYST:SET <block data>	Loads the system setup using block data.
Query Syntax	:SYSTEM:SETup?	
Return Parameter	<block data>	Returns the system setup as block data
Query Example	:SYST:SET? #<digits><byte count><data><NL>	Returns the system settings as block data.

:SYSTEM:KLOCK

Set →

→ Query

Description	Enables or disables the front panel key lock.	
Syntax	:SYSTEM:KLOCK {OFF ON 0 1}	
Query Syntax	:SYSTEM:KLOCK?	
Parameter	0 OFF 1 ON	Panel keys unlocked Panel keys unlocked Panel keys locked Panel keys locked

Return Parameter	0	<Boolean>Panel keys unlocked
	1	<Boolean>Panel keys locked

Set →

:SYSTem:KEYLock:MODE

→ Query

Description Sets or queries the key lock mode.

Syntax :SYSTem:KEYLock:MODE {0 | 1}

Query Syntax :SYSTem:KEYLock:MODE
?

Parameter 0 Panel lock: allow Load Off

Return Parameter 1 Panel lock: allow Load On/Off

Memory Subsystem

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		Channel-Specific Command
:MEMory:SAVE:PREset		
Description	Saves preset data for the specific channel to internal memory slots P0~P9.	
Syntax	:MEMory:SAVE:PREset: <NR1>	
Parameter	<NR1> 0~9	Preset number P0~Pg
Example	:MEM:SAVE:PRE o	Saves the preset settings to (P0).

		Channel-Specific Command
:MEMory:SAVE:PROGram		
Description	Saves the specific channel into memory.	
Syntax	:MEMory:SAVE:PROGram <NR1>	
Parameter	<NR1> 001~120	Memory number M001~M120

Example	:MEM:SAVE:PROG 100	Saves the channel to Memory M100.
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:MEMory:SAVE:ALLPreset	All Channels
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Description	Saves preset data to internal memory for all channels.
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Syntax	:MEMory:SAVE:ALLPreset: <NR1>
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Parameter	<NR1> 0~9	Preset number P0~Pg
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Example	:MEM:SAVE:ALLP 0	Saves the preset settings to (P0) for all channels.
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:MEMory:SAVE:SETup	All Channels
--------------------	--------------

Description	Saves setup data for all channels to internal memory slots S1~S4.
-------------	---

Syntax	:MEMory:SAVE:SETup: <NR1>
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Parameter	<NR1> 1~4	Setup data S1~S4
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Example	:MEM:SAVE:SET 1	Saves the setup data to S1 (applicable to all channels).
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:MEMory:RECall:PREset	Channel-Specific Command
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Description	Recalls preset data for the specific channel from internal memory slots P0~P9.
-------------	--

Syntax	:MEMory:RECall:PREset: <NR1>
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Parameter	<NR1>	Preset number
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	0~9	P0~Pg
Example	:MEM:REC:PRE 0	Recalls the preset settings from (P0).
	:MEMory:RECall:PROGram	Channel-Specific Command
Description	Recalls memory data to the current channel.	
Syntax	:MEMory:RECall:PROGram <NR1>	
Parameter	<NR1> 001~120	Memory number M001~M120
Example	:MEM:REC:PROG 100	Recalls the memory M100 for the current channel.
	:MEMory:RECall:ALLPreset	All Channels
Description	Recalls preset data from internal memory for all channels.	
Syntax	:MEMory:RECall:ALLPreset: <NR1>	
Parameter	<NR1> 0~9	Preset number P0~Pg
Example	:MEM:REC:ALLP 0	Recalls the preset settings from (P0) for all channels.
	:MEMory:RECall:SETup	All Channels
Description	Recalls setup data for all channels from internal memory slots S1~S4.	
Syntax	:MEMory:RECall:SETup: <NR1>	

Parameter	<NR1> 1~4	Setup data S1~S4
Example	:MEM:REC:SET 1	Recalls the setup data from S1 (applicable to all channels).
Example	:MEM:REC:100	Recalls memory data M100 to the current channel.

