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PROGRAMMABLE POWER

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Sorensen
Mi-BEAM Series

External CAN Programming Manual

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  Description of the problem

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IMPORTANT SAFETY INSTRUCTIONS

Before applying power to the system, verify that your product is configured properly for your application.

WARNING!



Hazardous voltages might be present when covers are removed. Qualified personnel must use extreme caution when servicing this equipment. Circuitry, test points, and output voltages might be floating with respect to chassis ground. Do not touch electrical circuits and use appropriately rated test equipment. A safety ground wire must be connected from the chassis to the Alternating current (AC) mains input when servicing this equipment.

CAUTION!



This equipment contains Electrostatic discharge (ESD) sensitive input or output connection ports. When installing equipment, follow ESD safety procedures. ESD might cause damage to the equipment.

Only qualified personnel, who deal with attendant hazards in power supplies, are allowed to perform installation and servicing.

Ensure that the AC input power line ground is connected properly to the unit safety ground chassis. Similarly, other AC power ground lines, including those for application and maintenance equipment, must be grounded properly for both personnel safety and equipment protection.

Always ensure that facility AC input power is de-energized prior to connecting or disconnecting any cable.

In normal operation, the operator does not have ACCESS to hazardous voltages within the chassis. However, depending on the user's application configuration, HIGH VOLTAGES HAZARDOUS TO HUMAN SAFETY may be normally generated on the output terminals. The customer/user must ensure that the output power lines are labeled properly as to the safety hazards and that any inadvertent contact with hazardous voltages is prevented.

Guard against risks of electrical shock during open cover checks by not touching any portion of the electrical circuits. Even when power is off, capacitors may retain an electrical charge. Use safety glasses and protective clothing during open cover checks to avoid personal injury by any sudden component failure.

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SAFETY SYMBOLS



WARNING: Electrical Shock Hazard.



HAZARD: Strong oxidizer



CAUTION: Read the accompanying message for specific information.



BURN HAZARD: Hot Surface Warning. Allow to cool before servicing.



DO NOT TOUCH: Touching some parts of the instrument without protection or proper tools could result in damage to the part(s) and/or the instrument.



TECHNICIAN SYMBOL: All operations marked with this symbol are to be performed by qualified maintenance personnel only.



ELECTRICAL GROUND: This symbol in the instrument marks the central safety grounding point for the instrument.



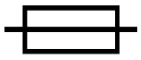
STANDBY (SUPPLY): Equipment is in standby mode and still have an active power supply. Disconnect before servicing.



OFF (SUPPLY): Power supply is OFF.



ON (SUPPLY): Power supply is ON.



FUSE: Risk of electrical shock or hazard. Disconnect power and use only the specified fuse type and rating.



ALTERNATING CURRENT (AC): AC is present. Avoid contact with live parts to prevent electric shock. Disconnect power before servicing.



DIRECT CURRENT (DC): DC is present. Avoid contact with live parts to prevent electric shock. Disconnect power before servicing.

FCC NOTICE

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the Federal Communications Commission (FCC) Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

ABOUT THIS MANUAL AND REGULATORY COMPLIANCE

This manual has been written for the Modular Intelligent-Bidirectional Energy Amplified (Mi-BEAM) Series of power supplies, which have been designed and certified to meet the Low Voltage Directive, Electromagnetic Compatibility, and Restriction of Hazardous Substances in Electrical and Electronic Equipment (RoHS) Directives per the requirements of the European Community.

These models have been designed and tested to meet the Electromagnetic Compatibility Directive 2014/30/EU, and the Low Voltage Directive 2014/35/EU. In addition, these models have been found to be compliant with FCC 47 CFR Part 15, Subpart B, 107(b) Class A, 109(g) Class A.

Since the Low Voltage Directive is to ensure the safety of the equipment operator, universal graphic symbols have been used both on the unit itself and in this manual to warn the operator of potentially hazardous situations. Refer to the Important Safety Instructions.

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1 INTRODUCTION

This programming manual provides instructions for the Remote programming, control, and monitoring of Mi-BEAM Series Bidirectional Power Supplies over the CAN bus.

Two communication options are supported:

1. **CANopen**

    - Covers basic CANopen configuration, including NMT (Network Management) setup, TPDO (Transmit Process Data Object) mapping, and SDO (Service Data Object) structures.

    - Enables standardized communication and seamless integration into existing industrial CANopen networks.

2. **CAN 2.0B**

    - Describes the Hardware configuration and use of extended 29-bit identifiers.

    - Supports custom command/response mappings, allowing flexible and proprietary protocol integration.

Together, these options provide both standards-compliant interoperability (via CANopen) and application-specific flexibility (via CAN 2.0B), ensuring Mi-BEAM supplies can be adapted to diverse industrial and research environments.

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2 SPECIFICATION

2.1 CAN CONFIGURATION

1. **Configurable Baud Rates:** 20kbps to 1mbps (20k, 40k, 50k, 80k, 100k, 125k, 150k, 200k, 250k, 400k, 500k, 1000 kbps)
2. **Configurable Node Id:** 1 to 127
3. **Protocols supported:** CAN2.0B and CANopen
4. **Termination:** 120Ω recommended.

Refer to Figure 2-1 and Figure 2-2 for the connection diagrams of single and multiple CAN devices.

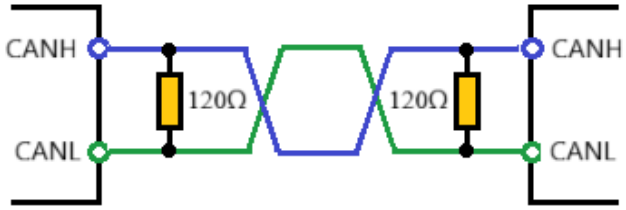


Figure 2-1. CAN Device – Single Connection

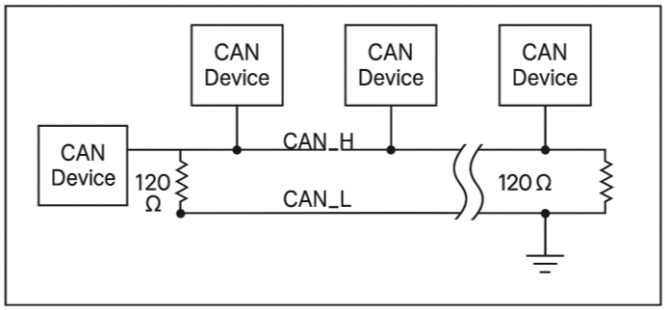


Figure 2-2. CAN Device – Multiple Connection

2.1.1 CAN 2.0B

Protocol: CAN 2.0B (29-bit identifiers)

Frame types supported: Extended frame (29-bit ID) and Data frames (DLC up to 8 bytes)

Supported services: Raw CAN messages (without protocol encapsulation)

Communication type: Signal Mapping via DBC

CAN database file: .dbc file support

2.1.2 CANOPEN

1. **Protocol:** CANopen
2. **Frame types supported:** NMT, SDO, PDO, and Heartbeat**.**
3. **Supported services:** Object Dictionary Access.
4. **Communication type:** Structured Communication via Object Dictionary and Signal Mapping via DBC
5. **CAN database file:** .dbc file support**.**
6. **Communication Objects:**

OBJECT TYPE	DESCRIPTION	FUNCTION
NMT (Network Management)	Device state control	1. Set of services used to control the state of CANopen devices on the network, such as Start/Stop/Reset node.
SDO (Service Data Object)	Object dictionary access	1. Accessing entries in the Object Dictionary. 2. Reading and writing configuration or parameter data. 3. Non-cyclic, request-response communication.
PDO (Process Data Object)	Real-time data exchange	1. Real-time, cyclic data exchange. 2. Transmitting or receiving process variables.
Heartbeat / Node Guarding	Periodically sending a message from each node to indicate it is alive	1. Monitoring the status of nodes on the CANopen network. 2. Periodically sending a message from each node to indicate it is alive. 3. Allowing other nodes (especially the master in the bus) to detect node failure or communication timeout.

Table 2-1. Communication Objects

3
CAN

3.1 GETTING STARTED WITH CAN

The Mi-BEAM power supplies provide communication over the Controller Area Network (CAN) bus. CAN is an industry standard fieldbus widely used in automation, automotive, and industrial equipment.

Mi-BEAM supports two CAN communication options;

1. CANopen
2. CAN2.0B

3.1.1 CANOPEN

1. **Protocol type**: Standardized higher-layer protocol defined by CiA (CAN in Automation).
2. **Role in network**: Operates as a slave device, enabling easy integration into existing CANopen networks.
3. **Identifier support**: Uses 11-bit standard CAN identifiers.
4. **Data format**: All data are transmitted in little-endian format.
5. **Typical usage**: For applications requiring interoperability and compatibility with other industrial equipment.
6. **Reference**: CAN in Automation (CiA) – CANopen.

3.1.2 CAN 2.0B

1. **Protocol type**: Flexible, raw CAN communication without standardized higher-layer rules.
2. **Role in network**: Can be integrated into custom communication schemes defined by the application.
3. **Identifier support**: Uses 29-bit extended CAN identifiers.
4. **Data format**: Application-defined (Mi-BEAM typically uses little-endian).

5. **Typical usage**: Application-defined (Mi-BEAM typically uses little-endian).
6. **Reference**: Bosch – CAN Specification Version 2.0.

3.2 PHYSICAL CONFIGURATION

Mi-BEAM uses a 2-pin CAN bus interface for communication:



Figure 3-1. CAN bus interface

PIN	SIGNAL	DESCRIPTION
1	CAN_H	CAN High – differential signal line (dominant high)
2	CAN_L	CAN Low – differential signal line (dominant low)

Table 3-1. CAN_H and CAN_L

3.2.1 CAN_H and CAN_L

1. **CAN_H (High Line)**
   - CAN_H is the high side of the CAN differential signal.
   - During a dominant state, CAN_H typically rises to approximately 3.5 V.
2. **CAN_L (Low Line)**
   - CAN_L is the low side of the CAN differential signal.
   - During a dominant state, CAN_L typically falls to approximately 1.5 V.
3. **Differential Signaling for Robust Communication**
   - The logic state is determined by the voltage difference between CAN_H and CAN_L
     - $\mathrm{V\,diff} = \mathrm{CAN_H} - \mathrm{CAN_L}$
   - This differential signaling provides strong noise immunity.
4. **Recommended Cabling**

- A twisted-pair cable with 120 Ω characteristic impedance is recommended.

3.2.2 CABLING HINTS

Steps to ensure reliable CAN communication;

1. **Use a Proper Bus Topology**
   - All CAN nodes must be connected in a series bus configuration.
   - Star wirings are not recommended.
2. **Minimize Stub Lengths**
   - Keep all branch or stub connections as short as possible, ideally less than 0.3 m.
3. **Terminate Only the Ends of the Bus**
   - Install a 120 Ω termination resistor at each end of the CAN bus.
   - Intermediate nodes must not have termination enabled.
4. **Baud Rate Requirements**
   - All nodes on the network must operate at the same baud rate.
   - The maximum supported baud rate of the entire bus is limited by the slowest node present in the system.

NOTE: Mi-BEAM boards do not have internal termination resistors. Appropriate termination must be installed externally.

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4
CAN CONFIGURATION STEPS

Follow the below steps to configure CAN communication using the front panel:

1. Navigate To Control Interface Menu

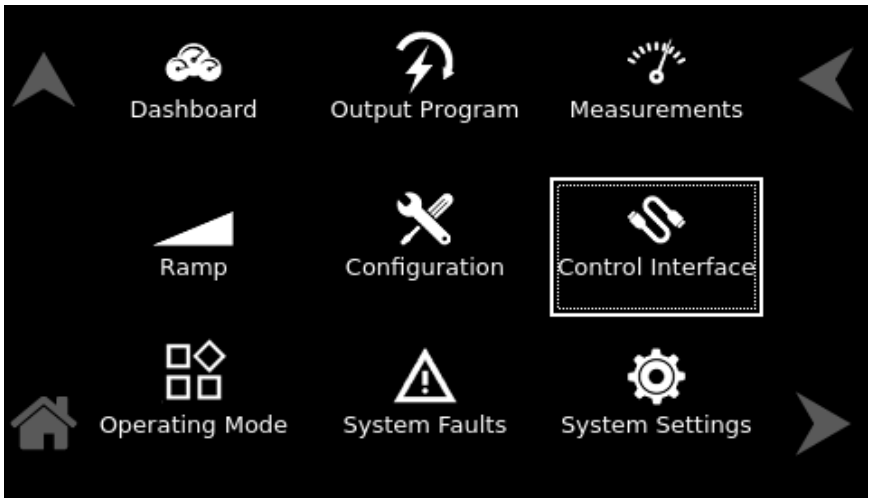


Figure 4-1. Control Interface

- From the front panel, click the Control Interface menu.

2. Navigate To External Can Submenu

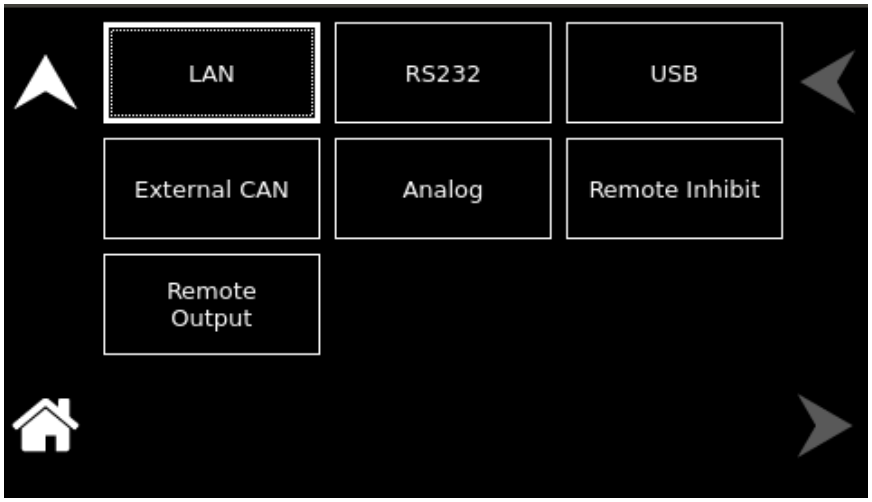


Figure 4-2. External CAN

- In the Control Interface menu, select **External CAN** Submenu to configure;
    - Address (Node ID)

- Baud rate
- Operating Mode (CANOpen / CAN 2.0).

3. External CAN Settings

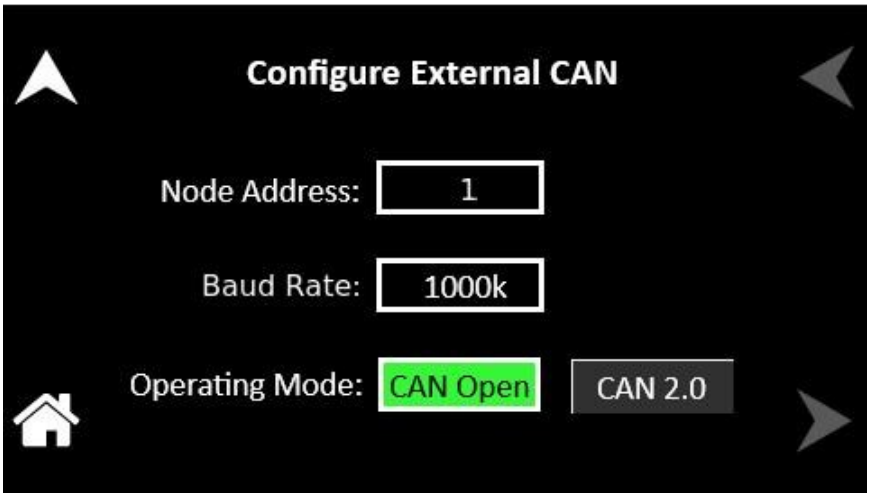


Figure 4-3. External CAN Settings

- Enter the Node ID value.
  - **Range:** 1 to127 (default = 7).
  - Each device on the network must have a unique Node ID.
- Select the baud rate from the list.
  - **Supported values:** 20k, 40k, 50k, 80k, 100k, 125k, 150k, 200k, 250k, 400k, 500k, 1000k.
  - **Example:** Use 125k for basic test setup or 500k for faster communication, default value is 500k.
- Choose between CANopen or CAN 2.0B depending on your network requirements.

5
CANOPEN

5.1 CANopen CONFIGURATION

PARAMETER	DETAILS
Bit rate	20 kbit/s to 1 Mbit/s (user-selectable)
High speed CAN	> 250 kbit/s
Low speed CAN	≤ 250 kbit/s
Max nodes	127 (Node IDs 1–127)
Frame type	Base frame format (11-bit CAN ID)
Stub length	As per CiA recommendations; shorter for higher bit rates
Bus length limit	Depends on baud rate (e.g., ~40 m at 1 Mbit/s, ~1 km at 50 kbit/s)

Table 5-1. CANopen Configuration

5.2 DATA FRAME STRUCTURE

The 11-bit CAN ID is referred to as the Communication Object Identifier (COB-ID) and is split in two parts:

1. **Function code:** 4 bits reflect the functionality of the message.

2. **Node ID:** 7 bits reflect the node ID (between 1 and 127).

The function code relates to different 'communication objects' used in CANopen.

COMMUNICATION OBJECT	FUNCTION CODE (4 BIT, BINARY)	NODE ID'S (7 BIT, BINARY)	COB-IDS
NMT	0000	0000000	0x00
SYNC	0001	0000000	0x80
EMCY	0001	0000001-1111111	0x81-0xFF
TIME	0010	0000000	0x100
Transmit PDO1	0011	0000001-1111111	0x181-0x1FF
Transmit PDO2	0101	0000001-1111111	0x281-0x2FF
Transmit PDO3	0111	0000001-1111111	0x381-0x3FF
Transmit PDO4	1001	0000001-1111111	0x481-0x4FF
Transmit SDO	1011	0000001-1111111	0x581-0x5FF
Receive SDO	1100	0000001-1111111	0x601-0x67F
Heartbeat	1110	0000001-1111111	0x701-0x7FF

Table 5-2. CANopen Data Frame Structure

5.3 NETWORK MANAGEMENT (NMT)

The NMT (Network Management) packets are used to control the state of a CANopen node. These messages are always sent with a COB-ID of 0x000 and contain two bytes;

1. Command Specifier (CS)
2. Node ID.

They are typically used to start or stop a node or reset communication.

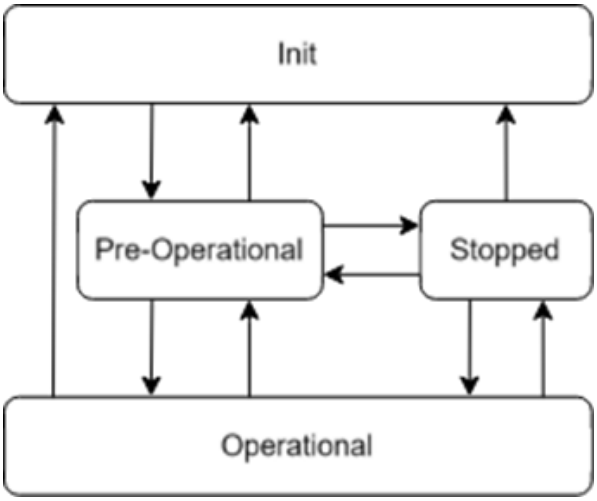


Figure 5-1. Network management

CAN IDENTIFIER	DATA LENGTH	DATA	DESCRIPTION	
0x000	2 Bytes	**Byte0:** Command Specifier (CS) **Byte1:** Node-ID (0x00 = all nodes)	NMT commands change the device's state machine.	
			Command Specifier (CS)	
			0x01	Start Node
			0x02	Stop Node
			0x80	Enter Pre-Operational
			0x81	Reset Node
			0x82	Reset Communication

Table 5-3. Network management

Example: Start Node 0x05 → ID:0x000 DLC:2 Data: 01 05

5.3.1 ENABLE CAN (REMOTE CONTROL MODE)

To enable CAN communication and switch the instrument to remote control mode, send the following NMT Start Node packet:

CAN Identifier : 0x000

DLC : 2

Data : **01 01**
01 → Command Specifier = Start Remote Node
01 → Node ID = 1

5.3.2 DISABLE CAN (LOCAL MODE)

To disable CAN communication and switch the instrument to local mode, send the following NMT Stop Node packet:

CAN Identifier : 0x000

DLC : 2

Data : **02 01**
02 → Command Specifier = Stop Remote Node
01 → Node ID = 1

5.3.3 HEARTBEAT (NODE MONITORING)

Heartbeat messages are periodically sent by each node to indicate its current NMT state.