.:MEMory:FILE:PRESet System Command

Description	Sets or returns the preset settings using block data. Refer to the command syntax on page 11 for more details on block data.	
Syntax	.:MEMory:FILE:PRESet <block data>	
Parameter	<block data>	Preset data
Example	:MEM:FILE:PRE <block data>	Loads the preset settings block data.
Query Syntax	.:MEMory:FILE:PRESet?	
Return Parameter	<block data>	Returns the preset settings as block data
Query Example	:MEM:FILE:PRE? #<digits><byte count><data><NL>	Returns the preset settings as block data.

.:MEMory:FILE:PROGram System Command

Description	Sets or returns the program data using block data. Refer to the command syntax on page 11 for more details on block data.	
Syntax	.:MEMory:FILE:PROGram <block data>	
Parameter	<block data>	Program data

Example	:MEM:FILE:PROG <block data>	Loads the program data using block data.
Query Syntax	:MEMory:FILE:PROGram?	
Return Parameter	<block data>	Returns the program data as block data
Query Example	:MEM:FILE:PROG? #<digits><byte count><data><NL>	Returns the program data as block data.

:MEMory:FILE:SETup

System Command

Description	Sets or returns the setup data using block data. Refer to the command syntax on page 11 for more details on block data.	
Syntax	:MEMory:FILE:SETup <block data>	
Parameter	<block data>	Setup data
Example	:MEM:FILE:SET <block data>	Loads the setup data using block data.
Query Syntax	:MEMory:FILE:SETup?	
Return Parameter	<block data>	Returns the setup data as block data
Query Example	:MEM:FILE:SET? #<digits><byte count> <data><NL>	Returns the setup data as block data.

:MEMory:FILE:SEquence

System Command

Description	Sets or returns the sequence data using block data. Refer to the command syntax on page 11 for more details on block data.	
Syntax	:MEMory:FILE:SEquence <block data>	
Parameter	<block data>	Sequence data

Example	:MEM:FILE:SEQ <block data>	Loads the sequence data using block data.
Query Syntax	:MEMory:FILE:SEQuence?	
Return Parameter	<block data>	Returns the sequence data as block data
Query Example	:MEM:FILE:SEQuence? #<digits><byte count> <data><NL>	Returns the sequence data as block data.

SEquence Subsystem

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:SEquence:STATe		Channel-Specific Command
Description	Turns on/off the Sequence Function mode.	
Syntax	:SEquence:STATe {OFF o ON 1}	
Parameter	ON/1	Turn sequence mode on
	OFF/o	Turn sequence mode off
Example	:SEquence:STATe 1	Turn sequence on
Query Syntax	:SEquence:STATe?	
Return Parameter	ON,STOP	Sequence is on, stopped
	ON,RUN	Sequence is on, running
	OFF	Sequence is off

Query Example	:SEquence:STATe? ON,STOP	Sequence is on, stopped.
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:SEquence:EDIT:POINT	Channel-Specific Command
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Description	Sets the current point in the sequence. Use the SEquence:END command first to set the number of points.
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Syntax	:SEquence:EDIT:POINT <NR1>
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Parameter	<NR1> 1~last point	Points 1~ last point
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Example	:SEQ:EDIT:POIN 3	Sets the point to number 3.
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Query Syntax	:SEquence:EDIT:POINT?
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Return Parameter	<NR1> 1~last point	Points Returns the current point
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Query Example	:SEQ:EDIT:POIN? 3	The current point is 3.
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:SEquence:END	Channel-Specific Command
---------------	-----------------------------

Description	Sets the number of points in the sequence.
-------------	--

Syntax	:SEquence:END <NR1>
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Parameter	<NR1> 1~120	Points 1~120
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Example	:SEQ:END 5	Sets the max number of points to 5.
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Query Syntax	:SEquence:END?
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Return Parameter	<NR1> 1~120	Points 1~120
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Query Example	:SEQ:END? 5	There are 5 points in the sequence.
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:SEQuence:END:LOAD	Channel-Specific Command
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Description	Sets or queries the value of On End Load.	
Syntax	:SEQuence:END:LOAD <NRf+> MIN MAX	
Parameter	<NRf+> o MIN/MAX	Current value (CC), resistance value (CR) On End Load = Off Maximum or minimum value
Example	:SEQuence:END:LOAD 1.000	Sets the value of On End Load to 1.000
Query Syntax	:SEQuence:END:LOAD?	
Return Parameter	OFF <NRf>	On End Load is Off On End Load value
Query Example	:SEQuence:END:LOAD? 1,000	On End Load value is 1.000.

:SEQuence:POINt:RESistance	Channel-Specific Command
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Description	Sets the resistance value for the current point. CR mode only.	
Syntax	:SEQuence:POINt:RESistance <NRf>[OHM] MIN MAX	
Parameter	<NRf>[OHM], MIN, MAX 100 100 OHM MAX/MIN	Resistance value 100 Ω 100 Ω Maximum or minimum value
Example	:SEQ:POIN:RES 100	Sets the resistance to 100.

Query Syntax	:SEquence:POINt::RESistance? [MAX MIN]	
Return Parameter	<NR1>	Resistance Value
	1 unit = 1 Ω	Returns the resistance value
	MAX/MIN	Returns the allowable maximum and minimum
Query Example	:SEQ:POIN:RES? 100	The resistance value is 100 Ω .
.:SEquence:POINt:CURRent		Channel-Specific Command
Description	Sets the current value for the current point. CC mode only.	
Syntax	:SEquence:POINt:CURRent <NRf>[A] MIN MAX	
Parameter	<NRf>[A], MIN, MAX	Current value
	10	10 A
	100 A	100 A
	MAX/MIN	Maximum or minimum value
Example	:SEQ:POIN:CURR 1	Sets the current to 1.
Query Syntax	:SEquence:POINt::CURRent? [MAX MIN]	
Return Parameter	<NR1>	Current Value
	1 unit = 1 A	Returns the current value
	MAX/MIN	Returns the allowable maximum and minimum
Query Example	:SEQ:POIN:CURR? 1	The current value is 1 A.

:SEquence:POINt:RISE/FALL		Channel-Specific Command
Description	Sets the rising and falling slew rates for the current point.	
Syntax	:SEquence:POINt:RISE/FALL<NRf>[A/us] MIN MAX	
Parameter	<NRf>[A/us], MIN, MAX	Slew rate
	1.2	1.2 A/us
	1.2 A/us	1.2 A/us
	MAX/MIN	Maximum or minimum value
Example	:SEQ:POIN:RISE .3 A	Sets the rising slew rate to 0.3 A/us.
	:SEQ:POIN:FALL .4 A	Sets the falling slew rate to 0.4 A/us.
Query Syntax	:SEquence:POINt::RISE/FALL? [MAX MIN]	
Return Parameter	<NR1>	Slew rate
	1 unit = 1 A/us	Returns the slew rate
	MAX/MIN	Returns the allowable maximum and minimum
Query Example	:SEQ:POIN:RISE?	Returns the rising slew rate (0.3 A/us).
	0.30000	
	:SEQ:POIN:FALL?	Returns the falling slew rate (0.4 A/us).
	0.40000	

:SEquence:POINt:TIME		Channel-Specific Command
Description	Sets the duration time of the current point in seconds.	
Syntax	:SEquence:POINt:TIME <NRf>[S] MIN MAX	
Parameter	<NRf>	Duration Time