Example for Node 1 in Operational state:

CAN Identifier : 0x701

DLC : **1**

Data : **05**
05 → NMT State = Operational

5.4 CANopen: TPDO PACKETS

The Transmit Process Data Objects (TPDOs) are used to send real-time process data from the server (Mi-BEAM) to the client (e.g., PC or controller) without requiring explicit requests. Each TPDO has a fixed COB-ID base with the node address added.

NAME	ADDRESS	DATA (HEX)	DESCRIPTION
TPDO1	0x180 + Node ID	Measured Volt (4 byte), Measured Current (4 byte)	Provides real-time voltage and current measurement data.
TPDO2	0x280 + Node ID	Measured Power (4 byte), MPPT (4 byte)	Reports output power and MPPT (Maximum Power Point Tracking) data.

NAME	ADDRESS	DATA (HEX)	DESCRIPTION
			NOTE: MPPT data is available only in PVSIM Mode.
TPDO3	0x380 + Node ID	System Status Code (4 byte) Fault Status Code (4 byte)	Contains the current system operating and fault status information. 1. The System Status Code includes Operating Mode, Program Type, and Regulation Setting details (Refer to ANNEXURE I – SYSTEM STATUS REGISTER). 2. The Fault Status Code corresponds to a 32-bit fault register (Refer to ANNEXURE II – FAULT REGISTER).
TPDO4	0x480 + Node ID	SOC (4 byte) ENERGY (4 byte)	Indicates the battery's State of Charge (SOC). Provides total battery pack energy. **NOTE:** Available only in Battery Simulation Mode and Battery Test Mode.

Table 5-4. TPDO Packets

5.5 CANopen : SDO PACKETS

The Service Data Objects (SDOs) are used for configuration and accessing entries in the Object Dictionary. They allow reading from and writing to specific objects using index and sub-index addressing. SDOs are suitable for non-time-critical data transfers and configuration changes.

1. **Roles:**

   - The Master (controller) acts as the SDO Client and initiates requests.
   - The Mi-BEAM device acts as the SDO Server (slave) and responds.

2. **CAN IDs:**

   - Client → Server: 0x600 + Node ID
   - Server → Client: 0x580 + Node ID

3. **Command Specifier (first byte):**

BITS	EXPEDITED TRANSFER	SEGMENTED TRANSFER
7..5	CCS (Client/Server Command Specifier) 001 = Initiate Download (write) 010 = Initiate Upload (read) 011 = Initiate Upload Response (data or size follows) 101 = Abort (error) 000 is not used here (segment frames)	 000 = Segment frames (data phase only)' 001 = Initiate Download (write) 010 = Initiate Upload (read) 011 = Initiate Upload Response (data or size follows) 101 = Abort (error)
4	Toggle: not used (keep 0)	Toggle bit: alternates 0 / 1 / 0 / 1 each segment
3	Size (s) = 1 (size indicated)	Reserved (must be 0)
2	Expedited (e) = 1	Reserved (must be 0)
1..0	n = number of unused data bytes in the 4-byte data field (0–3)	Bit1 = Reserved (must be 0) Bit0 = c → Last segment flag (1 = last)

Table 5-5. SDO packets

NOTE: The CAN interface sends error codes to indicate failures under various scenarios. Refer to ANNEXURE III – CAN / SYSTEM ERROR CODE and ANNEXURE IV – SCPI RESPONSE CAN ERROR CODE for detailed error definitions.

5.5.1 TIMING CONFIGURATIONS

5.5.1.1 HEARTBEAT TIMING CONFIGURATION - OBJECT INDEX: 0X1017

SUB INDEX	ACCESS	DATA TYPE	BYTE	DESCRIPTION
0x00	RW	<INT>	2	Producer Heartbeat Time in milliseconds. Defines the period at which the node sends a Heartbeat message. **Range:** 0x0000 = disabled, 0x0001 to 0xFFFF = 1…65535 ms **Default:** Factory pre-set (e.g., 1000 ms unless specified).

Table 5-6. Heartbeat Timing Configuration

5.5.2 TPDOX COMMUNICATION PARAMETER — OBJECT INDEX: 0X180(X)

The index 0x180x corresponds to the TPDO number:

1. TPDO1 → 0x1800
2. TPDO2 → 0x1801
3. TPDO3 → 0x1802
4. TPDO4 → 0x1803

SUB INDEX	ACCESS	DATA TYPE	BYTE	DESCRIPTION
0x01	RW	<INT>	4	COB-ID used by TPDOx. Default = 0x180(x) + Node ID.
0x02	RW	<INT>	1	Transmission Type. 0…240 = synchronous, 254 = event-driven, 255 = manufacturer-specific.
0x03	RW	<INT>	2	Inhibit Time (in 100 µs units). Defines minimum interval between TPDO transmissions. **Range:** 0x0000…0xFFFF
0x05	RW	<INT>	2	Event Timer (in ms). Defines the periodic transmission interval for TPDOx. **Range:** 0x0000…0xFFFF. **Default:** 0 (disabled).

Table 5-7. TPDOx Communication Parameter

5.5.3 DEVICE IDENTIFICATION

5.5.3.1 MANUFACTURE DEVICE NAME— OBJECT INDEX: 0X1008

SUB INDEX	ACCESS	DATA TYPE	BYTE	DESCRIPTION
0x00	RO	<STRING>	32	Manufacturer Device Name

Table 5-8. Manufacture Device Name

5.5.3.2 INSTRUMENT MODEL— OBJECT INDEX: 0X1009

SUB INDEX	ACCESS	DATA TYPE	BYTE	DESCRIPTION
0x00	RO	<STRING>	32	Model

Table 5-9. Instrument Model

5.5.3.3 SERIAL NUMBER— OBJECT INDEX: 0X1018

SUB INDEX	ACCESS	DATA TYPE	BYTE	DESCRIPTION
0x04	RO	<INT>	4	Unique Serial Number

Table 5-10. Serial Number

5.5.3.4 FIRMWARE VERSION— OBJECT INDEX: 0X100A

SUB INDEX	ACCESS	DATA TYPE	BYTE	DESCRIPTION
0x00	RO	<STRING>	32	Firmware Version details

Table 5-11. Frimware Version

5.5.4 COMMANDS

5.5.4.1 CLS — OBJECT INDEX: 0X3000

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	*CLS	W	<NONE>	0	Clears all status reporting data structures including the Status Byte, Standard Event Status Register, and Error Queue.

Table 5-12. Object Index: 0x3000

5.5.4.2 ESE — OBJECT INDEX: 0X3001

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	*ESE <NR1>	RW	<INT>	1	Value of the Standard Event Status Enable Register that determines which bits can be set in the Standard Event Status Register.

Table 5-13. Object Index: 0x3001

5.5.4.3 ESR — OBJECT INDEX: 0X3002

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	*ESR	RO	<STRING>	1	Integer value of the Standard Event Status Register. The ESR and the Status Byte ESR bit are cleared.

Table 5-14. Object Index: 0x3002

5.5.4.4 IDN — OBJECT INDEX: 0X3003

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	*IDN	RO	<STRING>	1	Returns the device identification as an ASCII string.

Table 5-15. Object Index: 0x3003

5.5.4.5 OPC — OBJECT INDEX: 0X3004

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	*OPC	W	<NONE>	0	Enables the Operation Complete bit of the Standard Event Status Register to be set when all pending operations are complete.

Table 5-16. Object Index: 0x3004

5.5.4.6 RST — OBJECT INDEX: 0X3005

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	*RST	RO	<STRING>	1	Resets the supply to its Power ON (PON) state.

Table 5-17. Object Index: 0x3005

5.5.4.7 SRE — OBJECT INDEX: 0X3006

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	*SRE <NR1>	RW	<INT>	1	Sets the value of the Service Request Enable Register, which determines which bits in the Status Byte will cause a service request from the device

Table 5-18. Object Index: 0x3006

5.5.4.8 STB — OBJECT INDEX: 0X3007

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	*STB	RO	<STRING>	1	Returns the integer value of the Status Byte with bit 6 representing the Summary Status (SS) instead of RQS.

Table 5-19. Object Index: 0x3007

5.5.4.9 TST — OBJECT INDEX: 0X3008

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	*TST	RO	<STRING>	1	Performs the self-test for the power supply and reserves the self-test status with device.

Table 5-20. Object Index: 0x3008

5.5.5 SOURCE COMMANDS

5.5.5.1 SOURCE:ANALOG — OBJECT INDEX: 0X3100

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	SOURCE:ANALOG:REMOTE:OUTPUT <0|1>	RW	<STRING>	1	Enables or disables the remote output ON/OFF. 0 – enable, 1 – disable, | – Returns the setting of remote output ON/OFF.

Table 5-21. Object Index: 0x3100

5.5.5.2 SOURCE:CURRENT — OBJECT INDEX: 0X3101

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	SOURCE:CURRENT <NRF>	RW	<FLOAT>	1	Sets the output current in amps. | - Returns the output current in amps.
0x02	SOURCE:CURRENT:MAXIMUM?	RO	<FLOAT>	1	Returns the maximum current device limit.

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x03	SOURCE:CURRENT:MINIMUM?	RO	<FLOAT>	1	Returns the minimum current device limit.
0x04	SOURCE:CURRENT:MONITOR:FSC <NR1>	RW	<INT>	1	Sets Full-scale voltage on Current monitor pin (IMON), when power supply is producing full scale output current. | - Returns the full-scale voltage set for Current monitor pin (IMON)
0x05	SOURCE:CURRENT:NEGATIVE:LIMIT <NRF>	RW	<FLOAT>	1	Sets the negative current limit in amps. **Example:** In CV/CC mode, the current limit value the user should set, so that once the current reaches this value, the output current regulates at this value. | - Returns the negative current limit set in amps.
0x06	SOURCE:CURRENT:NEGATIVE:LIMIT:MAXIMUM?	RO	<FLOAT>	1	Returns the maximum negative current limit the user can set in amps.
0x07	SOURCE:CURRENT:NEGATIVE:LIMIT:MINIMUM?	RO	<FLOAT>	1	Returns the minimum negative current limit the user can set, in amps.

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x08	SOURCE:CURRENT:POSITIVE:LIMIT <NRF>	RW	<FLOAT>	1	Sets the positive current limit in amps. **Example:** In CV/CC mode, the current limit value the user should set, so that once the current reaches this value, the output current regulates at this value. | - Returns the positive current limit set in amps.
0x09	SOURCE:CURRENT:POSITIVE:LIMIT:MAXIMUM?	RO	<FLOAT>	1	Returns the maximum positive current limit the user can set, in amps.
0x0A	SOURCE:CURRENT:POSITIVE:LIMIT:MINIMUM?	RO	<FLOAT>	1	Returns the minimum positive current limit the user can set, in amps.
0x0B	SOURCE:CURRENT:PROGRAM:FSC <NR1>	RW	<INT>	1	Sets the Full-Scale voltage, at which Rated Current will be programmed in external Current programming Mode with voltage as programming source. Valid Range is from 5 to 10 V. | - Returns the Full-scale Voltage, at which Rated

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
					Current will be programmed.
0x0C	SOURCE:CURRENT:PROGRAM:FSCR <NR1>	RW	<INT>	1	Sets the Full-Scale resistance, at which Rated Current will be programmed in external Current programming Mode with Current as programming source. Valid Range is from 5 to 10kOhm. | - Returns the Full-scale Resistance, at which Rated Current will be programmed.
0x0D	SOURCE:CURRENT:PROTECTION:NEGATIVE <NRF>	RW	<FLOAT>	1	Sets the negative overcurrent protection value. | - Returns the negative overcurrent protection value.
0x0E	SOURCE:CURRENT:PROTECTION:NEGATIVE:MAXIMUM?	RO	<FLOAT>	1	Returns the maximum value of negative overcurrent protection that can be set.
0x0F	SOURCE:CURRENT:PROTECTION:NEGATIVE:MINIMUM?	RO	<FLOAT>	1	Returns the minimum value of negative overcurrent protection that can be set.
0x10	SOURCE:CURRENT:PROTECTION:POSITIVE <NRF>	RW	<FLOAT>	1	Sets the positive overcurrent protection value.

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
					| - Returns the set positive overcurrent protection value.
0x11	SOURCE:CURRENT:SLEW:MAXIMUM?	RO	<FLOAT>	1	Returns the maximum possible slew rate/time for the current.
0x12	SOURCE:CURRENT:PROTECTION:POSITIVE:MAXIMUM?	RO	<FLOAT>	1	Returns the maximum value of positive overcurrent protection that can be set.
0x13	SOURCE:CURRENT:PROTECTION:POSITIVE:MINIMUM?	RO	<FLOAT>	1	Returns the minimum value of positive overcurrent protection that can be set.
0x14	SOURCE:CURRENT:RAMP <NRF>,<NRF>,<NRF>,<0|1>	RW	<STRING>	1	Sets the current ramp parameters <From Current>, <To Current>, <Duration>, <HW/SW Trigger> 0 - SW Trigger 1 - HW Trigger | - Returns the current ramp parameters. <From Current>, <To Current>, <Duration>, <HW/SW Trigger>
0x15	SOURCE:CURRENT:RAMP:ABORT	W	<NONE>	0	Aborts ramping and clears trigger mode.
0x16	SOURCE:CURRENT:RAMP:SLEW <PROGRAMMABLE SLEW/0|MAX SLEW/1>	RW	<STRING>	1	Sets the ramp slew type value, rate at which the unit current value

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
					reaches to the from current value of the ramp function. | - Returns the slew setting as 0 (Programmable slew) or 1(Max slew) used for ramp function
0x17	SOURCE:CURRENT:SLEW <NRF>,<NRF>	RW	<FLOAT>	2	Sets the slew rate for the output current in A/ms or Sec. <Raising Slew>, <Falling Slew> | - Returns the slew rate set for current <Raising Slew>, <Falling Slew>.
0x18	SOURCE:CURRENT:SLEW:MINIMUM?	RO	<FLOAT>	1	Returns the minimum possible slew rate for the current.
0x19	SOURCE:CURRENT:SLEW:TYPE <RATE/0 | TIME/1>	RW	<STRING>	1	Changes the Current Slew Type Valid arguments are: RATE / 0 TIME / 1 | - Returns the selected Current Slew Type
0x1A	SOURCE:CURRENT:SOFT:LIMIT:HIGH <NRF>	RW	<FLOAT>	1	Sets the higher limit for current set value (user limit). | - Returns the higher side of the soft limit for current.
0x1B	SOURCE:CURRENT:SOFT:LIMIT:LOW <NRF>	RW	<FLOAT>	1	Sets the lower limit of the

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
					current set value (user limit). | - Returns the lower side of the soft limit for current.
0x1C	SOURCE:CURRENT:PROGRAM <INT/0|EXT/1>	RW	<STRING>	1	Changes the Current programming mode of the supply. Valid arguments are: INT/0 (Internal SCPI Current programming) EXT/1 (External analog Current programming). | - Returns the Current programming mode of the supply.
0x1D	SOURCE:CURRENT:PROGRAM:SOURCE <0|1>	RW	<STRING>	1	Changes the source for the external analog current programming. Valid arguments are: 0 – (voltage source) 1 – (current source). | - Returns the selected source for the external analog current programming.

Table 5-22. Object Index: 0x3101

5.5.5.3 SOURCE:RAMP — OBJECT INDEX: 0X3102

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	SOURCE:RAMP:STATUS?	RO	<STRING>	1	Returns the current ramp status. IDLE,INITIALIZING,<progress in %> WAITING FOR TRIGGER, RUNNING, <progress in %> ABORTED, <aborted at %> COMPLETE

Table 5-23. Object Index: 0x3102

5.5.5.4 SOURCE:DIO — OBJECT INDEX: 0X3103

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	SOURCE:DIO:OUT1 <0|1>	RW	<STRING>	1	Sets the status of digital output 1 at the Remote Analog Programming connector. | - Returns the status of digital output 1 at the Remote Analog Programming connector.
0x02	SOURCE:DIO:OUT2 <0|1>	RW	<STRING>	1	Sets the status of digital output 2 at the Remote Analog Programming connector. | - Returns the status of digital output 2 at the Remote Analog Programming connector.

Table 5-24. Object Index: 0x3103

5.5.5.5 SOURCE:EXTERNAL — OBJECT INDEX: 0X3104

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	SOURCE:EXTERNAL:CONTROL:REL1 <0|1>	RW	<STRING>	1	Changes the position of the external relay 1 if isolation relay is enabled,

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
					| - Returns the position of the external relay 1
0x02	SOURCE:EXTERNAL:CONTROL:REL2 <0|1>	RW	<STRING>	1	Changes the position of the external relay 2, | - Returns the position of the external relay 2

Table 5-25. Object Index: 0x3104

5.5.5.6 SOURCE:POWER — OBJECT INDEX: 0X3105

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	SOURCE:POWER <NRF>	RW	<FLOAT>	1	Sets the maximum power limit. | - Returns the power value set by the user.
0x02	SOURCE:POWER:MAXIMUM?	RO	<FLOAT>	1	Returns the Maximum power device limit.
0x03	SOURCE:POWER:MINIMUM?	RO	<FLOAT>	1	Returns the Minimum power device limit.
0x04	SOURCE:POWER:NEGATIVE:LIMIT <NRF>	RW	<FLOAT>	1	Sets the negative power limit. **Example:** In CC/CP mode, the maximum value that can be set for the output power to regulate. | - Returns the negative power limit.
0x05	SOURCE:POWER:NEGATIVE:LIMIT:MAXIMUM?	RO	<FLOAT>	1	Returns the maximum value that the user can set for negative power limit.

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x06	SOURCE:POWER:NEGATIVE:LIMIT:MINIMUM?	RO	<FLOAT>	1	Returns the minimum value that the user can set for negative power limit.
0x07	SOURCE:POWER:POSITIVE:LIMIT <NRF>	RW	<FLOAT>	1	Sets the positive power limit. **Example:** In CP/CC mode, the maximum value that can be set for the output power to regulate. | - Returns the positive power limit.
0x08	SOURCE:POWER:POSITIVE:LIMIT:MAXIMUM?	RO	<FLOAT>	1	Returns the maximum value that the user can set for positive power limit.
0x09	SOURCE:POWER:POSITIVE:LIMIT:MINIMUM?	RO	<FLOAT>	1	Returns the minimum value that the user can set for positive power limit.
0x0A	SOURCE:POWER:SOFT:LIMIT:HIGH <NRF>	RW	<FLOAT>	1	Sets the higher side of soft limit for power set value (User Limit). | - Returns the higher side soft limit for power.
0x0B	SOURCE:POWER:SOFT:LIMIT:LOW <NRF>	RW	<FLOAT>	1	Sets the lower side of soft limit for power set value (User Limit). | - Returns the lower side of soft limit for power.
0x0C	SOURCE:POWER:SLEW <NRF>,<NRF>	RW	<FLOAT>	2	Sets the slew rate for the

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
					output Power in kW/ms or Sec. <Raising Slew>, <Falling Slew> | - Returns the slew rate set for Power <Raising Slew>, <Falling Slew>.
0x0D	SOURCE:POWER:SLEW:MAXIMUM?	RO	<FLOAT>	1	Returns the maximum possible slew rate for the Power.
0x0E	SOURCE:POWER:SLEW:MINIMUM?	RO	<FLOAT>	1	Returns the minimum possible slew rate for the Power.
0x0F	SOURCE:POWER:SLEW:TYPE <RATE/0 | TIME/1>	RW	<STRING>	1	Changes the Power Slew Type Valid arguments are: RATE / 0 TIME / 1 | - Returns the selected Power Slew Type

Table 5-26. Object Index: 0x3105

5.5.5.7 SOURCE:SERIES — OBJECT INDEX: 0X3106

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	SOURCE:SERIES:RESISTANCE <NRF>	RW	<FLOAT>	1	Sets the value for series resistance. | - Returns the value for series resistance.
0x02	SOURCE:SERIES:RESISTANCE:MAXIMUM?	RO	<FLOAT>	1	Returns the maximum possible value

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
					for series resistance.
0x03	SOURCE:SERIES:RESISTANCE:MINIMUM?	RO	<FLOAT>	1	Returns the minimum possible value for series resistance.

Table 5-27. Object Index: 0x3106

5.5.5.8 SOURCE:SINK — OBJECT INDEX: 0X3107

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	SOURCE:SINK:RESISTANCE <NRF>	RW	<FLOAT>	1	Sets the value for sink resistance. | - Returns the value for sink resistance.
0x02	SOURCE:SINK:RESISTANCE:MAXIMUM?	RO	<FLOAT>	1	Returns the maximum possible value for sink resistance.
0x03	SOURCE:SINK:RESISTANCE:MINIMUM?	RO	<FLOAT>	1	Returns the minimum possible value for sink resistance.

Table 5-28. Object Index: 0x3107

5.5.5.9 SOURCE:VOLTAGE — OBJECT INDEX: 0X3108

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	SOURCE:VOLTAGE <NRF>	RW	<FLOAT>	1	Sets the output voltage to be regulated. | - Returns the set voltage value.
0x02	SOURCE:VOLTAGE:HIGH:LIMIT <NRF>	RW	<FLOAT>	1	Sets the higher limit of voltage.

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
					Example: In CC/CV mode, the higher side voltage to be regulated once the output voltage reaches this value. | - Returns the higher side voltage limit value set by the user.
0x03	SOURCE:VOLTAGE:HIGH:LIMIT:MAXIMUM?	RO	<FLOAT>	1	Returns the maximum possible value for higher side of the output voltage.
0x04	SOURCE:VOLTAGE:HIGH:LIMIT:MINIMUM?	RO	<FLOAT>	1	Returns the minimum possible value for higher side of the output voltage.
0x05	SOURCE:VOLTAGE:LOW:LIMIT <NRF>	RW	<FLOAT>	1	Sets the lower limit of voltage. **Example:** In CC/CV mode, the lower side voltage to be regulated once the output voltage reaches this value. | - Returns the lower side voltage limit value set by the user.
0x06	SOURCE:VOLTAGE:MAXIMUM?	RO	<FLOAT>	1	Returns the maximum voltage of the unit.
0x07	SOURCE:VOLTAGE:MINIMUM?	RO	<FLOAT>	1	Returns the minimum voltage of the unit.

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x08	SOURCE:VOLTAGE:MONITOR:FSC <NRF>	RW	<FLOAT>	1	Sets Full-scale voltage on voltage monitor pin (VMON), when power supply is producing full scale output voltage. | - Returns the full-scale voltage set for Voltage monitor pin (VMON)
0x09	SOURCE:VOLTAGE:PROGRAM:FSC <NRF>	RW	<FLOAT>	1	Sets the Full-scale voltage, at which Rated Voltage will be programmed in external Voltage programming Mode with voltage as programming source. Valid Range is from 5 to 10V. | - Returns the Full-scale Voltage, at which Rated Voltage will be programmed.
0x0A	SOURCE:VOLTAGE:PROGRAM:FSCR <NRF>	RW	<FLOAT>	1	Sets the Full-scale resistance, at which Rated Voltage will be programmed in external Voltage programming Mode with Current as programming source. Valid Range is from 5 to 10kOhm.

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
					| - Returns the Full-scale Resistance, at which Rated Voltage will be programmed.
0x0B	SOURCE:VOLTAGE:PROGRAM <0|1>	RW	<STRING>	1	Changes the Voltage programming mode of the supply. Valid arguments are: INT/0 (Internal SCPI Voltage programming) EXT/1 (External analog Voltage programming). | - Returns the setting of Voltage programming mode.
0x0C	SOURCE:VOLTAGE:PROGRAM:SOURCE <0|1>	RW	<STRING>	1	Changes the source for the external analog voltage programming. Valid arguments are: 0 – (voltage source) 1 – (Current source). | - Returns the selected source for the external analog voltage programming.
0x0D	SOURCE:VOLTAGE:PROTECTION <NRF>	RW	<FLOAT>	1	Sets the overvoltage protection trip point in volts. | - Returns the set overvoltage protection trip point in volts.

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x0E	SOURCE:VOLTAGE:PROTECTION:MAXIMUM?	RO	<FLOAT>	1	Returns the maximum possible value for setting overvoltage protection limit.
0x0F	SOURCE:VOLTAGE:PROTECTION:MINIMUM?	RO	<FLOAT>	1	Returns the minimum possible value for setting overvoltage protection limit.
0x10	SOURCE:VOLTAGE:PROTECTION:PROGRAM <0/INT|1/EXT>	RW	<STRING>	1	Changes the Overvoltage programming mode of the supply. Valid arguments are: INT/0 (Internal Digital Voltage programming) EXT/1 (External analog Voltage programming). | - Returns the setting of Overvoltage programming mode.
0x11	SOURCE:VOLTAGE:PROTECTION:PROGRAM:FSC <NRF>	RW	<FLOAT>	1	Sets the Full-scale voltage, at which Rated Overvoltage will be programmed in external Overvoltage programming Mode with voltage as programming source. Valid Range is from 5 to 10V. | - Returns the Full-scale Voltage, at

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
					which Rated Overvoltage will be programmed.
0x12	SOURCE:VOLTAGE:RAMP <NRF>,<NRF>,<NRF>,<0|1>	RW	<STRING>	1	Sets the voltage ramp parameters <From Voltage>, <To Voltage>, <Duration>, <HW/SW Trigger> 0 - SW Trigger 1 - HW Trigger | - Returns voltage ramp configuration parameters: <From Voltage>, <To Voltage>, <Duration>, <HW/SW Trigger>
0x13	SOURCE:VOLTAGE:RAMP:ABORT	W	<NONE>	0	Aborts ramping and clears trigger mode.
0x14	SOURCE:VOLTAGE:RAMP:SLEW<PROGRAMMABLE SLEW/0|MAX SLEW/1>	RW	<STRING>	1	Changes the Ramp slew configuration, Valid arguments are: 0 - Programmable slew 1 - Max slew | - Returns the Ramp Slew configuration
0x15	SOURCE:VOLTAGE:SLEW <NRF>,<NRF>	RW	<FLOAT>	2	Sets the slew rate for the output voltage in V/ms (first argument) or seconds (second argument). | - Returns the slew rate for

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
					the output voltage.
0x16	SOURCE:VOLTAGE:SLEW:MAXIMUM?	RO	<FLOAT>	1	Returns the maximum slew rate possible for output voltage.
0x17	SOURCE:VOLTAGE:SLEW:MINIMUM?	RO	<FLOAT>	1	Returns the minimum slew rate possible for output voltage.
0x18	SOURCE:VOLTAGE:SLEW:TYPE <RATE/0 | TIME/1>	RW	<STRING>	1	Changes the Voltage Slew Type Valid arguments are: RATE / 0 TIME / 1 | - Returns the selected Voltage Slew Type
0x19	SOURCE:VOLTAGE:SOFT:LIMIT:HIGH <NRF>	RW	<FLOAT>	1	Sets the maximum soft limit for the output voltage (user limit). | - Returns the maximum soft limit for the output voltage.
0x1A	SOURCE:VOLTAGE:SOFT:LIMIT:LOW <NRF>	RW	<FLOAT>	1	Sets the minimum soft limit for the output voltage (user limit). | - Returns the minimum soft limit for the output voltage.

Table 5-29. Object Index: 0x3108

5.5.6 MEASURE COMMANDS

5.5.6.1 MEASURE: AHO — OBJECT INDEX: 0X3120

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	MEASURE:AHO?	RO	<FLOAT>	1	Returns the floating value of Capacity in Ah.

Table 5-30. Object Index: 0x3120

5.5.6.2 MEASURE:ALL — OBJECT INDEX: 0X3121

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	MEASURE:ALL?	RO	<FLOAT>	1	Returns Output Voltage in Volts, Output Current in Amps, Output Power in kW, MPPT Efficiency, Present SOC of the battery, Present Capacity of the battery in Ah, Energy in Wh

Table 5-31. Object Index: 0x3121

5.5.6.3 MEASURE:CURRENT — OBJECT INDEX: 0X3122

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	MEASURE:CURRENT:AVERAGE <NR1>	RW	<INT>	1	Sets the number of readings to average together when returning the current value with the MEASure:CURRent? command to reduce noise in the readback readings. Enter a value of 1 to 10, with the value of 1 (factory default) providing the fastest response time in the readings, but less rejection of noise. | - Returns the number 1 to 10 to indicate the number of readings to average together when

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
					taking a current reading.
0x02	MEASURE:CURRENT:PROGRAM?	RO	<FLOAT>	1	Returns the programmed output current from external Analog current programming feature.
0x03	MEASURE:CURRENT:TOTAL?	RO	<FLOAT>	1	Returns the sum of all currents when multiple chassis are connected in parallel in amps
0x04	MEASURE:CURRENT?	RO	<FLOAT>	1	Returns the floating-point value of the DC output current in amps.

Table 5-32. Object Index: 0x3122

5.5.6.4 MEASURE:POWER — OBJECT INDEX: 0X3123

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	MEASURE:POWER:PROGRAM?	RO	<FLOAT>	1	Returns the programmed output power from external Analog current programming feature.
0x02	MEASURE:POWER:TOTAL?	RO	<FLOAT>	1	Returns the sum of power from individual chassis when multiple chassis are connected in parallel in amps
0x03	MEASURE:POWER?	RO	<FLOAT>	1	Returns the floating-point value of the measured output power in kilowatts.

Table 5-33. Object Index: 0x3123

5.5.6.5 MEASURE:SOC — OBJECT INDEX: 0X3124

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	MEASURE:SOC?	RO	<FLOAT>	1	Returns the floating-point value of state of charge of the battery

Table 5-34. Object Index: 0x3124

5.5.6.6 MEASURE:VOLTAGE — OBJECT INDEX: 0X3125

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	MEASURE:VOLTAGE:AVERAGE <NR1>	RW	<INT>	1	Sets the number of readings to average together when returning the voltage value with the MEASure:Voltage? command to reduce noise in the readback readings. Enter a value of 1 to 10, with the value of 1 (factory default) providing the fastest response time in the readings, but less rejection of noise. | - Returns the number 1 to 10 to indicate the number of readings to average together when taking a current reading.
0x02	MEASURE:VOLTAGE:PROGRAM?	RO	<FLOAT>	1	Returns the programmed output voltage from external Analog current programming feature.
0x03	MEASURE:VOLTAGE:PROTECTION: PROGRAM?	RO	<FLOAT>	1	Returns the programmed Over voltage trip point from external Analog over voltage programming feature.
0x04	MEASURE:VOLTAGE?	RO	<FLOAT>	1	Returns the floating-point value of the DC output voltage in volts.

Table 5-35. Object Index: 0x3125

5.5.6.7 MEASURE:WHO — OBJECT INDEX: 0X3126

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	MEASURE:WHO?	RO	<STRING>	1	Returns the floating-point value of the energy in watt-hour

Table 5-36. Object Index: 0x3126

5.5.7 OUTPUT COMMANDS

5.5.7.1 OUTPUT:ISOLATION — OBJECT INDEX: 0X3140

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	OUTPUT:ISOLATION <OPEN/0|CLOSED/1>	RW	<STRING>	1	Sets the rear panel isolation relay control signal ON or OFF. Valid arguments are 1/ON or 0/OFF. | - Returns the state of the rear panel isolation relay control signal: 0 – OFF 1 – ON

Table 5-37. Object Index: 0x3140

5.5.7.2 OUTPUT:POLARITY — OBJECT INDEX: 0X3141

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	OUTPUT:POLARITY<NORM/0/OFF|INV/1/ON>	RW	<STRING>	1	Changes the state of the polarity relay signal. This command requires that the isolation relay be open beforehand | - Returns the state of the polarity relay: <NORM|INV>

Table 5-38. Object Index: 0x3141

5.5.7.3 OUTPUT:PROGRAM — OBJECT INDEX: 0X3142

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	OUTPUT:PROGRAM:TYPE <VOLT/0|CURR/1>	RW	<STRING>	1	Sets the Output programming type. Valid arguments are 1/Current and 0/Voltage | - Returns the output programming type: <VOLT|CURR>

Table 5-39. Object Index: 0x3142

5.5.7.4 OUTPUT:PROTECTION — OBJECT INDEX: 0X3143

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	OUTPUT:PROTECTION:CLEAR	W	<NONE>	0	Clears the faults occurred due to protection settings
0x02	OUTPUT:PROTECTION:DELAY <NRF>	RW	<FLOAT>	1	Sets the programmable time delay executed by the supply before reporting output protection conditions after a new output voltage or current is specified. | - Returns the time delay to be executed by the supply..
0x03	OUTPUT:PROTECTION:FOLD <NR1>	RW	<STRING>	1	Sets the Foldback setting of the supply, valid arguments are 0 to 12 | - Returns the Foldback setting of the supply

Table 5-40. Object Index: 0x3143

5.5.7.5 OUTPUT:REMOTE — OBJECT INDEX: 0X3144

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x01	OUTPUT:REMOTE:INHIBIT:INPUT:STATE <0|1>	RW	<STRING>	1	Sets the input state of the remote inhibit, valid arguments are 0(Open) or 1(Close) | - Returns the input state of the remote inhibit :<Open|Close>
0x02	OUTPUT:REMOTE:INHIBIT:INPUT:TYPE <0|1>	RW	<STRING>	1	Sets the input type of the remote inhibit, valid arguments are 0(Contact Closure) or 1(Active Source) | - Returns the input state of the remote inhibit :<Contact Closure| Active Source>
0x03	OUTPUT:REMOTE:INHIBIT:MODE <OFF/0|LIVE/1|LATCHING/2>	RW	<STRING>	1	Sets the mode of the remote inhibit. Valid Arguments are 0 – OFF, 1 – LIVE, 2 - LATCHING | - Returns the mode of remote inhibit.

Table 5-41. Object Index: 0x3144

5.5.7.6 OUTPUT:SENSE — OBJECT INDEX: 0X3145

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	OUTPUT:SENSE <REMOTE/0|LOCAL/1>	RW	<STRING>	1	Sets the output voltage sense signal setting. Valid arguments are 1/REMOTE or 0/LOCAL. When REMOTE option is selected, voltage sense signal must be connected at RVS connector at the rear side of power supply. | - Returns the setting of the output voltage sense signal.

Table 5-42. Object Index: 0x3145

5.5.7.7 OUTPUT:STATE — OBJECT INDEX: 0X3146

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	OUTPUT:STATE <BOOLEAN>	RW	<STRING>	1	Sets the output to zero or the programmed value; opens or closes the isolation relay. Valid arguments are 1/ON or 0/OFF. *RST state value is ON. | - Returns the state of the output: 1 - ON 0 - OFF

Table 5-43. Object Index: 0x3146

5.5.7.8 OUTPUT:TRIP — OBJECT INDEX: 0X3147

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	OUTPUT:TRIP?	RO	<INT>	1	Returns the integer value 1 - TRIPPED or 0 - UNTRIPPED state of the output.

Table 5-44. Object Index: 0x3147

5.5.8 SYSTEM COMMANDS

5.5.8.1 SYSTEM:CHASSIS — OBJECT INDEX: 0X3160

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	SYSTEM:CHASSIS:ADDRESS?	RO	<INT>	1	Returns the chassis address

Table 5-45. Object Index: 0x3160

5.5.8.2 SYSTEM:ENUM — OBJECT INDEX: 0X3161

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x01	SYSTEM:ENUM:COUNT?	RO	<INT>	1	Returns number of chassis connected in parallel

Table 5-46. Object Index: 0x3161

5.5.8.3 SYSTEM:FAULT — OBJECT INDEX: 0X3162

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	SYSTEM:FAULT:STATUS?	RO	<STRING>	1	Returns the system fault status

Table 5-47. Object Index: 0x3162

5.5.8.4 SYSTEM:MODULE — OBJECT INDEX: 0X3163

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	SYSTEM:MODULE:COUNT?	RO	<INT>	1	Returns the number of modules present inside the chassis
0x02	SYSTEM:MODULE<1|2|3>:TEMPERATURE:FAULT:STATUS?	RO	<STRING>	1	Returns the temperature fault status of specified module

Table 5-48. Object Index: 0x3163

5.5.8.5 SYSTEM:OPERATING — OBJECT INDEX: 0X3164

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	SYSTEM:OPERATING:MODE <SOUR|ELOAD|BIDIR|BATSIM|PVSIM|BATTEST>	RW	<STRING>	1	Sets the operating mode of the system | - Returns the operating mode of the system: :<0/SOUR|1/BIDIR|2/ELOAD

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
					|3/BATSIM|4/PVSIM|5/BATTEST>

Table 5-49. Object Index: 0x3164

5.5.8.6 SYSTEM:OUTPUT — OBJECT INDEX: 0X3165

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	SYSTEM:OUTPUT:REGULATION:FAULT?	RO	<STRING>	1	Returns the foldback faults of the system

Table 5-50. Object Index: 0x3165

5.5.8.7 SYSTEM:REVISION — OBJECT INDEX: 0X3166

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	SYSTEM:REVISION?	RO	<STRING>	1	Returns the firmware revision number of the all the controller

Table 5-51. Object Index: 0x3166

5.5.8.8 SYSTEM:ERROR — OBJECT INDEX: 0X3167

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	SYSTEM:ERROR?	RO	<STRING>	1	Queries Error Queue for next error/event entry (first in, first out). Entries contain an error number and descriptive text. A 0-return value indicates no error occurred; negative numbers are reserved by SCPI. The maximum return string length is 255 characters. The queue holds up to 10 error/entries. All entries are cleared by the *CLS command.

Table 5-52. Object Index: 0x3167

5.5.8.9 SYSTEM:LOCAL — OBJECT INDEX: 0X3168

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	SYSTEM:LOCAL <BOOLEAN>	RW	<STRING>	1	Forces the supply to local or remote state. <ON> or <1> sets operation to local mode. <OFF> or <0> sets the operation to remote mode. | - Returns ON or 1 if in local mode. Returns OFF or 0 if in remote mode.