	0.0001~60000	0.0001~60,000.0 s
	0.0001~60000S	0.0001~60,000.0 s
	MIN	0.0001 s
	MAX	60,000 s
Example	:SEQ:POIN:TIME 10	Sets the point duration time to 10 s.
Query Syntax	:SEQuence:POIN:TIME? [MAX MIN]	
Return Parameter	<NR2>	Point
	0.0001~60000	Returns the point duration time
	MAX/MIN	Returns the allowable maximum and minimum
Query Example	:SEQ:POIN:TIME? 0.00100	The point duration time is 0.001 s.
.:SEQuence:REPeat		Channel-Specific Command
Description	Sets the number of times the sequence can be repeated (looped).	
Syntax	:SEQuence:REPeat <NR1>	
Parameter	<NR1>	Repeat setting
	1~9999	1~9999
	0	Infinite repeats
Example	:SEQ:REP 10	Repeat 10 times.
	:SEQ:REP 0	Repeat infinitely.
Query Syntax	:SEQuence:REPeat?	
Return Parameter	<NR1>	Repeat setting
	1~9999	1~9999
	0	Infinite

Query Example	:SEQ:REP? 10	Repeats the sequence 10 times.
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:SEQuence:VOLTage:RANGe	Channel-Specific Command
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Description	Sets the sequence CC voltage range.	
Syntax	:SEQuence:VOLTage:RANGe <NRf>[V] L H	
Parameter	<NRf>[V], L, H	Range
	16	Low range*
	80V	High range*
	L	Low range
	H	High range
	*Load module dependent, RMX-4003 shown.	

Example	:SEQ:VOLT:RANG L	Sets the range to Low for the channel.
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Query Syntax	:SEQuence:VOLTage:RANGe?	
Return Parameter	<NR2>	Range
	16	Low RMX-4003, 4004, 4005
	125	Low RMX-4006
	80	High RMX-4003, 4004, 4005
	500	High RMX-4006

Query Example	:SEQ:VOLT:RANG? 500	Returns the voltage range. In this case, high for the RMX-4006.
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:SEQuence:LOOP:START	Channel-Specific Command
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Description	Determines from which point to start repeating (looping) the sequence from when using the SEQUENCE:REPEAT command.	
Syntax	:SEQUENCE:LOOP:START <NR1>	
Parameter	<NR1> 1~last point	Start loop from 1st~last point
Example	:SEQ:LOOP:STAR 2	Loop from point 2.
Query Syntax	:SEQUENCE:LOOP:START?	
Return Parameter	<NR1> 1~last point	Point Returns the point that the loop will start from
Query Example	:SEQ:LOOP:STAR? 2	The loop starts at point 2.

Channel-Specific Command

:SEQUENCE:CHANNEL:TIME

Description	Sets which channel duration time the specific channel will use.	
Syntax	:SEQUENCE:CHANNEL:TIME <NR1>	
Parameter	<NR1>1~max channels 1 2 etc.	Duration Time Settings Use channel 1 Use channel 2, etc.
Example	:SEQ:CHAN:TIME 3	Set the specific channel to use the channel duration time of channel 3.
Query Syntax	:SEQUENCE:CHANNEL:TIME?	
Return Parameter	<NR1> 1~max channels	Point Returns the channel duration time that the specific channel is using

Query Example	:SEQ:CHAN:TIME? 2	The specific channel is using the channel duration setting of channel 2.
:SEquence:RUN		Channel-Specific Command
Description	Turns the sequence On/Off.	
Syntax	:SEquence:RUN {OFF o ON 1}	
Parameter	OFF/o ON/1	Off On
Example	:SEQ:RUN ON	Run the sequence.
:SEquence:SAVE		Channel-Specific Command
Description	Saves the sequence for the specific channel.	
Syntax	:SEquence:SAVE	
Example	:SEQ:SAVE	Saves the sequence.
:SEquence:TRIGger:IN		Channel-Specific Command
Description	Turns the trigger input on/off for sequences. Refer to the :SEquence:TRIGger:IN:CHANnel command to set which channels this command applies to.	
Syntax	:SEquence:TRIGger:IN {OFF o ON 1}	
Parameter	OFF/o ON/1	Off On
Example	:SEQ:TRIG:IN o	Trigger IN is on.
Query Syntax	:SEquence:TRIGger:IN?	
Return Parameter	<NR1> o	Trigger IN Off