Table 5-53. Object Index: 0x3168

5.5.8.10 SYSTEM:NET — OBJECT INDEX: 0X3169

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	SYSTEM:NET:AUTOIP <BOOLEAN>	RW	<STRING>	1	Sets the network Auto IP mode in the Primary configuration without affecting the Secondary configuration. 0 - disable AutoIP; 1 - enable AutoIP | - Returns 1 if AutoIP is enabled in the Primary configuration. Returns 0 if AutoIP is disabled in the Primary configuration.
0x02	SYSTEM:NET:DESC <STRING>	RW	<STRING>	1	Set the network DESCRIPTION, a 36-character alphanumeric string | - Returns the network DESCRIPTION.
0x03	SYSTEM:NET:DHCPMODE <BOOLEAN>	RW	<STRING>	1	Sets the network DHCP Mode in the Primary configuration without affecting the Secondary configuration. 0 - disable DHCP; 1 - enable DHCP | - Returns 1 if DHCP Mode is enabled in the Primary configuration. Returns 0 if DHCP mode is disabled in the Primary configuration.

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x04	SYSTEM:NET:DNS <STRING>	RW	<STRING>	1	Sets the network DNS IP address for the device. String is in the format “NNN.NNN.NNN.NNN” where “NNN” = 0 through 255, inclusive. | - Returns the network DNS address for the device.
0x05	SYSTEM:NET:GATE <STRING>	RW	<STRING>	1	Sets the network gateway IP address for the device. String is in the format “NNN.NNN.NNN.NNN” where “NNN” = 0 through 255, inclusive. | - Returns the network gateway IP address for the device.
0x06	SYSTEM:NET:HOST <STRING>	RW	<STRING>	1	Set the network Host Name, a 15-character (maximum) alphanumeric string. (Must be limited to 15 characters for LXI compliance) | - Returns the network Host Name
0x07	SYSTEM:NET:IP <STRING>	RW	<STRING>	1	Sets the Primary configuration to STATICIP mode and sets the network IP address for the device. String is in the format “NNN.NNN.NNN.NNN” where “NNN” = 0 through 255, inclusive. | - Returns two IP addresses: the first is the IP address set to be used when the system boots up; the second is the IP address presently in use by the power supply. (The first address will either be 0.0.0.0. if the Primary configuration is DHCP or DHCP+AUTOIP, or it will be the static IP last specified).
0x08	SYSTEM:NET:LANLED:BLINK <STRING>	W	<STRING>	1	ON changes front panel screen to device identify. OFF changes to dashboard screen.
0x09	SYSTEM:NET:MAC?	RO	<STRING>	1	Returns the network MAC address. xx:xx:xx:xx:xx:xx (Hexadecimal digit pairs)
0x0A	SYSTEM:NET:MASK <STRING>	RW	<STRING>	1	Set the network Subnet Mask for the device. String is in the format “NNN.NNN.NNN.NNN”

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
					where “NNN” = 0 through 255, inclusive. | - Returns the network Subnet Mask for the device.
0x0B	SYSTEM:NET:NETBUTTON <STRING>	W	<STRING>	1	Returns configuration parameters to factory default. (Software equivalent of pressing the Reset switch on the rear panel of the power supply). You must cycle the power to effect the change. The ACCESS string is “6867.”
0x0C	SYSTEM:NET:PORT <NRF>	RW	<FLOAT>	1	Set the network TCP/IP socket listening port. Valid values are 1025 to 65535. | - Returns the network TCP/IP socket listening port.
0x0D	SYSTEM:NET:TERM <NRF>	RW	<FLOAT>	1	Sets the incoming string termination character to be used by the device. Factory set to 3. The valid range is 1-4. Values indicate the following terminator(s): 1 - 0x0d only (CR), 2 - 0x0a only (LF), 3 - 0x0d 0x0a (CR LF), 4 - 0x0a 0x0d (LF CR) | - Returns the string terminators to be used by the device.

Table 5-54. Object Index: 0x3169

5.5.9 LIST COMMANDS

5.5.9.1 LIST:ADD — OBJECT INDEX: 0X3180

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	LIST:ADD <STRING>	W	<STRING>	1	Creates the list with provided file name, file name can be alphanumeric up to 29 characters

Table 5-55. Object Index: 0x3181

5.5.9.2 LIST:CATALOG — OBJECT INDEX: 0X3181

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	LIST:CATALOG?	RO	<FLOAT>	1	Returns all the list file names present in the selected regulation and programming type

Table 5-56. Object Index: 0x3181

5.5.9.3 LIST:COUNT — OBJECT INDEX: 0X3182

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	LIST:COUNT <NR1>	RW	<INT>	1	Sets the count value, i.e. Number of the times the selected list to be executed, Maximum value that can be entered is 65535, if the count value is -1, the list will be executed indefinite times | - Returns the List count value

Table 5-57. Object Index: 0x3182

5.5.9.4 LIST:CURRENT — OBJECT INDEX: 0X3183

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	LIST:CURRENT <NRF>,<NRF>,..,<NRF>	W	<FLOAT>	N	Sets the values to the List Current points in amps
0x02	LIST:CURRENT:POINTS?	RO	<FLOAT>	N	Returns the values of list current points in amps

Table 5-58. Object Index: 0x3183

5.5.9.5 LIST:DEL — OBJECT INDEX: 0X3184

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	LIST:DEL <STRING>	W	<STRING>	1	Deletes the provided list file name from the device

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x02	LIST:DEL:ALL	W	<NONE>	0	Deletes all the profiles present in the selected programming and output type

Table 5-59. Object Index: 0x3184

5.5.9.6 LIST:DWELL — OBJECT INDEX: 0X3185

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	LIST:DWELL <NRF>,<NRF>,..,<NRF>	W	<FLOAT>	N	Sets the values to dwell points of the list in seconds
0x02	LIST:DWELL:POINTS?	RO	<FLOAT>	N	Returns the dwell points of the selected list file in seconds

Table 5-60. Object Index: 0x3185

5.5.9.7 LIST:LINK — OBJECT INDEX: 0X3186

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	LIST:LINK <NR1>,<NR1>,..,<NR1>	W	<INT>	N	Sets the values to link points of the list in the selected list file
0x02	LIST:LINK:POINTS?	RO	<INT>	N	Returns the link points of the selected list file

Table 5-61. Object Index: 0x3186

5.5.9.8 LIST:POINTS — OBJECT INDEX: 0X3187

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	LIST:POINTS:COUNT <NR1>	RW	<INT>	1	Sets the value to number of points in the list file, maximum number of link points that can be set by the user are 50 | - Returns the value of points count from the selected list file

Table 5-62. Object Index: 0x3187

5.5.9.9 LIST:REPEAT — OBJECT INDEX: 0X3188

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	LIST:REPEAT <NR1>,<NR1>,..,<NR1>	W	<INT>	N	Sets the values to the repeat count of each point
0x02	LIST:REPEAT:POINTS?	RO	<INT>	N	Returns the values of the repeat count point of the selected list file

Table 5-63. Object Index: 0x3188

5.5.9.10 LIST:RESISTANCE — OBJECT INDEX: 0X3189

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	LIST:RESISTANCE <NR1>,<NR1>,..,<NR1>	W	<INT>	N	Sets the values to series resistance points in the selected list file
0x02	LIST: RESISTANCE:POINTS?	RO	<FLOAT>	N	Returns the values of the series resistance points in the selected list file

Table 5-64. Object Index: 0x3189

5.5.9.11 LIST:SAVE — OBJECT INDEX: 0X318A

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	LIST:SAVE	W	<NONE>	0	Saves the selected list file to device

Table 5-65. Object Index: 0x318A

5.5.9.12 LIST:SELECT — OBJECT INDEX: 0X318B

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	LIST:SELECT <STRING>	RW	<STRING>	1	Selects the list file with provided file name

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
					| - Returns the file name of the selected list file

Table 5-66. Object Index: 0x318B

5.5.9.13 LIST:STATE — OBJECT INDEX: 0X318C

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	LIST:STATE <IDLE/0|LOAD/1|RUN/3|ABORT/4>	RW	<STRING>	1	Sets the value to list state, RUN can be set only after the list file has been loaded and validated | - Returns the value of the list state 0 – Idle, 1 – Load, 3 – Run, 4 – Abort.

Table 5-67. Object Index: 0x318C

5.5.9.14 LIST:STATUS — OBJECT INDEX: 0X318D

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	LIST:STATUS?	RO	<STRING>	1	Returns the status of the list. 0 – Idle, 1- Initializing, 2 – waiting for trigger, 3 – running, 4 – complete, 5 – Abort.

Table 5-68. Object Index: 0x318D

5.5.9.15 LIST:STEP — OBJECT INDEX: 0X318E

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	LIST:STEP <0|1>	RW	<BYTE>	1	Sets the value to List step in the selected list file

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
					0 – Auto Trigger 1 – Once Trigger | - Returns the value of the list step in the selected list file

Table 5-69. Object Index: 0x318E

5.5.9.16 LIST:TRIGGER — OBJECT INDEX: 0X318F

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	LIST:TRIGGER:TYPE <0|1>	RW	<BYTE>	1	Sets the value to trigger type of the list in the selected list file 0 – Software trigger 1 – Hardware trigger | - Returns the value of the type of trigger in the selected list file

Table 5-70. Object Index: 0x318F

5.5.9.17 LIST:TTLTRG — OBJECT INDEX: 0X3190

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	LIST:TTLTRG <0|1>,<0|1>,,,<0|1>	W	<BYTE>	N	Sets the values to the output trigger points for each list data point. 0 – Trigger out disabled for the data point 1 – Trigger Out enabled for the data point.
0x02	LIST:TTLTRG:POINTS?	RO	<BYTE>	N	Returns the values of the output trigger of each data in the selected list file.

Table 5-71. Object Index: 0x3190

5.5.9.18 LIST:VOLTAGE — OBJECT INDEX: 0X3191

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x01	LIST:VOLTAGE <NRF>,<NRF>,..,<NRF>	W	<FLOAT>	N	Sets the value to the voltage points of selected list file in volts
0x02	LIST:VOLTAGE:POINTS?	RO	<FLOAT>	N	Returns the Values of the voltage points in the selected list file in volts

Table 5-72. Object Index: 0x3191

5.5.10 CALIBRATE:INITIAL COMMANDS

5.5.10.1 CALIBRATE:INITIAL:AC — OBJECT INDEX: 0X31A0

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	CALIBRATE:INITIAL:AC:INPUT:CONFIGURE <0|1>	RW	<STRING>	1	Changes the power-on AC input settings. Valid arguments are: 0 – High Line (380 – 480 V Nominal) 1 – Low Line (200 – 240 V Nominal). | - Returns the AC input settings.

Table 5-73. Object Index: 0x31A0

5.5.10.2 CALIBRATE:INITIAL:CHASSIS — OBJECT INDEX: 0X31A1

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	CALIBRATE:INITIAL:CHASSIS:ADDRESS <NR1>	RW	<INT>	1	Sets the power-on default chassis address. | - Returns the power-on default chassis address.

Table 5-74. Object Index: 0x31A1

5.5.10.3 CALIBRATE:INITIAL:CURRENT — OBJECT INDEX: 0X31A2

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	CALIBRATE:INITIAL:CURRENT <NRF>	RW	<FLOAT>	1	Sets the power-on value of current. | - Returns the value of power-on current.
0x02	CALIBRATE:INITIAL:CURRENT:MAXIMUM?	RO	<FLOAT>	1	Returns the power-on value of maximum current that can be set.
0x03	CALIBRATE:INITIAL:CURRENT:MINIMUM?	RO	<FLOAT>	1	Returns the power-on value of minimum current that can be set.
0x04	CALIBRATE:INITIAL:CURRENT:MONITOR <NRF>	W	<FLOAT>	1	Initializes the current monitor (IMON) signal calibration.
0x05	CALIBRATE:INITIAL:CURRENT:MONITOR:FSC <NRF>	RW	<FLOAT>	1	Sets the power-on default voltage on IMON signal for full scale output current. | - Returns the power-on default full scale voltage value on IMON signal.
0x06	CALIBRATE:INITIAL:CURRENT:NEGATIVE:LIMIT <NRF>	RW	<FLOAT>	1	Sets the power-on default value for negative current limit. | - Returns the power-on default value for negative current limit.
0x07	CALIBRATE:INITIAL:CURRENT:NEGATIVE:LIMIT:MAXIMUM?	RO	<FLOAT>	1	Returns the power-on default value for maximum level of negative current limit.
0x08	CALIBRATE:INITIAL:CURRENT:NEGATIVE:LIMIT:MINIMUM?	RO	<FLOAT>	1	Returns the power-on default value for minimum level of negative current limit.
0x09	CALIBRATE:INITIAL:CURRENT:POSITIVVE:LIMIT <NRF>	W	<FLOAT>	1	Sets the power-on default value for positive current limit.
0x0A	CALIBRATE:INITIAL:CURRENT:POSITIVE:LIMIT?	RO	<FLOAT>	1	Returns the power-on default value for positive current limit.
0x0B	CALIBRATE:INITIAL:CURRENT:POSITIVE:LIMIT:MAXIMUM?	RO	<FLOAT>	1	Returns the power-on default value for maximum level of positive current limit.
0x0C	CALIBRATE:INITIAL:CURRENT:POSITIVE:LIMIT:MINIMUM?	RO	<FLOAT>	1	Returns the power-on default value for minimum level of positive current limit.

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x0D	CALIBRATE:INITIAL:CURRENT:PROGRAM <0|1>	RW	<STRING>	1	Changes the power-on default current reference of External Analog Current Programming. Valid arguments are: 0 – INT 1 – EXT | - Returns the power-on default current reference of external analog current programming.
0x0E	CALIBRATE:INITIAL:CURRENT:PROGRAM:FSC <NRF>	RW	<FLOAT>	1	Sets the power-on default full-scale voltage value for rated current from external analog programming. | - Returns the power-on default full scale voltage value for rated current from external analog programming.
0x0F	CALIBRATE:INITIAL:CURRENT:PROGRAM:FSCR <NRF>	RW	<FLOAT>	1	Sets the power-on default full-scale resistance value for rated current from external analog programming. | - Returns the power-on default full scale resistance value for rated current from external analog programming.
0x10	CALIBRATE:INITIAL:CURRENT:PROGRAM:SOUR <0|1>	RW	<STRING>	1	Changes the power-on default current reference source of External Analog Current Programming. Valid arguments are: 0 – Voltage 1 – Current | - Returns the power-on default current reference source of external analog current programming.
0x11	CALIBRATE:INITIAL:CURRENT:SLEW <NRF>,<NRF>	RW	<FLOAT>	2	Sets the power-on default slew rate for current.

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
					| - Returns the power-on default slew rate for current.
0x12	CALIBRATE:INITIAL:CURRENT:SLEW:TYPE <0|1>	RW	<STRING>	1	Changes the power-on default slew type for current. Valid arguments are: 0 – Slew in A/ms 1 – Slew in seconds. | - Returns the power-on default slew type for current.
0x13	CALIBRATE:INITIAL:CURRENT:SOFT:LIMIT:HIGH <NRF>	RW	<FLOAT>	1	Sets the power-on default value for maximum soft-limit of current. | - Returns the power-on default value for maximum soft-limit of current.
0x14	CALIBRATE:INITIAL:CURRENT:SOFT:LIMIT:LOW <NRF>	RW	<FLOAT>	1	Sets the power-on default value for minimum soft-limit of current. | - Returns the power-on default value for minimum soft-limit of current.
0x15	CALIBRATE:INITIAL:CURRENT:PROTECTION:NEGATIVE <NRF>	RW	<FLOAT>	1	Sets the power-on default overcurrent protection limit for negative current. | - Returns the power-on default overcurrent protection limit for negative current.
0x16	CALIBRATE:INITIAL:CURRENT:PROTECTION:NEGATIVE:MAXIMUM?	RO	<FLOAT>	1	Returns the power-on default maximum value of negative overcurrent protection that can be set.
0x17	CALIBRATE:INITIAL:CURRENT:PROTECTION:NEGATIVE:MINIMUM?	RO	<FLOAT>	1	Returns the power-on default minimum value of negative overcurrent protection that can be set.
0x18	CALIBRATE:INITIAL:CURRENT:PROTECTION:POSITIVE <NRF>	RW	<FLOAT>	1	Sets the power-on default positive overcurrent protection value. | - Returns the power-on default power-on default positive

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
					overcurrent protection value.
0x19	CALIBRATE:INITIAL:CURRENT:PROTECTION:POSITIVE:MAXIMUM?	RO	<FLOAT>	1	Returns the power-on default maximum value of positive overcurrent protection that can be set.
0x1A	CALIBRATE:INITIAL:CURRENT:PROTECTION:POSITIVE:MINIMUM?	RO	<FLOAT>	1	Returns the power-on default minimum value of positive overcurrent protection that can be set.

Table 5-75. Object Index: 0x31A2

5.5.10.4 CALIBRATE:INITIAL:MEAS — OBJECT INDEX: 0X31A3

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	CALIBRATE:INITIAL:MEAS:CURRENT:AVERAGE <NR1>	RW	<INT>	1	Sets the number of readings to average together when returning the current value with the MEAS:CURR? command to reduce noise in the readback readings. Enter a value of 3 to 9, with the value of 3 (factory default) providing the fastest response time in the readings, but less rejection of noise. | - Returns the number 3 to 9 to indicate the number of readings to average together when taking a current reading.
0x02	CALIBRATE:INITIAL:MEAS:VOLTAGE:AVERAGE <NR1>	RW	<INT>	1	Sets the number of readings to average together when returning the voltage value with the MEAS:VOLT? command to reduce noise in the readback readings. Enter a

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
					value of 1 to 10, with the value of 1 (factory default) providing the fastest response time in the readings, but less rejection of noise. | - Returns the number 1 to 10 to indicate the number of readings to average together when taking a current reading.

Table 5-76. Object Index: 0x31A3

5.5.10.5 CALIBRATE:INITIAL:OPERATING — OBJECT INDEX: 0X31A4

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	CALIBRATE:INITIAL:OPERATING:MODE <SOUR|ELOAD|BIDIR|BATSIM|PVSIM|BATTEST>	RW	<STRING>	1	Changes the power-on default operating mode. | - Returns the power-on default operating mode.

Table 5-77. Object Index: 0x31A4

5.5.10.6 CALIBRATE:INITIAL:OUTPUT — OBJECT INDEX: 0X31A5

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	CALIBRATE:INITIAL:OUTPUT:ISOLATION <0|1>	RW	<STRING>	1	Changes the power-on default state for output isolation relays. | - Returns the power-on default state for output isolation relays.
0x02	CALIBRATE:INITIAL:OUTPUT:PROGRAM:TYPE <0|1>	RW	<STRING>	1	Changes the Output Programming type, valid arguments are: 0 – Voltage Programming type 1 – Current Programming type | - Returns the Output Programming type

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x03	CALIBRATE:INITIAL:OUTPUT:PROTECTION:DELAY <NRF>	RW	<FLOAT>	1	Sets the power-on default delay time for the protection. | - Returns the power-on default delay time for the protection.
0x04	CALIBRATE:INITIAL:OUTPUT:PROTECTION:FOLD <NR1>	RW	<STRING>	1	Sets the power-on default foldback protection setting. Valid arguments are same as for OUTP:PROT:FOLD. | - Returns the power-on default setting of foldback protection.
0x05	CALIBRATE:INITIAL:OUTPUT:SENSE <0/LOCAL|1/REMOTE>	RW	<STRING>	1	Changes the power-on default method for sensing. Valid arguments are: 0 – Local sense 1 – Remote sense. | - Returns the power-on default method for sensing.

Table 5-78. Object Index: 0x31A5

5.5.10.7 CALIBRATE:INITIAL:PONS — OBJECT INDEX: 0X31A6

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	CALIBRATE:INITIAL:PONS:DEFAULT	W	<NONE>	0	Sets all the values to factory default.

Table 5-79. Object Index: 0x31A6

5.5.10.8 CALIBRATE:INITIAL:POWER — OBJECT INDEX: 0X31A7

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	CALIBRATE:INITIAL:POWER <NRF>	RW	<FLOAT>	1	Sets the power-on default value of Power | - Returns the power-on default power set to regulate.
0x02	CALIBRATE:INITIAL:POWER:MAXIMUM?	RO	<FLOAT>	1	Returns the power-on default Maximum

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
					power that can be programmed with given Input voltage conditions.
0x03	CALIBRATE:INITIAL:POWER:MINIMUM?	RO	<FLOAT>	1	Returns the power-on default Minimum power that can be programmed with given Input voltage conditions.
0x04	CALIBRATE:INITIAL:POWER:NEGATIVE:LIMIT <NRF>	RW	<FLOAT>	1	Sets the power-on default negative power limit. | - Returns the power-on default negative power limit.
0x05	CALIBRATE:INITIAL:POWER:NEGATIVE:LIMIT:MAXIMUM?	RO	<FLOAT>	1	Returns the power-on default maximum value that the user can set for negative power limit.
0x06	CALIBRATE:INITIAL:POWER:NEGATIVE:LIMIT:MINIMUM?	RO	<FLOAT>	1	Returns the power-on default minimum value that the user can set for negative power limit.
0x07	CALIBRATE:INITIAL:POWER:POSITIVE:LIMIT <NRF>	RW	<FLOAT>	1	Sets the power-on default positive power limit. | - Returns the power-on default positive power limit.
0x08	CALIBRATE:INITIAL:POWER:POSITIVE:LIMIT:MAXIMUM?	RO	<FLOAT>	1	Returns the power-on default maximum value that the user can set for positive power limit.
0x09	CALIBRATE:INITIAL:POWER:POSITIVE:LIMIT:MINIMUM?	RO	<FLOAT>	1	Returns the power-on default minimum value that the user can set for positive power limit.
0x0A	CALIBRATE:INITIAL:POWER:PROTECTION:NEGATIVE <NRF>	RW	<FLOAT>	1	Sets the power-on default negative overpower protection limit. | - Returns the power-on default negative overpower protection limit.
0x0B	CALIBRATE:INITIAL:POWER:PROTECTION:NEGATIVE:MAXIMUM?	RO	<FLOAT>	1	Returns the power-on default maximum possible value for the

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
					negative overpower protection limit.
0x0C	CALIBRATE:INITIAL:POWER:PROTECTION:NEGATIVE:MINIMUM?	RO	<FLOAT>	1	Returns the power-on default minimum possible value for the negative overpower protection limit.
0x0D	CALIBRATE:INITIAL:POWER:PROTECTION:POSITIVE <NRF>	RW	<FLOAT>	1	Sets the power-on default positive overpower protection limit. | - Returns the power-on default positive overpower protection limit.
0x0E	CALIBRATE:INITIAL:POWER:PROTECTION:POSITIVE:MAXIMUM?	RO	<FLOAT>	1	Returns the power-on default maximum possible value for the positive overpower protection limit.
0x0F	CALIBRATE:INITIAL:POWER:PROTECTION:POSITIVE:MINIMUM?	RO	<FLOAT>	1	Returns the power-on default minimum possible value for the positive overpower protection limit.
0x10	CALIBRATE:INITIAL:POWER:SLEW <NRF>,<NRF>	RW	<FLOAT>	2	Sets the power-on default slew rate for the output power in terms of W/ms (first argument) or time in s (second argument). | - Returns the slew rate set for the output power.
0x11	CALIBRATE:INITIAL:POWER:SLEW:TYPE <0|1>	RW	<STRING>	1	Sets the power-on default slew type for power. | - Returns the power-on default slew type for power.
0x12	CALIBRATE:INITIAL:POWER:SOFT:LIMIT:HIGH <NRF>	RW	<FLOAT>	1	Sets the power-on default higher power limit. **Example:** In CV/CP mode, the value set for the higher power to regulate once the output power reaches this value. | - Returns the power-on default higher power limit.

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x13	CALIBRATE:INITIAL:POWER:SOFT:LIMIT:LOW <NRF>	RW	<FLOAT>	1	Sets the power-on default soft limit for lower power. **Example:** In CP/CC mode, the maximum value that can be set for the output power to regulate. | - Returns the power-on default soft limit for lower power.

Table 5-80. Object Index: 0x31A7

5.5.10.9 CALIBRATE:INITIAL:REMOTE — OBJECT INDEX: 0X31A8

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	CALIBRATE:INITIAL:REMOTE:INHIBIT:INPUT:STATE <0/OFF|1/ON>	RW	<STRING>	1	Sets the power-on default state for remote inhibit. Valid arguments are: 0 - OFF 1 - ON. | - Returns the power-on default state for remote inhibit.
0x02	CALIBRATE:INITIAL:REMOTE:INHIBIT:INPUT:TYPE <0/CONTACT CLOSURE|1/ACTIVE SOURVE>	RW	<STRING>	1	Sets the power-on default type for remote inhibit. Valid arguments are: 0 - Contact Closure 1 - Active Source. | - Returns the power-on default type for remote inhibit.
0x03	CALIBRATE:INITIAL:REMOTE:INHIBIT:MODE < 0/OFF|1/LIVE|2/LATCHING>	RW	<STRING>	1	Sets the power-on default mode for remote inhibit. Valid arguments are: 0 - OFF 1 - LIVE 2 - LATCH. | - Returns the power-on default mode for remote inhibit.

Table 5-81. Object Index: 0x31A8

5.5.10.10 CALIBRATE:INITIAL:SERIES — OBJECT INDEX: 0X31A9

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	CALIBRATE:INITIAL:SERIES:RESISTANCE <NRF>	RW	<FLOAT>	1	Sets the power-on default series resistance. | - Returns the power-on default value for series resistance.
0x02	CALIBRATE:INITIAL:SERIES:RESISTANCE:MAXIMUM?	RO	<FLOAT>	1	Returns the power-on default maximum possible value for series resistance.
0x03	CALIBRATE:INITIAL:SERIES:RESISTANCE:MINIMUM?	RO	<FLOAT>	1	Returns the power-on default minimum possible value for series resistance.

Table 5-82. Object Index: 0x31A9

5.5.10.11 CALIBRATE:INITIAL:SINK — OBJECT INDEX: 0X31AA

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	CALIBRATE:INITIAL:SINK:RESISTANCE <NRF>	RW	<FLOAT>	1	Sets the power-on default sink resistance value for which the unit behaves as constant resistive load (in eLoad Mode). | - Returns the power-on default sink resistance value.
0x02	CALIBRATE:INITIAL:SINK:RESISTANCE:MAXIMUM?	RO	<FLOAT>	1	Returns the power-on default value of maximum sink resistance possible.
0x03	CALIBRATE:INITIAL:SINK:RESISTANCE:MINIMUM?	RO	<FLOAT>	1	Returns the power-on default value of minimum sink resistance possible.

Table 5-83. Object Index: 0x31AA

5.5.10.12 CALIBRATE:INITIAL:VOLTAGE — OBJECT INDEX: 0X31AB

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	CALIBRATE:INITIAL:VOLTAGE <NRF>	RW	<FLOAT>	1	Sets the power-on default output voltage to be regulated. | - Returns the power-on default output voltage to be regulated.
0x02	CALIBRATE:INITIAL:VOLTAGE:HIGH:LIMIT <NRF>	RW	<FLOAT>	1	Sets the power-on default higher limit of voltage. **Example:** In CC/CV mode, the higher side voltage to be regulated once the output voltage reaches this value. | - Returns the power-on default higher limit of voltage
0x03	CALIBRATE:INITIAL:VOLTAGE:LOW:LIMIT <NRF>	RW	<FLOAT>	1	Sets the power-on default lower limit of voltage. **Example:** In CC/CV mode, the lower side voltage to be regulated once the output voltage reaches this value. | - Returns the power-on default lower side voltage limit value set by the user.
0x04	CALIBRATE:INITIAL:VOLTAGE:MAXIMUM?	RO	<FLOAT>	1	Returns the power-on default maximum voltage of the unit.
0x05	CALIBRATE:INITIAL:VOLTAGE:MINIMUM?	RO	<FLOAT>	1	Returns the power-on default minimum voltage of the unit.
0x06	CALIBRATE:INITIAL:VOLTAGE:MONITOR:FSC <NRF>	RW	<FLOAT>	1	Sets power-on default Full-scale voltage on voltage monitor pin (VMON), when power supply is producing full scale output voltage. | - Returns the power-on default full-scale voltage set for Voltage monitor pin (VMON)
0x07	CALIBRATE:INITIAL:VOLTAGE:PROGRAM:FSC <NRF>	RW	<FLOAT>	1	Sets the power-on default Full-scale

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
					voltage, at which Rated Voltage will be programmed in external Voltage programming Mode with voltage as programming source. Valid Range is from 5 to 10 V. | - Returns the power-on default Full-scale Voltage, at which Rated Voltage will be programmed.
0x08	CALIBRATE:INITIAL:VOLTAGE:PROGRAM:FSCR <NRF>	RW	<FLOAT>	1	Sets the power-on default Full-scale resistance, at which Rated Voltage will be programmed in external Voltage programming Mode with Current (Resistance) as programming source. Valid Range is from 5 to 10 kOhm. | - Returns the power-on default Full-scale Resistance, at which Rated Voltage will be programmed.
0x09	CALIBRATE:INITIAL:VOLTAGE:PROGRAM:SOUR <0|1>	RW	<STRING>	1	Changes the power-on default source for the external analog voltage programming. Valid arguments are: 0 - voltage source 1 - Resistance source. | - Returns the power-on default selected source for the external analog voltage programming.
0x0A	CALIBRATE:INITIAL:VOLTAGE:PROGRAM <0/INT|1/EXT>	RW	<STRING>	1	Changes the power-on default Voltage programming mode of the supply. Valid arguments are: INT/0 - Internal Digital Voltage programming EXT/1 - External analog Voltage programming. | - Returns the power-on default setting of

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
					Voltage programming mode.
0x0B	CALIBRATE:INITIAL:VOLTAGE: PROTECTION <NRF>	RW	<FLOAT>	1	Sets the power-on default overvoltage protection trip point in volts. | - Returns the power-on default set overvoltage protection trip point in volts.
0x0C	CALIBRATE:INITIAL:VOLTAGE: PROTECTION:FSC <NRF>	RW	<FLOAT>	1	Sets the power-on default Full-scale voltage, at which Rated Overvoltage will be programmed in external Overvoltage programming Mode with voltage as programming source. Valid Range is from 5 to 10V. | - Returns the power-on default Full-scale Voltage, at which Rated Overvoltage will be programmed.
0x0D	CALIBRATE:INITIAL:VOLTAGE: PROTECTION:PROGRAM < 0/INT|1/EXT>	RW	<STRING>	1	Changes the power-on default Overvoltage programming mode of the supply. Valid arguments are: INT/0 - Internal Digital Voltage programming EXT/1 - External analog Voltage programming. | - Returns the power-on default setting of Overvoltage programming mode.
0x0E	CALIBRATE:INITIAL:VOLTAGE: SLEW <NRF>,<NRF>	RW	<FLOAT>	2	Sets the power-on default slew rate for the output voltage in V/ms (first argument) or seconds (second argument). | - Returns the power-on default slew rate for the output voltage.
0x0F	CALIBRATE:INITIAL:VOLTAGE: SLEW:TYPE <0|1>	RW	<STRING>	1	Sets the power-on default type of slew rate for the output voltage. 0 - V/ms 1 - second.

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
					| - Returns the power-on default type of slew rate for the output voltage.
0x10	CALIBRATE:INITIAL:VOLTAGE:SOFT:LIMIT:HIGH <NRF>	RW	<FLOAT>	1	Sets the power-on default maximum soft limit for the output voltage. **Example:** In CV mode, the maximum possible voltage that can be set. | - Returns the power-on default maximum soft limit for the output voltage.
0x11	CALIBRATE:INITIAL:VOLTAGE:SOFT:LIMIT:LOW <NRF>	RW	<FLOAT>	1	Sets the power-on default minimum soft limit for the output voltage. **Example:** In CV mode, the maximum possible voltage that can be set. | - Returns the power-on default minimum soft limit for the output voltage.

Table 5-84. Object Index: 0x31AB

5.5.11 CALIBRATE COMMANDS

5.5.11.1 CALIBRATE:CURRENT — OBJECT INDEX: 0X31C0

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	CALIBRATE:CURRENT:CALCULATE	W	<NONE>	0	Calculates the value of gain and offset for the Current sense

Table 5-85. Object Index: 0x31C0

5.5.11.2 CALIBRATE:ISOLATION — OBJECT INDEX: 0X31C1

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	CALIBRATE:ISOLATION:VOLTAGE:SENSE:CALCULATE	W	<NONE>	0	Calculates the value of the gain and offset for isolated voltage sense.
0x02	CALIBRATE:ISOLATION:VOLTAGE:SENSE:FIVEPOINT?	RO	<FLOAT>	5	Returns the entered values for 5-point calibration for isolated voltage sense.
0x03	CALIBRATE:ISOLATION:VOLTAGE:SENSE:FIVEPOINT1 <NRF>	W	<FLOAT>	1	Sets isolated voltage value for calibration point 1
0x04	CALIBRATE:ISOLATION:VOLTAGE:SENSE:FIVEPOINT2 <NRF>	W	<FLOAT>	1	Sets isolated voltage value for calibration point 2
0x05	CALIBRATE:ISOLATION:VOLTAGE:SENSE:FIVEPOINT3 <NRF>	W	<FLOAT>	1	Sets isolated voltage value for calibration point 3
0x06	CALIBRATE:ISOLATION:VOLTAGE:SENSE:FIVEPOINT4 <NRF>	W	<FLOAT>	1	Sets isolated voltage value for calibration point 4
0x07	CALIBRATE:ISOLATION:VOLTAGE:SENSE:FIVEPOINT5 <NRF>	W	<FLOAT>	1	Sets isolated voltage value for calibration point 5
0x08	CALIBRATE:ISOLATION:VOLTAGE:SENSE:GAIN <NRF>	RW	<FLOAT>	1	Sets the value of the gain for the isolated voltage sense | - Returns the value of the gain for the isolated voltage sense
0x09	CALIBRATE:ISOLATION:VOLTAGE:SENSE:OFFSET <NRF>	RW	<FLOAT>	1	Sets the value of the offset for the isolated voltage sense. | - Returns the value of the offset for the isolated voltage sense.

Table 5-86. Object Index: 0x31C1

5.5.11.3 CALIBRATE:LOCK — OBJECT INDEX: 0X31C2

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	CALIBRATE:LOCK	W	<NONE>	0	Disables ACCESS to the non-volatile memory. Prevents attempts to store calibration values. (Issue after CAL:UNLock and CAL:STORe commands).

Table 5-87. Object Index: 0x31C2

5.5.11.4 CALIBRATE:MODULE — OBJECT INDEX: 0X31C3

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	CALIBRATE:MODULE:CONFIGURE <0|1>	RW	<STRING>	1	Configures the modules inside the chassis as parallel or series. Valid arguments are: 0 - Parallel 1 - Series. | - Returns the module configuration.
0x02	CALIBRATE:MODULE:COUNT:CONFIGURE <NR1>	RW	<INT>	1	Sets the number of modules present in the chassis (Maximum of 3). | - Returns the number of modules present in the chassis.
0x03	CALIBRATE:MODULE:CURRENT:LIMIT <NRF>	RW	<FLOAT>	1	Sets the rated current limit of the modules. | - Returns the rated current limit of the modules.
0x04	CALIBRATE:MODULE:LASTCALDATE <MM DD YYYY>	RW	<STRING>	1	Assigns the last calibration date; format: MM DD YYYY (space after MM and DD required) | - Returns the last calibration date.
0x05	CALIBRATE:MODULE:POWER:DERATING <NRF>	RW	<FLOAT>	1	Sets the power derating factor for the LOW_LINE AC input. For Low Line operation, output power is derated by 0.5. | - Returns the power derating factor.
0x06	CALIBRATE:MODULE:POWER:LIMIT <NRF>	RW	<FLOAT>	1	Sets the rated power limit of the modules. | - Returns

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
					the rated power limit of the modules.
0x07	CALIBRATE:MODULE:SNUM <STRING>	RW	<STRING>	1	Assigns the serial number of the module. | - Returns the serial number of the module.
0x08	CALIBRATE:MODULE:VOLTAGE:LIMIT <NRF>	RW	<FLOAT>	1	Sets the rated voltage limit of the modules. | - Returns the rated voltage limit of the modules.
0x09	CALIBRATE:MODULE:CURRENT?	RO	<FLOAT>	1	Returns the maximum current of the module.
0x0A	CALIBRATE:MODULE:NEXTCALDATE <MM DD YYYY>	RW	<STRING>	1	Sets the date next calibration is required; format: MM DD YYYY (space after MM and DD required) | - Returns the date next calibration is required.
0x0B	CALIBRATE:MODULE:VOLTAGE:PROTECTION?	RO	<FLOAT>	1	Returns the maximum rated voltage of the module.
0x0C	CALIBRATE:MODULE:VOLTAGE?	RO	<FLOAT>	1	Sets the maximum rated voltage of the module.

Table 5-88. Object Index: 0x31C3

5.5.11.5 CALIBRATE:OUTPUT — OBJECT INDEX: 0X31C4

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	CALIBRATE:OUTPUT:CURRENT:EXTI:GAIN <NRF>	RW	<FLOAT>	1	Sets the calibration full-scale point for current programming from external resistance source. | - Returns the calibration full-scale point for current programming from external resistance source.
0x02	CALIBRATE:OUTPUT:CURRENT:EXTI:OFFSET <NRF>	RW	<FLOAT>	1	Sets the calibration Offset point for current programming from external resistance source. | - Returns the calibration Offset point for current

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
					programming from external resistance source.
0x03	CALIBRATE:OUTPUT:CURRENT:EXTV:GAIN <NRF>	RW	<FLOAT>	1	Sets the calibration Gain point for current programming from external voltage source. | - Returns the calibration full-scale point for current programming from external voltage source.
0x04	CALIBRATE:OUTPUT:CURRENT:EXTV:OFFSET <NRF>	RW	<FLOAT>	1	Sets the calibration Gain point for current programming from external voltage source. | - Returns the calibration Offset point for current programming from external voltage source.
0x05	CALIBRATE:OUTPUT:CURRENT:EXTV:POINT1 <NRF>	W	<FLOAT>	1	Sets the external voltage value-1 for current calibration.
0x06	CALIBRATE:OUTPUT:CURRENT:EXTV:POINT2 <NRF>	W	<FLOAT>	1	Sets the external voltage value-2 for current calibration.
0x07	CALIBRATE:OUTPUT:CURRENT:EXTV:POINTS?	RO	<FLOAT>	5	Returns the external voltage value-1 for current calibration.
0x08	CALIBRATE:OUTPUT:CURRENT:FIVEPOINT1 <NRF>	W	<FLOAT>	1	Sets output current value for calibration point 1.
0x09	CALIBRATE:OUTPUT:CURRENT:FIVEPOINT2 <NRF>	W	<FLOAT>	1	Sets output current value for calibration point 2.
0x0A	CALIBRATE:OUTPUT:CURRENT:FIVEPOINT3 <NRF>	W	<FLOAT>	1	Sets output current value for calibration point 3.
0x0B	CALIBRATE:OUTPUT:CURRENT:FIVEPOINT4 <NRF>	W	<FLOAT>	1	Sets output current value for calibration point 4.
0x0C	CALIBRATE:OUTPUT:CURRENT:FIVEPOINT5 <NRF>	W	<FLOAT>	1	Sets output current value for calibration point 5.
0x0D	CALIBRATE:OUTPUT:CURRENT:FIVEPOINT?	RO	<FLOAT>	5	Returns the entered values for 5-point calibration for current sense.