	1	On
Query Example	:SEQ:TRIG:IN?	Trigger IN is on.
	1	
	:SEQuence:TRIGger:OUT	Channel-Specific Command
Description	Turns the trigger output on for the selected channel for sequences. Note that one channel must be set for trigger out.	
Syntax	:SEQuence:TRIGger:OUT <NR1> MIN MAX	
Parameter	<NR1>	Channel number
	MAX	Sets TRIG OUT to the last channel
	MIN	Sets TRIG OUT to the first channel
Example	:SEQ:TRIG:OUT 1	Sets TRIG OUT to CH1.
Query Syntax	:SEQuence:TRIGger:OUT?	
Return Parameter	<NR1>	Channel number
	MAX/MIN	Last or first channel
Query Example	:SEQ:TRIG:OUT?	CH1 is set to TRIG OUT.
	1	
	:SEQuence:TRIGger:IN:CHANnel	Channel-Specific Command
Description	Selects which channels are turned on/off with the :SEQuence:TRIGger:IN command. The bit weight of the <NR1> value determines which channels are used.	
Syntax	:SEQuence:TRIGger:IN:CHANnel <NR1>	
Parameter	<NR1>	Channel
	1	CH1
	32	CH 6

	2	CH2	64	CH 7
	4	CH3	128	CH 8
	8	CH 4	256~65535	Not used
	16	CH 5		
Example	:SEQ:TRIG:IN:CHAN 9		Sets TRIG IN to CH1 and CH4.	
Query Syntax	:SEQuence:TRIGger:IN:CHANnel?			
Return Parameter	<NR1>	Channel	<NR1>	Channel
	1	CH1	32	CH 6
	2	CH2	64	CH 7
	4	CH3	128	CH 8
	8	CH 4	256~65535	Not used
	16	CH 5		
Query Example	:SEQ:TRIG:IN:CHAN?		Sets TRIG IN to CH4 and CH5.	
	14			

GLOBAL Subsystem

:GLOBAL:CONFigure:VOLTage:RANGe	170
:GLOBAL:LOAD:SHORT	170
:GLOBAL:MODE	170

:GLOBAL:CONFigure:VOLTage:RANGe Global Command

Description	Sets the CC Voltage range high or low. This command applies to all channels.	
Syntax	:GLOBAL:CONFigure:VOLTage:RANGe {L H}	
Parameter	L	Low range
	H	High range
Example	:GLOB:CONF:VOLT:RANG L Sets the range to low.	

:GLOBAL:LOAD:SHORT Global Command

Description	Shorts all the input terminals.	
Syntax	:GLOBAL:LOAD:SHORT {OFF o ON 1}	
Parameter	{OFF o ON 1}	SHORT
	OFF/o	Off
	ON/1	On
Example	:GLOB:LOAD:SHOR o Short on.	
Query Syntax	:GLOBAL:LOAD:SHORT?	

:GLOBAL:MODE Global Command

Description	Sets the mode for all the load modules in the mainframe.	
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Syntax	:GLOBal:MODE {CCL CCH CCDL CCDH CRL CRH CRDL CRDH CV CPL CPH}	
Parameter	CCL	CC static mode, low range
	CCH	CC static mode, high range
	CCDL	CC dynamic mode, low range
	CCDH	CC dynamic mode, high range
	CRL	CR static mode, low range
	CRH	CR static mode, high range
	CRDL	CR dynamic mode, low range
	CRDH	CR dynamic mode, high range
	CV	CV mode
	CPL	CP static mode, low range
	CPH	CP static mode, high range
Example	:SEQ:VOLT:RANG L	Sets the range to Low for the channel.