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x0E	CALIBRATE:OUTPUT:CURRENT:GAIN <NRF>	RW	<FLOAT>	1	Sets the value of the gain for the output current sense. | - Returns the value of the gain for the output current sense.
0x0F	CALIBRATE:OUTPUT:CURRENT:MONITOR:FSC <NRF>	RW	<FLOAT>	1	Sets the calibration full-scale point for current monitor signal. | - Returns the calibration full-scale point for current monitor signal.
0x10	CALIBRATE:OUTPUT:CURRENT:MONITOR:OFFSET <NRF>	RW	<FLOAT>	1	Sets the calibration Offset point for current monitor signal. | - Returns the calibration Offset point for current monitor signal.
0x11	CALIBRATE:OUTPUT:CURRENT:OFFSET <NRF>	RW	<FLOAT>	1	Sets the calibration Offset point for output current. | - Returns the calibration Offset point for output current.
0x12	CALIBRATE:OUTPUT:CURRENT:PERCENTAGE <NR1>	RW	<INT>	1	Sets the percentage of output current set for calibration. | - Returns the percentage of output current set for calibration.
0x13	CALIBRATE:OUTPUT:CURRENT:PROTECTION:NEGATIVE:PERCENTAGE <NR1>	RW	<INT>	1	Sets the negative current protection limit in percentage during calibration. | - Returns the negative current protection limit in percentage during calibration.
0x14	CALIBRATE:OUTPUT:CURRENT:PROTECTION:POSITIVE:PERCENTAGE <NR1>	RW	<INT>	1	Sets the positive current protection limit in percentage during calibration. | - Returns the positive current protection limit in percentage during calibration.
0x15	CALIBRATE:OUTPUT:OVERVOLTAGE:EXTV:FSC <NRF>	W	<FLOAT>	1	Sets the calibration full-scale point for overvoltage programming from

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
					external voltage source.
0x16	CALIBRATE:OUTPUT:OVERVOLTAGE:EXTV:GAIN?	RO	<FLOAT>	1	Returns the gain for overvoltage programming from external voltage source.
0x17	CALIBRATE:OUTPUT:OVERVOLTAGE:EXTV:OFFSET <NRF>	RW	<FLOAT>	1	Sets the offset for overvoltage programming from external voltage source. | - Returns the offset for overvoltage programming from external voltage source.
0x18	CALIBRATE:OUTPUT:VOLTAGE:EXTI:FSC <NRF>	W	<FLOAT>	1	Sets the calibration full-scale point for voltage programming from external resistance source.
0x19	CALIBRATE:OUTPUT:VOLTAGE:EXTI:GAIN?	RO	<FLOAT>	1	Returns the gain for voltage programming from external resistance source.
0x1A	CALIBRATE:OUTPUT:VOLTAGE:EXTI:OFFSET <NRF>	W	<FLOAT>	1	Sets the calibration full-scale point for voltage programming from external resistance source.
0x1B	CALIBRATE:OUTPUT:VOLTAGE:EXTV:FSC <NRF>	W	<FLOAT>	1	Sets the calibration full-scale point for voltage programming from external voltage source.
0x1C	CALIBRATE:OUTPUT:VOLTAGE:EXTV:GAIN?	RO	<FLOAT>	1	Returns the gain for voltage programming from external voltage source.
0x1D	CALIBRATE:OUTPUT:VOLTAGE:EXTV:OFFSET <NRF>	RW	<FLOAT>	1	Sets the calibration full-scale point for voltage programming from external voltage source. | - Returns the gain for voltage programming from external voltage source.
0x1E	CALIBRATE:OUTPUT:VOLTAGE:FIVEPOINT1 <NRF>	W	<FLOAT>	1	Sets output voltage value for calibration point 1.

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x1F	CALIBRATE:OUTPUT:VOLTAGE:FIVEPOINT2 <NRF>	W	<FLOAT>	1	Sets output voltage value for calibration point 2.
0x20	CALIBRATE:OUTPUT:VOLTAGE:FIVEPOINT3 <NRF>	W	<FLOAT>	1	Sets output voltage value for calibration point 3.
0x21	CALIBRATE:OUTPUT:VOLTAGE:FIVEPOINT4 <NRF>	W	<FLOAT>	1	Sets output voltage value for calibration point 4.
0x22	CALIBRATE:OUTPUT:VOLTAGE:FIVEPOINT5 <NRF>	W	<FLOAT>	1	Sets output voltage value for calibration point 5.
0x23	CALIBRATE:OUTPUT:VOLTAGE:FIVEPOINT?	RO	<STRING>	1	Returns the entered values for 5-point calibration for voltage sense.
0x24	CALIBRATE:OUTPUT:VOLTAGE:GAIN <NRF>	RW	<FLOAT>	1	Sets the value of the gain for the output voltage sense. | - Returns the value of the gain for the output voltage sense.
0x25	CALIBRATE:OUTPUT:VOLTAGE:MONITOR:FSC <NRF>	RW	<FLOAT>	1	Sets the calibration full-scale point for voltage monitor signal. | - Returns the calibration full-scale point for voltage monitor signal.
0x26	CALIBRATE:OUTPUT:VOLTAGE:MONITOR:OFFS <NRF>	RW	<FLOAT>	1	Sets the calibration Offset point for voltage monitor signal. | - Returns the calibration Offset point for voltage monitor signal.
0x27	CALIBRATE:OUTPUT:VOLTAGE:OFFSET <NRF>	RW	<FLOAT>	1	Sets the calibration Offset point for output voltage. | - Returns the calibration Offset point for output voltage.

Table 5-89. Object Index: 0x31C4

5.5.11.6 CALIBRATE:REMOTE — OBJECT INDEX: 0X31C5

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x01	CALIBRATE:REMOTE:OUTPUT :VOLTAGE:GAIN <NRF>	RW	<FLOAT>	1	Sets the value of the gain for the output voltage at remote sense terminal. | - Returns the value of the gain for the output voltage at remote sense terminal.
0x02	CALIBRATE:REMOTE:OUTPUT :VOLTAGE:OFFSET <NRF>	RW	<FLOAT>	1	Sets the value of the offset for the output voltage at remote sense terminal. | - Returns the value of the offset for the output voltage at remote sense terminal.

Table 5-90. Object Index: 0x31C5

5.5.11.7 CALIBRATE:STORE — OBJECT INDEX: 0X31C6

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	CALIBRATE:STORE	W	<NONE>	0	Stores the calibration constants in non-volatile memory.

Table 5-91. Object Index: 0x31C6

5.5.11.8 CALIBRATE:UNLOCK — OBJECT INDEX: 0X31C7

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	CALIBRATE:UNLOCK <STRING>	W	<STRING>	1	Sets the non-volatile memory available to store calibration constants. The ACCESS string is “6867”.

Table 5-92. Object Index: 0x31C7

5.5.11.9 CALIBRATE:VOLTAGE — OBJECT INDEX: 0X31C8

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	CALIBRATE:VOLTAGE:CALCULATE	W	<NONE>	0	Calculates the gain and offset for the voltage sense

Table 5-93. Object Index: 0x31C8

5.5.12 STATUS COMMANDS

5.5.12.1 STATUS:FAULT — OBJECT INDEX: 0X31E0

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	STATUS:FAULT:CHASSIS?	RO	<STRING>	1	Returns the fault status of all chassis connected in parallel, each bit represents the fault status of each individual chassis
0x02	STATUS:FAULT:STATUS?	RO	<STRING>	1	Returns the System faults.

Table 5-94. Object Index: 0x31E0

5.5.12.2 STATUS:MODULE — OBJECT INDEX: 0X31E1

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	STATUS:MODULE<1|2|3>:FAULT?	RO	<INT>	1	Returns the status of faults of the specified module
0x02	STATUS:MODULE<1|2|3>:TEMPERATURE:FAULT:STATUS?	RO	<STRING>	1	Returns the status of the temperature faults occurred in the module.

Table 5-95. Object Index: 0x31E1

5.5.13 TRIGGER COMMANDS

5.5.13.1 TRIGGER:SOFT — OBJECT INDEX: 0X31F0

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	TRIGGER:SOFT	W	<NONE>	0	Sets the Software trigger for RAMP and LIST functions.

Table 5-96. Object Index: 0x31F0

5.5.13.2 TRIGGER:ABORT — OBJECT INDEX: 0X31F1

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	TRIGGER:ABORT	W	<NONE>	0	Stops the Ramp and List function, sets the output voltage or current to present value based on the output regulation type.

Table 5-97. Object Index: 0x31F1

5.5.13.3 TRIGGER:RAMP — OBJECT INDEX: 0X31F2

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	TRIGGER:RAMP:INITIALIZE	W	<NONE>	0	Send initialization trigger command to initiate the ramp initialization and move to the start location.
0x02	TRIGGER:RAMP	W	<NONE>	0	Trigger command to start ramp.

Table 5-98. Object Index: 0x31F2

5.5.14 SASIMULATOR COMMANDS

5.5.14.1 SASIMULATOR:VM — OBJECT INDEX: 0X3200

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x01	SASIMULATOR:VM <NRF>	RW	<FLOAT>	1	Sets the voltage multiplier for EN50530 curve (Operating Type: Steady State/ Profile and Operating Mode: Standard) during the profile execution.

Table 5-99. Object Index: 0x3200

5.5.14.2 SASIMULATOR:IM — OBJECT INDEX: 0X3201

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	SASIMULATOR:IM <NRF>	RW	<FLOAT>	1	Sets the current multiplier for EN50530 curve (Operating Type: Steady State/ profile and Operating Mode : Standard) during the profile execution.

Table 5-100. Object Index: 0x3201

5.5.14.3 SASIMULATOR:CURVE — OBJECT INDEX: 0X3202

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	SASIMULATOR:CURVE:ADD <STRING>	W	<STRING>	1	Creates the curve with provided file name in the selected curve type and operation type, mode, alphanumeric string
0x02	SASIMULATOR:CURVE:CATALOG?	RO	<STRING>	1	Returns the curves present in selected SAS configuration
0x03	SASIMULATOR:CURVE:DATA:VOLTAGE <NRF>,<NRF>,...,<NRF>	RW	<FLOAT>	N	Sets the 1024 Voltage points of the selected IV Curve in the User Defined

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
					curve type in volts | - Returns the 1024 Voltage points of Selected IV Curve in the User Defined curve type in volts
0x04	SASIMULATOR:CURVE:DATA:CURRENT <NRF>,<NRF>,...,<NRF>	RW	<FLOAT>	N	Sets the 1024 Current point of the selected IV Curve in the User Defined Curve type in amps | - Returns the 1024 current points of the selected IV Curve in the User Defined Curve type in amps
0x05	SASIMULATOR:CURVE:DATA:INDEX <NR1>	RW	<INT>	1	Sets the Index value to get the next 25 points of IV Curve | - Returns the Index value to get the next 25 points of IV Curve
0x06	SASIMULATOR:CURVE:DELETE	W	<NONE>	0	Deletes the selected IV Curve
0x07	SASIMULATOR:CURVE:EN50530:COEFFICIENTS:ALPHA <NRF>	RW	<FLOAT>	1	Sets the ALPHA value in the EN50530 Curve | - Returns the ALPHA Value of the EN50530 Curve
0x08	SASIMULATOR:CURVE:EN50530:COEFFICIENTS:ALPHA:MAXIMUM?	RO	<FLOAT>	1	Returns the maximum ALPHA value that can be set

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x09	SASIMULATOR:CURVE:EN50530:COEFFICIENTS:ALPHA:MINIMUM?	RO	<FLOAT>	1	Returns the minimum APLPA value that can be set
0x0A	SASIMULATOR:CURVE:EN50530:COEFFICIENTS:BETA <NRF>	RW	<FLOAT>	1	Sets the BETA value in the EN50530 Curve | - Returns the BETA Value of the EN50530 Curve
0x0B	SASIMULATOR:CURVE:EN50530:COEFFICIENTS:BETA:MAXIMUM?	RO	<FLOAT>	1	Returns the maximum BETA value that can be set
0x0C	SASIMULATOR:CURVE:EN50530:COEFFICIENTS:BETA:MINIMUM?	RO	<FLOAT>	1	Returns the minimum BETA value that can be set
0x0D	SASIMULATOR:CURVE:EN50530:COEFFICIENTS:CG <NRF>	RW	<FLOAT>	1	Sets the CG value in the selected EN50530 Curve | - Returns the CV Value of the EN50530 Curve
0x0E	SASIMULATOR:CURVE:EN50530:COEFFICIENTS:CG:MAXIMUM?	RO	<FLOAT>	1	Returns the maximum CG value that can be set
0x0F	SASIMULATOR:CURVE:EN50530:COEFFICIENTS:CG:MINIMUM?	RO	<FLOAT>	1	Returns the minimum CG value that can be set
0x10	SASIMULATOR:CURVE:EN50530:COEFFICIENTS:CR <NRF>	RW	<FLOAT>	1	Sets the CR value in the EN50530 Curve | - Returns the CR Value of the EN50530 Curve
0x11	SASIMULATOR:CURVE:EN50530:COEFFICIENTS:CR:MAXIMUM?	RO	<FLOAT>	1	Returns the maximum CR value that can be set
0x12	SASIMULATOR:CURVE:EN50530:COEFFICIENTS:CR:MINIMUM?	RO	<FLOAT>	1	Returns the minimum CR value that can be set

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x13	SASIMULATOR:CURVE:EN50530:COEFFICIENTS:CV <NRF>	RW	<FLOAT>	1	Sets the CV value in the EN50530 Curve | - Returns the CV Value of the EN50530 Curve
0x14	SASIMULATOR:CURVE:EN50530:COEFFICIENTS:CV:MAXIMUM?	RO	<FLOAT>	1	Returns the maximum CV value that can be set
0x15	SASIMULATOR:CURVE:EN50530:COEFFICIENTS:CV:MINIMUM?	RO	<FLOAT>	1	Returns the minimum CV value that can be set
0x16	SASIMULATOR:CURVE:EN50530:COEFFICIENTS:DEFAULTS	W	<NONE>	0	Sets the default values to the coefficients with respect to the technology type in EN50530 Curve
0x17	SASIMULATOR:CURVE:EN50530:COEFFICIENTS:FFI <NRF>	RW	<FLOAT>	1	Sets the FFI value in the EN50530 Curve | - Returns the FFI Value of the EN50530 Curve
0x18	SASIMULATOR:CURVE:EN50530:COEFFICIENTS:FFI:MAXIMUM?	RO	<FLOAT>	1	Returns the maximum FFI value that can be set
0x19	SASIMULATOR:CURVE:EN50530:COEFFICIENTS:FFI:MINIMUM?	RO	<FLOAT>	1	Returns the minimum FFI value that can be set
0x1A	SASIMULATOR:CURVE:EN50530:COEFFICIENTS:FFU <NRF>	RW	<FLOAT>	1	Sets the FFU value in the EN50530 Curve | - Returns the FFU Value of the EN50530 Curve
0x1B	SASIMULATOR:CURVE:EN50530:COEFFICIENTS:FFU:MAXIMUM?	RO	<FLOAT>	1	Returns the maximum FFU value that can be set

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x1C	SASIMULATOR:CURVE:EN50530:COEFFICIENTS:FFU:MINIMUM?	RO	<FLOAT>	1	Returns the minimum FFU value that can be set
0x1D	SASIMULATOR:CURVE:EN50530:COEFFICIENTS:VL2H <NRF>	RW	<FLOAT>	1	Sets the VL2H value in the EN50530 Curve | - Returns the VL2H Value of the EN50530 Curve
0x1E	SASIMULATOR:CURVE:EN50530:COEFFICIENTS:VL2H:MAXIMUM?	RO	<FLOAT>	1	Returns the maximum VL2H value that can be set
0x1F	SASIMULATOR:CURVE:EN50530:COEFFICIENTS:VL2H:MINIMUM?	RO	<FLOAT>	1	Returns the minimum VL2H value that can be set
0x20	SASIMULATOR:CURVE:EN50530:MPPPARAMS:PMP <NRF>	RW	<FLOAT>	1	Sets the Power at maximum power point of EN50530 Curve in kW | - Returns the Power at maximum power point of EN50530 Curve in kW
0x21	SASIMULATOR:CURVE:EN50530:MPPPARAMS:PMP:MAXIMUM?	RO	<FLOAT>	1	Returns the maximum power value of maximum power point that can be set in kW
0x22	SASIMULATOR:CURVE:EN50530:MPPPARAMS:PMP:MINIMUM?	RO	<FLOAT>	1	Returns the minimum power value of maximum power point that can be set in kW
0x23	SASIMULATOR:CURVE:EN50530:MPPPARAMS:VMP <NRF>	RW	<FLOAT>	1	Sets the Voltage at maximum power point of EN50530 Curve in kW

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
					| - Returns the Voltage at maximum power point of EN50530 Curve in volts
0x24	SASIMULATOR:CURVE:EN50530:MPPPARAMS:VMP:MAXIMUM?	RO	<FLOAT>	1	Returns the maximum Voltage value of maximum power point that can be set in volts
0x25	SASIMULATOR:CURVE:EN50530:MPPPARAMS:VMP:MINIMUM?	RO	<FLOAT>	1	Returns the minimum Voltage value of maximum power point that can be set in volts
0x26	SASIMULATOR:CURVE:EN50530:SIMTYPE:TECHNOLOGY <CSI/0|THINFLIM/1>	RW	<STRING>	1	Sets the Technology type of the EN50530 curve | - Returns the technology type of the EN50530 Curve 0 – CSI 1 – Thin Film
0x27	SASIMULATOR:CURVE:EN50530:SIMTYPE:TESTTYPE <STATIC/0|DYNAMIC/1>	RW	<STRING>	1	Sets the test type of the EN50530 Curve | - Returns the Test type of the EN50530 Curve 0 – Static 1 – Dynamic
0x28	SASIMULATOR:CURVE:SAVE	W	<NONE>	0	Saves the selected IV Curve
0x29	SASIMULATOR:CURVE:SELECT <STRING>	RW	<STRING>	1	Selects the curve with provided file name. | - Returns the File name of the selected IV Curve

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x2A	SASIMULATOR:CURVE:SNL:BETAPARAMS:P <NRF>	RW	<FLOAT>	1	Sets the BETA P Value to Selected SNL Curve | - Returns the BETA P of the Selected SNL Curve
0x2B	SASIMULATOR:CURVE:SNL:BETAPARAMS:P:MAXIMUM?	RO	<FLOAT>	1	Returns the maximum BETA P Value that can be set
0x2C	SASIMULATOR:CURVE:SNL:BETAPARAMS:P:MINIMUM?	RO	<FLOAT>	1	Returns the minimum BETA P Value that can be set
0x2D	SASIMULATOR:CURVE:SNL:BETAPARAMS:V <NRF>	RW	<FLOAT>	1	Sets the BETA V Value to Selected SNL Curve | - Returns the BETA V Value of the Selected SNL Curve
0x2E	SASIMULATOR:CURVE:SNL:BETAPARAMS:V:MAXIMUM?	RO	<FLOAT>	1	Returns the maximum BETA V Value that can be set
0x2F	SASIMULATOR:CURVE:SNL:BETAPARAMS:V:MINIMUM?	RO	<FLOAT>	1	Returns the minimum BETA V Value that can be set
0x30	SASIMULATOR:CURVE:SNL:FILLFACTOR <NRF>	RW	<FLOAT>	1	Sets the Fill Factor Value to Selected SNL Curve | - Returns the Fill Factor Value of the Selected SNL Curve
0x31	SASIMULATOR:CURVE:SNL:FILLFACTOR:MAXIMUM?	RO	<FLOAT>	1	Returns the maximum Fill Factor Value that can be set
0x32	SASIMULATOR:CURVE:SNL:FILLFACTOR:MINIMUM?	RO	<FLOAT>	1	Returns the minimum Fill Factor Value that can be set
0x33	SASIMULATOR:CURVE:SNL:FILLFACTOR:STATE <BOOLEAN>	RW	<STRING>	1	Sets the state of the Fill Factor to the SNL Curve

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
					0 - Fill Factor Value provided is not considered 1 – Fill Factor Value provided is considered | - Returns the State of the Fill Factor in the Selected SNL Curve. <0|1>
0x34	SASIMULATOR:CURVE:SNL:KFACTOR:IRRADIANCE <NRF>	RW	<FLOAT>	1	Sets the KFactor Irradiance Value to Selected SNL Curve | - Returns the KFactor Irradiance Value of the Selected SNL Curve
0x35	SASIMULATOR:CURVE:SNL:KFACTOR:IRRADIANCE:MAXIMUM?	RO	<FLOAT>	1	Returns the maximum KFactor Irradiance Value that can be set
0x36	SASIMULATOR:CURVE:SNL:KFACTOR:IRRADIANCE:MINIMUM?	RO	<FLOAT>	1	Returns the minimum KFactor Irradiance Value that can be set
0x37	SASIMULATOR:CURVE:SNL:KFACTOR:VOLTAGE <NRF>	RW	<FLOAT>	1	Sets the KFactor Voltage Value to Selected SNL Curve | - Returns the KFactor Voltage Value of the Selected SNL Curve
0x38	SASIMULATOR:CURVE:SNL:KFACTOR:VOLTAGE:MAXIMUM?	RO	<FLOAT>	1	Returns the maximum KFactor Voltage Value that can be set in

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x39	SASIMULATOR:CURVE:SNL:KFACTOR:VOLTAGE:MINIMUM?	RO	<FLOAT>	1	Returns the minimum KFactor Voltage Value that can be set
0x3A	SASIMULATOR:CURVE:SNL:MPPPARAMS:IMP <NRF>	RW	<FLOAT>	1	Sets the Current at Maximum power point to Selected SNL Curve | - Returns the Current at Maximum power point of Selected SNL Curve in amps
0x3B	SASIMULATOR:CURVE:SNL:MPPPARAMS:IMP:MAXIMUM?	RO	<FLOAT>	1	Returns the Maximum Current Value at maximum power point in the SNL Curve type that can be set in amps
0x3C	SASIMULATOR:CURVE:SNL:MPPPARAMS:IMP:MINIMUM?	RO	<FLOAT>	1	Returns the Minimum Current Value at maximum power point in the SNL Curve type that can be set in amps
0x3D	SASIMULATOR:CURVE:SNL:MPPPARAMS:VMP <NRF>	RW	<FLOAT>	1	Sets the Voltage at Maximum power point to Selected SNL Curve in volts | - Returns the Voltage at Maximum power point of Selected SNL Curve in volts
0x3E	SASIMULATOR:CURVE:SNL:MPPPARAMS:VMP:MAXIMUM?	RO	<FLOAT>	1	Returns the Maximum Voltage Value at maximum power point in the SNL Curve type that can be set in volts

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x3F	SASIMULATOR:CURVE:SNL:MPPPARAMS:VMP:MINIMUM?	RO	<FLOAT>	1	Returns the Minimum Voltage Value at maximum power point in the SNL Curve type that can be set in volts
0x40	SASIMULATOR:CURVE:SNL:VIPARAMS:ISC <NRF>	RW	<FLOAT>	1	Sets the Short Circuit Current to Selected SNL Curve in amps | - Returns the Short Circuit Current of Selected SNL Curve in amps
0x41	SASIMULATOR:CURVE:SNL:VIPARAMS:ISC:MAXIMUM?	RO	<FLOAT>	1	Returns the Maximum Short Circuit Current in the SNL Curve type that can be set in amps
0x42	SASIMULATOR:CURVE:SNL:VIPARAMS:ISC:MINIMUM?	RO	<FLOAT>	1	Returns the Minimum Short Circuit current in the SNL Curve type that can be set in amps
0x43	SASIMULATOR:CURVE:SNL:VIPARAMS:VOC <NRF>	RW	<FLOAT>	1	Sets the Open Circuit Voltage Selected SNL Curve in volts | - Returns the Open Circuit Voltage of Selected SNL Curve in volts
0x44	SASIMULATOR:CURVE:SNL:VIPARAMS:VOC:MAXIMUM?	RO	<FLOAT>	1	Returns the Maximum Open Circuit Voltage in the SNL Curve type that can be set in volts
0x45	SASIMULATOR:CURVE:SNL:VIPARAMS:VOC:MINIMUM?	RO	<FLOAT>	1	Returns the Minimum Open Circuit voltage in the SNL Curve

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
					type that can be set in volts
0x46	SASIMULATOR:CURVE:TYPE <SNL/0|EN50530/1|USERDEFINED VI POINTS/2>	RW	<STRING>	1	Sets the Operating Curve type of the PV Simulator | - Returns the Selected curve type of PV Simulator 0 – SNL 1 – EN50530 2 – User Defined Curve
0x47	SASIMULATOR:CURVE:EN50530:COEFFICIENTS:VL2H:MAXIMUM??	RO	<FLOAT>	1	Returns the maximum VL2H value that can be set

Table 5-101. Object Index: 0x3202

5.5.14.4 SASIMULATOR:MPP — OBJECT INDEX: 0X3203

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	SASIMULATOR:MPP?	RO	<FLOAT>	1	Returns the MPPT Tracking efficiency of the UUT.

Table 5-102. Object Index: 0x3203

5.5.14.5 SASIMULATOR:OPERATING — OBJECT INDEX: 0X3204

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	SASIMULATOR:OPERATING:MODE <STANDARD/0|ARRAY/1>	RW	<STRING>	1	Sets the Operating mode of the Curve type | - Returns the Selected operating mode of the curve type 0 – Standard 1 – Array
0x02	SASIMULATOR:OPERATING:TYPE <STEADYSTATE/0|PROFILES/1>	RW	<STRING>	1	Sets the Operating type of the Selected

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
					Operating mode that PV Simulator operates | - Returns the operating type of the Selected Operating mode

Table 5-103. Object Index: 0x3204

5.5.14.6 SASIMULATOR:PMP — OBJECT INDEX: 0X3205

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	SASIMULATOR:PMP?	RO	<FLOAT>	1	Returns the Calculated Maximum power at Maximum power point of Selected IV Curve in kW

Table 5-104. Object Index: 0x3205

5.5.14.7 SASIMULATOR:SOURCE — OBJECT INDEX: 0X3206

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	SASIMULATOR:SOURCE:EN50530:POWER <NRF>	RW	<FLOAT>	1	Sets the Rated Power of Selected EN50530 Curve in kW | - Returns the Rated Power Value of the selected EN50530 Curve in kW
0x02	SASIMULATOR:SOURCE:EN50530:POWER:MAXIMUM?	RO	<FLOAT>	1	Returns the Maximum Rated power Value that can be set in the EN50530 Curve in kW
0x03	SASIMULATOR:SOURCE:EN50530:POWER:MINIMUM?	RO	<FLOAT>	1	Returns the Minimum Rated Power Value that can be sets in the EN50530 Curve in kW
0x04	SASIMULATOR:SOURCE:EN50530:SIMTYPE:TECHNOLOGY <CSI/0|THINFLIM/1>	RW	<STRING>	1	Sets the Technology of the Selected EN50530 Curve | - Returns the Technology type of the EN50530 curve

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
					0 – CSI Type 1 – Thin Film type
0x05	SASIMULATOR:SOURCE:EN50530:SIMTYPE:TESTTYPE <STATIC/0|DYNAMIC/1>	RW	<STRING>	1	Sets the Test Type of the EN50530 Curve | - Returns the Test type of the EN50530 Curve 0 – Static 1 – Dynamic
0x06	SASIMULATOR:SOURCE:EN50530:VOLTAGE<NRF>	RW	<FLOAT>	1	Sets the Rated Voltage Value of the EN50530 Curve in volts | - Returns the Rated Voltage value of the selected EN50530 Curve in volts
0x07	SASIMULATOR:SOURCE:EN50530:VOLTAGE:MAXIMUM?	RO	<FLOAT>	1	Returns the Maximum Rated Voltage Value that can be set in the EN50530 Curve in volts
0x08	SASIMULATOR:SOURCE:EN50530:VOLTAGE:MINIMUM?	RO	<FLOAT>	1	Returns the Minimum Rated Voltage Value that can be sets in the EN50530 Curve in volts
0x09	SASIMULATOR:SOURCE:IRRADIANCE <NRF>	RW	<FLOAT>	1	Sets the Irradiance of the Selected IV Curve | - Returns the Irradiance value of the selected Curve
0x0A	SASIMULATOR:SOURCE:IRRADIANCE:MAXIMUM?	RO	<FLOAT>	1	Returns the Maximum Irradiance Value that can be set to the Curve
0x0B	SASIMULATOR:SOURCE:IRRADIANCE:MINIMUM?	RO	<FLOAT>	1	Returns the Minimum Irradiance Value that can be set to the curve
0x0C	SASIMULATOR:SOURCE:TEMPERATURE <NRF>	RW	<FLOAT>	1	Sets the Temperature of the Selected IV Curve. | - Returns the Temperature value of the selected Curve
0x0D	SASIMULATOR:SOURCE:TEMPERATURE:MAXIMUM?	RO	<FLOAT>	1	Returns the Maximum Temperature Value that can be set to the Curve
0x0E	SASIMULATOR:SOURCE:TEMPERATURE:MINIMUM?	RO	<FLOAT>	1	Returns the Minimum Temperature Value that can be set to the curve

Table 5-105. Object Index: 0x3206

5.5.14.8 SASIMULATOR:STATUS — OBJECT INDEX: 0X3207

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	SASIMULATOR:STATUS?	RO	<STRING>	1	Returns the status of the PV Simulator 0 – IDLE 1 – INITIALIZING 2 – INITIALIZED 3 – RUNNING 5 – ABORTED 6 – PAUSED 7 - TRIPPED

Table 5-106. Object Index: 0x3207

5.5.14.9 SASIMULATOR:LOAD — OBJECT INDEX: 0X3208

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	SASIMULATOR:LOAD	RW	<STRING>	1	Query the Selected IV Curve to PV Simulator 0 – Unloads the IV Curve 1 – Loads the Selected IV Curve | - Returns the load status of the selected IV Curve to the PV Simulator 0 – Not Loaded 1 – Loaded
0x02	SASIMULATOR:LOAD0	W		0	Loads the Selected IV Curve to PV Simulator 0 – Unloads the IV Curve 1 – Loads the Selected IV Curve | - Returns the load status of the selected IV Curve to the PV Simulator 0 – Not Loaded 1 – Loaded
0x03	SASIMULATOR:LOAD1	W		0	Loads the Selected IV Curve to PV Simulator 0 – Unloads the IV Curve 1 – Loads the Selected IV Curve | - Returns the load status of the selected IV Curve to the PV Simulator 0 – Not Loaded 1 – Loaded

Table 5-107. Object Index: 0x3208

5.5.14.10 SASIMULATOR:CLIPPED — OBJECT INDEX: 0X3209

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	SASIMULATOR:CLIPPED?	RO	<STRING>	1	Return IV Curve status as CLIPPED – Curve is clipped, NOT CLIPPED – Curve is Not Clipped

Table 5-108. Object Index: 0x3209

5.5.15 BATTERY:SIMULATION COMMANDS

5.5.15.1 BATTERY:SIMULATION:CAPACITY — OBJECT INDEX: 0X3220

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	BATTERY:SIMULATION:CAPACITY <NRF>	RW	<FLOAT>	1	Sets the Capacity of the Battery in Ah to the Selected Battery Configuration profile | - Returns the Capacity value of the Selected Battery configuration profile in Ah
0x02	BATTERY:SIMULATION:CAPACITY:MAXIMUM?	RO	<FLOAT>	1	Returns the Maximum value of the capacity can be set for the Battery simulation in Ah
0x03	BATTERY:SIMULATION:CAPACITY:MINIMUM?	RO	<FLOAT>	1	Returns the Minimum value of the capacity can be set for the Battery simulation in Ah

Table 5-109. Object Index: 0x3220

5.5.15.2 BATTERY:SIMULATION:CHARGE — OBJECT INDEX: 0X3221

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	BATTERY:SIMULATION:CHARGE:CURRENT <NRF>	RW	<FLOAT>	1	Sets the charging current of the Selected battery configurating in Amps | - Returns the charging current of the battery configuration in Amps
0x02	BATTERY:SIMULATION:CHARGE:CURRENT:MAXIMUM?	RO	<FLOAT>	1	Returns the maximum charging current of the battery configuration in Amps
0x03	BATTERY:SIMULATION:CHARGE:CURRENT:MINIMUM?	RO	<FLOAT>	1	Returns the minimum charging current of the battery configuration in Amps

Table 5-110. Object Index: 0x3221

5.5.15.3 BATTERY:SIMULATION:CURRENT — OBJECT INDEX: 0X3222

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	BATTERY:SIMULATION:CURRENT:MAXIMUM?	RO	<FLOAT>	1	Returns the Maximum current that can be set to the battery simulator in Amps
0x02	BATTERY:SIMULATION:CURRENT:MINIMUM?	RO	<FLOAT>	1	Returns the Minimum Current that can be set to the battery simulator in Amps

Table 5-111. Object Index: 0x3222

5.5.15.4 BATTERY:SIMULATION:CUTOFF — OBJECT INDEX: 0X3223

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	BATTERY:SIMULATION:CUTOFF:CAPACITY:HIGH <NRF>	RW	<FLOAT>	1	Sets Capacity High cut off condition value at which battery turns off the output in Ah

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
					| - Returns the capacity High Cut off condition value of battery simulator in Ah
0x02	BATTERY:SIMULATION:CUTOFF:CAPACITY:HIGH:MAXIMUM?	RO	<FLOAT>	1	Returns the Maximum capacity cutoff condition value of battery simulator in Ah
0x03	BATTERY:SIMULATION:CUTOFF:CAPACITY:HIGH:MINIMUM?	RO	<FLOAT>	1	Returns the minimum capacity high cut off condition value of battery simulator in Ah
0x04	BATTERY:SIMULATION:CUTOFF:CAPACITY:LOW <NR1>	RW	<INT>	1	Sets the Capacity Low cut off condition value of battery simulator in Ah | - Returns the capacity Low Cut off value of the battery simulator in Ah
0x05	BATTERY:SIMULATION:CUTOFF:CAPACITY:LOW:MAXIMUM?	RO	<FLOAT>	1	Returns the maximum capacity low of the battery simulator in Ah
0x06	BATTERY:SIMULATION:CUTOFF:CAPACITY:LOW:MINIMUM?	RO	<FLOAT>	1	Returns the minimum capacity low cut off that can be set to the battery simulator in Ah
0x07	BATTERY:SIMULATION:CUTOFF:SOC:HIGH <NRF>	RW	<FLOAT>	1	Sets the SOC High Cut Off value to the battery simulator in Ah | - Returns the SOC High Cut off Value of the Battery simulator
0x08	BATTERY:SIMULATION:CUTOFF:SOC:HIGH:MAXIMUM?	RO	<FLOAT>	1	Returns the maximum SOC High Cut off Value that can be set to Battery simulator
0x09	BATTERY:SIMULATION:CUTOFF:SOC:HIGH:MINIMUM?	RO	<FLOAT>	1	Returns the minimum SOC High Cut off Value that can be set to Battery simulator
0x0A	BATTERY:SIMULATION:CUTOFF:SOC:LOW <NRF>	RW	<FLOAT>	1	Sets the SOC Low Cut Off value to the battery simulator | - Returns the SOC Low Cut off Value of the Battery simulator
0x0B	BATTERY:SIMULATION:CUTOFF:SOC:LOW:MAXIMUM?	RO	<FLOAT>	1	Returns the maximum SOC Low Cut off Value that can be set to Battery simulator
0x0C	BATTERY:SIMULATION:CUTOFF:SOC:LOW:MINIMUM?	RO	<FLOAT>	1	Returns the minimum SOC Low Cut off Value that can be set to Battery simulator

Table 5-112. Object Index: 0x3223

5.5.15.5 BATTERY:SIMULATION:DISCHARGE — OBJECT INDEX: 0X3224

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	BATTERY:SIMULATION:DISCHARGE :CURRENT <NRF>	RW	<FLOAT>	1	Sets the Discharge current to the Selected battery profile in Amps | - Returns the Discharge Current of the Selected Battery configuration in Amps
0x02	BATTERY:SIMULATION:DISCHARGE :CURRENT:MAXIMUM?	RO	<FLOAT>	1	Returns the maximum Discharge current that can be set to battery simulator in Amps
0x03	BATTERY:SIMULATION:DISCHARGE :CURRENT:MINIMUM?	RO	<FLOAT>	1	Returns the minimum Discharge Current that can be set to the battery simulator in Amps

Table 5-113. Object Index: 0x3224

5.5.15.6 BATTERY:SIMULATION:EMPTYVOLT — OBJECT INDEX: 0X3225

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	BATTERY:SIMULATION:EMPTYVOLT <NRF>	RW	<FLOAT>	1	Sets the Empty Volt value to the selected battery configuration in Volts | - Returns the Empty Volt Value of the selected battery configuration in Volts

Table 5-114. Object Index: 0x3225

5.5.15.7 BATTERY:SIMULATION:FULLVOLT — OBJECT INDEX: 0X3226

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	BATTERY:SIMULATION:FULLVOLT <NRF>	RW	<FLOAT>	1	Sets the Full Volt value to the selected battery configuration in Volts | - Returns the Full Volt Value of the selected battery configuration in Volts

Table 5-115. Object Index: 0x3226

5.5.15.8 BATTERY:SIMULATION:INITIAL — OBJECT INDEX: 0X3227

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	BATTERY:SIMULATION:INITIAL:SOC <NRF>	RW	<FLOAT>	1	Sets the Initial SOC value to the selected battery configuration | - Returns the Initial SOC Value of the selected battery configuration

Table 5-116. Object Index: 0x3227

5.5.15.9 BATTERY:SIMULATION:PARALLEL — OBJECT INDEX: 0X3228

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	BATTERY:SIMULATION:PARALLEL <NR1>	RW	<INT>	1	Sets the Number of batteries connected in parallel in battery pack of the selected battery configuration | - Returns the Number of batteries connected in parallel in battery pack of

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
					the selected battery configuration
0x02	BATTERY:SIMULATION:PARALLEL:MAXIMUM?	RO	<FLOAT>	1	Returns the maximum Number of batteries connected in parallel in battery pack to the selected battery configuration
0x03	BATTERY:SIMULATION:PARALLEL:MINIMUM?	RO	<FLOAT>	1	Returns the minimum Number of batteries connected in parallel in battery pack of the selected battery configuration

Table 5-117. Object Index: 0x3228

5.5.15.10 BATTERY:SIMULATION:PROFILE — OBJECT INDEX: 0X3229

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	BATTERY:SIMULATION:PROFILE:ADD <STRING>	W	<STRING>	1	Creates the profile with file name in selected battery configuration
0x02	BATTERY:SIMULATION:PROFILE:SAVE	W	<NONE>	0	Saves the Selected battery profiles to device
0x03	BATTERY:SIMULATION:PROFILE:SELECT <STRING>	RW	<STRING>	1	Sets the battery profile file name to be selected | - Returns the battery profile selected in the battery type configuration
0x04	BATTERY:SIMULATION:PROFILE:TYPE <BATTERY MODEL/0|TABLE MODEL/1>	RW	<STRING>	1	Sets the Battery configuration type to the battery simulator | - Returns the Selected battery configuration of battery simulator 0 – Battery Model 1 – Table Model
0x05	BATTERY:SIMULATION:PROFILE:CATALOG?	RO	<STRING>	1	Returns all the file names of battery profiles present in