Command Error Codes

Description	The RMX-400x Series has the following specific error codes. Use the SYSTem:ERRor command to recall the error codes.
-102	Syntax error An unrecognized command or data type was encountered.
-109	Missing parameter The command header requires more parameters than was received.
-122	Data out of range The data is outside the allowed range.
-128	Numeric data not allowed The command does not accept numerical data/parameters.
-200	Execution error Generic execution error.
-144	Character Data too long The character data contains more than twelve characters.
-151	Invalid String The string data received is invalid.
-148	Character data not allowed The command does not accept character data.
-138	Suffix not allowed A command does not accept suffixes/the suffix type.

STATUS REGISTERS

To program the RMX-400x Series effectively, you must understand the Status Register structure. This chapter explains in detail the structure of the status registers.

Status Register Overview

Description The status registers are used to determine the electronic load status. The status registers maintain the status of the load modules' protection conditions, load conditions, and channel conditions.

The RMX-400x Series has the following register groups:

Channel Status Registers (one for each channel)

Channel Summary Registers

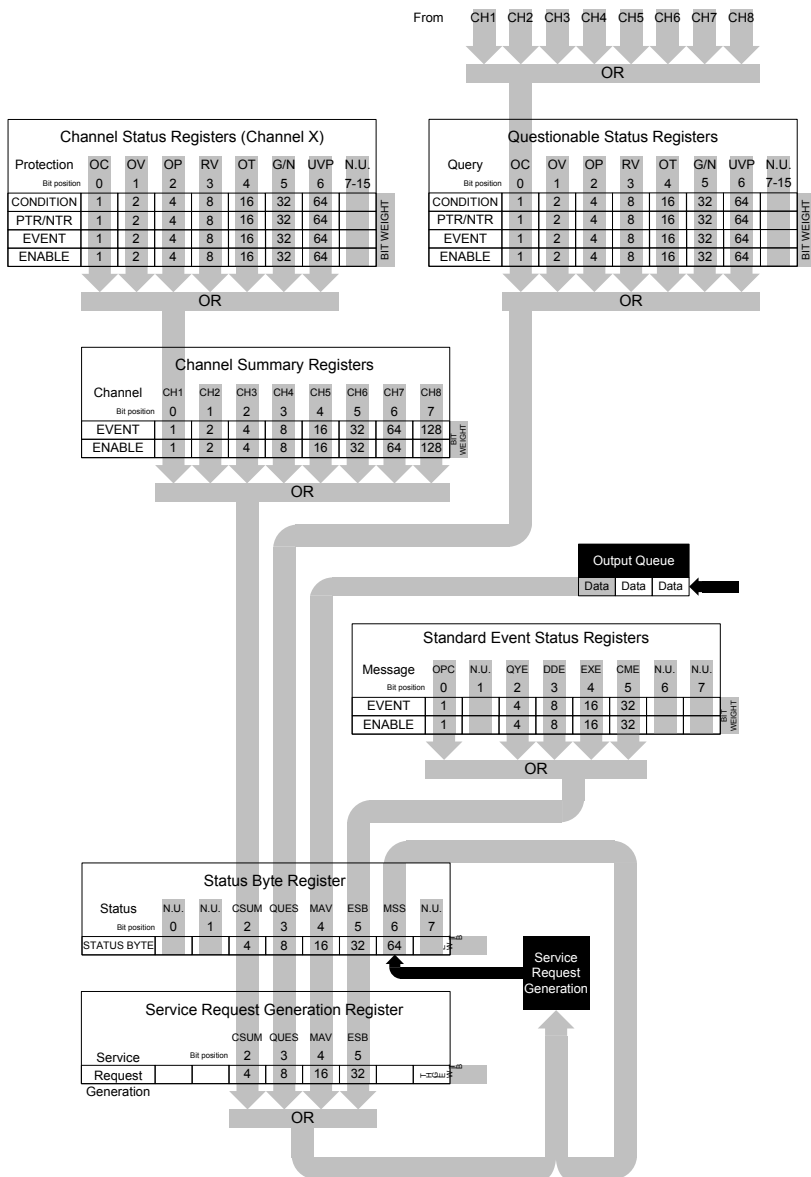
Questionable Status Registers

Standard Event Status Registers

Status Byte Register

Service Request Generation Register

The status registers structure is shown on the next page.



Channel Status

Description Each channel has a dedicated Channel Status Register group. These registers show whether any errors or faults have occurred to a specific channel.

The Channel Status Register group consists of the Condition, EVENT, and ENABLE registers, as well as PTR/NTR (positive and negative transition) filters.

Channel Status Registers								
Bit Position	7-15	6	5	4	3	2	1	0
Condition	0	UVP	G/N	OT	RV	OP	OV	OC
PTR/NTR	0	UVP	G/N	OT	RV	OP	OV	OC
EVENT	0	UVP	G/N	OT	RV	OP	OV	OC
ENABLE	0	UVP	G/N	OT	RV	OP	OV	OC
Bit weight		64	32	16	8	4	2	1

Protection Bits	OC	If an over current condition occurs, the OC bit (bit 0) is set. You can clear the OC bit with only the :LOAD:PROTEction:CLEar command.
	OV	If an over voltage condition occurs, the OV bit (bit 1) is set. You can clear the OV bit with only the :LOAD:PROTEction:CLEar command.
	OP	If an over power condition occurs, the OP bit (bit 2) is set. You can clear the OP bit with only the :LOAD:PROTEction:CLEar command.
	RV	If a reverse voltage condition occurs, the RV bit (bit 3) is set. The RV bit is automatically cleared after the reverse voltage is removed.

	OT When the internal temperature exceeds 85 °C, the OT bit is set. The OT bit is automatically cleared after the temperature drops below 85 °C.
	G/N The Go/NoGo bit is set when Go/NoGo limits have been exceeded, when Go/NoGo SPEC has been enabled.
	UVP If the under voltage condition occurs, the UVP bit is set.
Condition Register	The condition register indicates the electronic load status. Only a change in the electronic load condition can change the condition register. Reading the condition register does not change the condition register state.
PTR/NTR Register	The PTR/NTR (Positive/Negative transition) register determines the type of transition conditions that will trigger an event. You can transition program only the Channel Status Register and Questionable Status Register.
	Positive Transition 0→1
	Negative Transition 1→0
Event Register	The Event Register indicates whether an event has been triggered according to the transition settings from the PTR/NTR Register.
Enable Register	The Enable register determines which status event(s) are enabled. Any enabled status events (OC, OV, OP, RV, OT, G/N, UVP) will set the corresponding channel bit in the Channel Summary Event Register.

Channel Summary

Description	The Channel Summary Registers consolidate the channel status of all 4/8 channels, depending on the electronic load.
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Channel Summary Registers								
Bit Position	7	6	5	4	3	2	1	0
EVENT	CH8	CH7	CH6	CH5	CH4	CH3	CH2	CH1
ENABLE	CH8	CH7	CH6	CH5	CH4	CH3	CH2	CH1
Bit weight	128	64	32	16	8	4	2	1

Event Register If an event has been enabled and set in the Channel Status Registers, the corresponding channel bit is set in the Channel Summary Event Register. If the Event Register is read, it is cleared to 0.

Enable Register Use the Enable Register to determine which channel events are used to set the Status Byte Register CSUM bit.

Questionable Status

Description The Questionable Status Registers show whether any faults or errors have occurred. The Questionable Status Registers have the same events as the Channel Status Registers.

Questionable Status Register								
Bit Position	7-15	6	5	4	3	2	1	0
Condition	0	UVP	G/N	OT	RV	OP	OV	OC
PTR/NTR	0	UVP	G/N	OT	RV	OP	OV	OC
EVENT	0	UVP	G/N	OT	RV	OP	OV	OC
ENABLE	0	UVP	G/N	OT	RV	OP	OV	OC
Bit weight		64	32	16	8	4	2	1

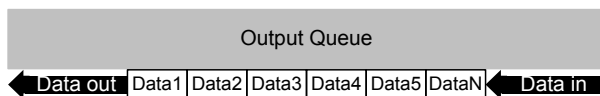
Bit Summary

OC	Over Current
OV	Over voltage
OP	Over Power
RV	Reverse Voltage
OT	Over Temperature

	G/N	Go/NoGo
	UVP	Under Voltage Protection
Condition Register	The Questionable Status Condition Register indicates the electronic load status. If a bit is set in the Condition register (OC, OV, OP, RV), it indicates that the event is true. Reading the condition register does not change the condition register state.	
PTR/NTR Register	The PTR/NTR (Positive/Negative transition) register determines the type of transition conditions that will set the corresponding bit in the Event Registers. You can transition program only the Channel Status Register and Questionable Status Register.	
	Positive Transition	0→1
	Negative Transition	1→0
Event Register	The PTR/NTR Register dictates the type of transition conditions that will set the corresponding bits in the Event Register. If the Event Register is read, it is cleared to 0.	
Enable Register	Use the Enable Register to determine which channel events set the QUES bit of the Status Byte Register.	

Output Queue

Description The Output queue stores output messages in a FIFO buffer until read. If the Output Queue has data, the MAV bit in the Status Byte Register is set.



Standard Event Status

Description The Standard Event Status Registers indicate any programming errors that occur. The Standard Event Status Register group comprises of the Event and Enable registers.

Standard Event Status Registers								
Bit Position	7	6	5	4	3	2	1	0
EVENT	0	0	CME	EXE	DDE	QYE	OPC	0
ENABLE	0	0	CME	EXE	DDE	QYE	OPC	0
Bit weight	128	64	32	16	8	4	2	1

Error Bits **OPC** The operation complete bit is set when all selected pending operations are complete. This bit is set in response to the *OPC command.

QYE The Query Error bit is set in response to an error reading the Output Queue. Trying to read the Output Queue when there is no data present can cause this condition

DDE The Device Dependent Error indicates a memory error/lost memory or failure of the self-test.

EXE The Execution bit indicates an execution error due to one of the following conditions:

- Illegal command parameter
- Parameter out of range
- Invalid parameter
- Command didn't execute due to an overriding operation condition.

CME The Command Error bit is set when a syntax error has occurred. The CME bit can also be set when a <GET> command is received within a program message. (Group Execute Trigger) is defined in IEEE 488.1.

Event Register The Event Register is set to 0 when read.

Enable Register The Enable Register determines which events set the ESB Bit (bit 5) in the Status Byte Register.

Status Byte Register

Description The Status Byte register consolidates the status events of all the status registers. You can read the Status Byte register with the *STB? query or a serial poll, and clear it with the *CLS command.

Status Byte Register								
Bit Position	7	6	5	4	3	2	1	0
Condition	0	MSS	ESB	MAV	QUES	CSUM	0	0
Bit weight	128	64	32	16	8	4	2	1

Status Bits **CSUM** The CSUM bit is set when an Enabled event has occurred on a channel. The Channel Condition, Channel Event, and Channel Summary Event Registers all determine whether the CSUM bit is set.

QUES The Questionable bit is set when a questionable event has occurred.

MAV The Message Available bit is set when there is outstanding data in the Output Queue.

ESB The Event Status bit is set if an enabled event in the Standard Event Status Event Register has occurred.

MSS Use the Master Summary Status with the
and *STB? query. When the *STB? query is
RQS read, the MSS bit is not cleared. The
Request Service bit is cleared when it is
polled during a serial poll.

Service Request Register

Description The Service Request Generation Register determines which events in the Status Byte Register will generate Service Requests. It is essentially the Status Byte Enable Register. The bit events are the same as the Status Byte Register, minus the MSS/RQS bit.

Service Request Generation Register (Status Byte Enable)

Bit Position	7	6	5	4	3	2	1	0
Condition	0	0	ESB	MAV	QUES	CSUM	0	0
Bit weight	128	64	32	16	8	4	2	1