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
					the selected battery configuration
0x06	BATTERY:SIMULATION:PROFILE:DEL <STRING>	W	<STRING>	1	Deletes the provided battery profile file in the selected battery configuration
0x07	BATTERY:SIMULATION:PROFILE:DEL:ALL	W	<NONE>	0	Deletes all the profiles present in the selected battery configuration
0x08	BATTERY:SIMULATION:PROFILE:LOAD <UNLOADED/0|LOADED/1>	RW	<STRING>	1	Loads the selected battery profile to the battery simulator | - Returns the Load status of the battery simulator 0 – UNLOADED 1 – LOADED
0x09	BATTERY:SIMULATION:PROFILE:TABLE:DEF:OCV:POINTS <NRF>,<NRF>,...,<NRF>	RW	<FLOAT>	N	Sets the Open circuit voltage points of the battery to the selected battery profile in Volts. Number of points provided to be same as provided table size | - Returns the opens circuit voltage points of the selected battery profile in Volts
0x0A	BATTERY:SIMULATION:PROFILE:TABLE:DEF:POINTS:SIZE <NR1>	RW	<INT>	1	Sets the table size to the selected battery profile in the table mode | - Returns the table size of the selected battery profile in the table mode
0x0B	BATTERY:SIMULATION:PROFILE:TABLE:DEF:RESISTANCE:POINTS <NRF>,<NRF>,...,<NRF>	RW	<FLOAT>	N	Sets the Series resistance points in ohms to selected battery profile in the table mode configuration | - Return the series resistance points in ohms of the selected battery

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
					profile in the table mode configuration
0x0C	BATTERY:SIMULATION:PROFILE:TABLE:DEF:SOC:POINTS <NRF>,<NRF>,...,<NRF>	RW	<FLOAT>	N	Sets the State of Charge points of the battery to selected battery profile. 1st point of the table must be “0”. And last point in the table must be “100”. | - Returns the State of Charge points of the selected battery profile

Table 5-118. Object Index: 0x3229

5.5.15.11 BATTERY:SIMULATION:SERIES — OBJECT INDEX: 0X322A

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	BATTERY:SIMULATION:SERIES:RESISTANCE <NRF>	RW	<FLOAT>	1	Sets the Series resistance of the battery to the selected battery profile in the Battery model type in ohms | - Returns the Series resistance of the battery to the selected battery profile in the Battery model type in ohms
0x02	BATTERY:SIMULATION:SERIES:RESISTANCE:MAXIMUM?	RO	<FLOAT>	1	Returns the Maximum Series resistance of the battery that can be set in the Battery model type in ohms
0x03	BATTERY:SIMULATION:SERIES:RESISTANCE:MINIMUM?	RO	<FLOAT>	1	Returns the Minimum Series resistance of the battery that can be set in the Battery model type in ohms
0x04	BATTERY:SIMULATION:SERIES <NR1>	RW	<INT>	1	Sets the number of batteries connected in series in the battery pack to the selected Battery profile

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
					| - Returns the number of batteries connected in series in the battery pack to the selected Battery profile
0x05	BATTERY:SIMULATION:SERIES:MAXIMUM?	RO	<FLOAT>	1	Returns the Maximum number of batteries connected in series in the battery pack that can be set to battery simulator
0x06	BATTERY:SIMULATION:SERIES:MINIMUM?	RO	<FLOAT>	1	Returns the Minimum number of batteries connected in series in the battery pack that can be set to battery simulator

Table 5-119. Object Index: 0x322A

5.5.15.12 BATTERY:SIMULATION:SOC — OBJECT INDEX: 0X322B

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	BATTERY:SIMULATION:SOC:MAXIMUM?	RO	<FLOAT>	1	Returns maximum state of charge of the battery that can be set
0x02	BATTERY:SIMULATION:SOC:MINIMUM?	RO	<FLOAT>	1	Returns minimum state of charge of the battery that can be set

Table 5-120. Object Index: 0x322B

5.5.15.13 BATTERY:SIMULATION:STATE — OBJECT INDEX: 0X322C

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	BATTERY:SIMULATION:STATE <ABORT/0|RUN/1|PAUSE/2|RESUME/3|TRIPPED/4|IDLE/5|INIT/6>	RW	<STRING>	1	Sets the operation state of the battery simulator | - Returns the operation state of

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
					the battery simulator 0 – Abort (Simulation Aborted) 1 – RUN (Simulation Running) 2 – PAUSE (Simulation paused) 3 – RESUME (Simulation resumed) 4 – TRIPPED 5 – IDLE 6 – INIT (Simulation Initialized)

Table 5-121. Object Index: 0x322C

5.5.15.14 BATTERY:SIMULATION:STATUS — OBJECT INDEX: 0X322D

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	BATTERY:SIMULATION:STATUS?	RO	<STRING>	1	Returns the Status of the Battery simulator 0 – IDLE 1 – INITIALIZING 2 – INITIALIZED 3 – RUNNING 5 – ABORTED 6 – PAUSED 7 – TRIPPED

Table 5-122. Object Index: 0x322D

5.5.15.15 BATTERY:SIMULATION:TIME — OBJECT INDEX: 0X322E

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	BATTERY:SIMULATION:TIME:ELAPSED?	RO	<STRING>	1	Returns the time elapsed in the RUN state of

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
					battery simulator in seconds

Table 5-123. Object Index: 0x322E

5.5.15.16 BATTERY:SIMULATION:TOTAL — OBJECT INDEX: 0X322F

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	BATTERY:SIMULATION:TOTAL:CAPACITY?	RO	<FLOAT>	1	Returns the Total Calculated capacity of the battery pack in Ah
0x02	BATTERY:SIMULATION:TOTAL:EMPTYVOLT?	RO	<FLOAT>	1	Returns the Total Empty Voltage of the battery pack in volts
0x03	BATTERY:SIMULATION:TOTAL:FULLVOLT?	RO	<FLOAT>	1	Returns the Total Full Voltage of battery pack in volts
0x04	BATTERY:SIMULATION:TOTAL:ESR?	RO	<FLOAT>	1	Returns the Total series resistance of the battery pack in Ohms

Table 5-124. Object Index: 0x322F

5.5.15.17 BATTERY:SIMULATION:VOLTAGE — OBJECT INDEX: 0X3230

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	BATTERY:SIMULATION:VOLTAGE:MAXIMUM?	RO	<FLOAT>	1	Returns the maximum voltage value that can be set in the battery simulator in volts
0x02	BATTERY:SIMULATION:VOLTAGE:MINIMUM?	RO	<FLOAT>	1	Returns the minimum

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
					voltage value that can be set in the battery simulator in volts

Table 5-125. Object Index: 0x3230

5.5.16 BATTERY: TEST COMMANDS

5.5.16.1 BATTERY:TEST:CHARGE — OBJECT INDEX: 0X3240

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	BATTERY:TEST:CHARGE:CURRENT <NRF>	RW	<FLOAT>	1	Sets the Charging Current value to battery tester in Amps | - Returns the Charging Current value of battery tester in amps
0x02	BATTERY:TEST:CHARGE:TYPE <0|1>	RW	<STRING>	1	Sets the Charging type value to the Selected Battey tester profile | - Returns the Charging type in the selected battery tester profile 0 – CC 1 – CC/CV
0x03	BATTERY:TEST:CHARGE:STOP:CAPACITY <NRF>	RW	<FLOAT>	1	Sets the Stop Capacity Value to the battery tester at which System turns the Output OFF in Ah | - Returns the Stop Capacity Value of the battery tester in Ah
0x04	BATTERY:TEST:CHARGE:STOP:VOLTAGE <NRF>	RW	<FLOAT>	1	Sets the Stop Voltage Value in volts to the battery tester at which System turns the Output OFF

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
					| - Returns the Stop Voltage Value of the battery tester in volts
0x05	BATTERY:TEST:CHARGE:VOLTAGE:LIMIT <NRF>	RW	<FLOAT>	1	Sets the Charging Voltage Limit value to the Selected Battery tester profile in volts | - Returns the Charging Voltage Limit value of the selected battery tester profile in volts

Table 5-126. Object Index: 0x3240

5.5.16.2 BATTERY:TEST:CONFIGURE — OBJECT INDEX: 0X3241

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	BATTERY:TEST:CONFIGURE:ADD <STRING>	W	<STRING>	1	Creates the Battery tester profile with provided file name
0x02	BATTERY:TEST:CONFIGURE:CAPACITY:LIMIT <NRF>	RW	<FLOAT>	1	Sets the Capacity Limit Value that the user can set to Selected battery tester profile in Ah | - Returns the Capacity Limit Value set in the selected battery tester profile in Ah
0x03	BATTERY:TEST:CONFIGURE:CATALOG?	RO	<STRING>	1	Returns all profile file names present in the selected Battery tester operating type
0x04	BATTERY:TEST:CONFIGURE:CAPACITY:MAXIMUM?	RO	<FLOAT>	1	Returns the maximum capacity that can be set to the battery tester in Ah
0x05	BATTERY:TEST:CONFIGURE:CAPACITY:MINIMUM?	RO	<FLOAT>	1	Returns the minimum capacity that can be set to the battery tester in Ah

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x06	BATTERY:TEST:CONFIGURE:CHARGE:CURRENT:LIMIT <NRF>	RW	<FLOAT>	1	Sets the charging current limit that can be set to selected battery tester profile in amps | - Returns the charging current limit of the selected battery tester profile in amps
0x07	BATTERY:TEST:CONFIGURE:DELETE <STRING>	W	<STRING>	1	Deletes the profile with the provided file name from the Selected battery tester operation type
0x08	BATTERY:TEST:CONFIGURE:DISCHARGE:CURRENT:LIMIT <NRF>	RW	<FLOAT>	1	Sets the Discharging current limit to the selected battery tester profile in amps | - Returns the Discharging Current limit value from the selected battery tester profile in amps
0x09	BATTERY:TEST:CONFIGURE:LOAD <UNLOAD/0|LOAD/1>	RW	<STRING>	1	Loads the selected battery profile | - Returns the load status of the battery tester 0 – UNLOADED 1 – LOADED
0x0A	BATTERY:TEST:CONFIGURE:SAVE	W	<NONE>	0	Saves the Selected Battery tester profile
0x0B	BATTERY:TEST:CONFIGURE:SELECT <STRING>	RW	<STRING>	1	Selects the battery tester profile with the provided file name | - Returns the Selected battery tester profile
0x0C	BATTERY:TEST:CONFIGURE:VOLTAGE:MAXIMUM <NRF>	RW	<FLOAT>	1	Sets the Maximum Voltage that can be set by the user in volts | - Returns the Maximum Voltage Value that can be set by the user in

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
					the battery tester in volts
0x0D	BATTERY:TEST:CONFIGURE:VOLTAGE:MINIMUM <NRF>	RW	<FLOAT>	1	Sets the Minimum Voltage value that can be set by the user in Battery tester in volts | - Returns the Minimum Voltage value that can be set by the user in Battery tester in volts

Table 5-127. Object Index: 0x3241

5.5.16.3 BATTERY:TEST:DISCHARGE — OBJECT INDEX: 0X3242

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	BATTERY:TEST:DISCHARGE:CURRENT <NRF>	RW	<FLOAT>	1	Sets the Discharging current Value to battery tester in amps | - Returns the Discharging Current Value to battery tester in amps
0x02	BATTERY:TEST:DISCHARGE:STOP:CAPACITY <NRF>	RW	<FLOAT>	1	Sets the Stop Capacity value in Ah at which the system stops the discharging by turning the system off | - Returns the stop Capacity value of the discharging operation type in Ah
0x03	BATTERY:TEST:DISCHARGE:STOP:VOLTAGE <NRF>	RW	<FLOAT>	1	Sets the Stop Voltage value in volts, at which the system stops the discharging by turning the system off | - Returns the Stop Voltage Value of the discharging operation type in volts
0x04	BATTERY:TEST:DISCHARGE:VOLTAGE:LIMIT <NRF>	RW	<FLOAT>	1	Sets the Discharging voltage limit value to the selected battery tester profile. | - Returns the Discharging voltage limit value from the selected battery tester profile in volts

Table 5-128. Object Index: 0x3242

5.5.16.4 BATTERY:TEST:INITIAL — OBJECT INDEX: 0X3243

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	BATTERY:TEST:INITIAL:CAPACITY <NRF>	RW	<FLOAT>	1	Sets the Initial Capacity of the battery to the selected battery tester profile in Ah | - Returns the Initial Capacity of the battery to the selected battery tester profile in Ah

Table 5-129. Object Index: 0x3243

5.5.16.5 BATTERY:TEST:MODE — OBJECT INDEX: 0X3244

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	BATTERY:TEST:MODE <0|1>	RW	<STRING>	1	Sets the Operation Mode of the battery tester | - Returns the operation Mode of the battery tester 0 – Steady State 1 – Sequence

Table 5-130. Object Index: 0x3244

5.5.16.6 BATTERY:TEST:OPERATION — OBJECT INDEX: 0X3245

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	BATTERY:TEST:OPERATION:TYPE <0|1>	RW	<STRING>	1	Sets the Operation type of the battery tester | - Returns the operation type of the battery tester 0 – Charging 1 – Discharging

Table 5-131. Object Index: 0x3245

5.5.16.7 BATTERY:TEST:STATE — OBJECT INDEX: 0X3246

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	BATTERY:TEST:STATE <ABORT/0|RUN/1|PAUSE/2|RESUME/3|TRIPPED/4|IDLE/5>	RW	<STRING>	1	Sets the State of the battery tester | - Returns the state of the Battery tester 0 – Abort 1 – RUN 2 – PAUSE 3 – RESUME 4 – IDLE 5 – INIT

Table 5-132. Object Index: 0x3246

5.5.16.8 BATTERY:TEST:STATUS — OBJECT INDEX: 0X3247

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	BATTERY:TEST:STATUS?	RO	<STRING>	1	Returns the status of the battery tester 0 – IDLE 1 – INITIALIZING 2 – INITIALIZED 3 – RUNNING 5 - ABORTED 6 – PAUSED 7 – TRIPPED

Table 5-133. Object Index: 0x3247

5.5.16.9 BATTERY:TEST:STOP — OBJECT INDEX: 0X3248

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	BATTERY:TEST:STOP:TIME <NR1>	RW	<INT>	1	Sets the stop time in seconds, the system will turns output off after the provided period of seconds | - Returns the stop time in seconds

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x02	BATTERY:TEST:STOP:TIME:MAXIMUM?	RO	<FLOAT>	1	Returns the maximum stop time in seconds that can be set by the user
0x03	BATTERY:TEST:STOP:TIME:MINIMUM?	RO	<FLOAT>	1	Returns the minimum stop time in seconds that can be set by the user

Table 5-134. Object Index: 0x3248

5.5.16.10 BATTERY:TEST:TERMINATION — OBJECT INDEX: 0X3249

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	BATTERY:TEST:TERMINATION:CURRENT <NRF>	RW	<FLOAT>	1	Sets the termination current in amps to the battery tester profile. The Output of the system will turn off when the charging current reaches the termination current | - Returns the termination current from the selected battery tester profile

Table 5-135. Object Index: 0x3249

5.5.16.11 BATTERY:TEST:TIME — OBJECT INDEX: 0X324A

SUB INDEX	SCPI COMMAND	ACCESS	DATA TYPE	PARAM COUNT	DESCRIPTION
0x00	NA	RO	<BYTE>	1	Number of SUB INDEX
0x01	BATTERY:TEST:TIME:ELAPSED?	RO	<STRING>	1	Returns the elapsed run time in seconds

Table 5-136. Object Index: 0x324

6
CAN 2.0B

6.1 CONFIGURATION

CAN 2.0B enables extended 29-bit identifiers to map SCPI command groups more flexibly. It supports single, cyclic, and multi-packet frames.

PARAMETER	DETAILS
Bit rate	10 kbit/s to 1 Mbit/s (user-selectable)
High-speed CAN	> 250 kbit/s
Low speed CAN	≤ 250 kbit/s
Max nodes	127 (Node IDs 1–127)
Frame type	Extended frame format (29-bit CAN ID)

Table 6-1. Configuration

6.2 SYSTEM I/O AND PROTOCOL CONFIGURATION

From the front panel;

1. Navigate to SYSTEM I/O
2. Select CAN and configure;

   - **Protocol:** CAN2.0B
   - **Frame Format:** Extended (29-bit Identifier)

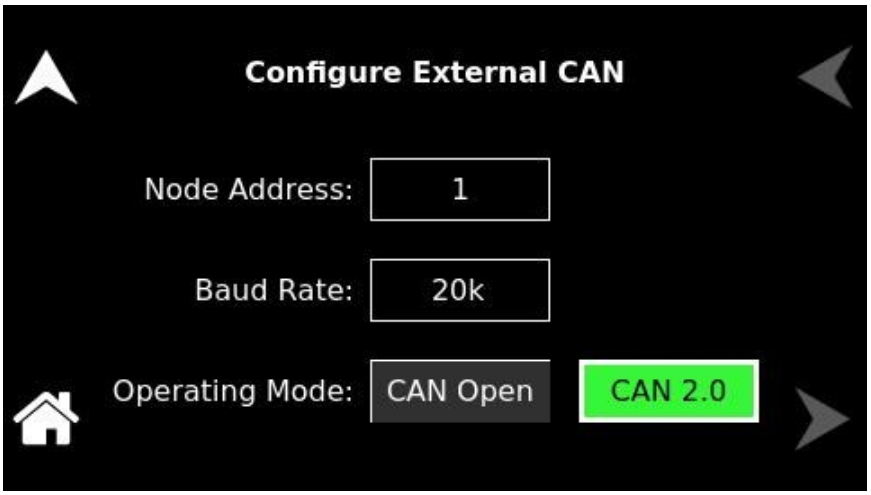


Figure 6-1. Configure External CAN – CAN 2.0

NOTE: All CAN2B communication uses a unified data frame format.

6.2.1 IDENTIFIER STRUCTURE

CAN2B messages use the 29-bit extended CAN identifier, structured as follows.

BIT RANGE	FIELD	WIDTH (BITS)	DESCRIPTION
28	Q/R	1 bit	Query or Response indicator
27 .. 8	MsgID	20 bits	Identifies the command, parameter, or data channel
7 .. 0	NodeID	8 bits	Logical node address (0–255)

Table 6-2. Identifier Layout

NOTE: Bit range 28 is the most significant bit.

6.2.1.1 QUERY / RESPONSE INDICATOR

The most significant bit defines message direction:

Q/R BIT	MEANING	DIRECTION
0	Query	Host → Device
1	Response	Device → Host

Table 6-3. Query / Response Indicator

6.2.1.2 MESSAGE IDENTIFIER (MsgID)

1. Uniquely represents a command, parameter, or a data stream.
2. Derived from internal Object Index and Sub-Index mapping.
3. Used consistently for;

    - Parameter access
    - Cyclic data transmission
    - Multi-frame data exchange.

6.2.1.3 NODE ID

1. Specifies the logical device address (0–255).
2. Used for addressing and acceptance filtering.
3. Located in the least-significant bits for readability.

6.3 FRAME TYPES

6.3.1 CYCLIC FRAMES – PERIODIC MEASUREMENT/STATUS UPDATES

Cyclic frames are device-originated CAN2B messages, used to periodically transmit measurement, status, and diagnostic information to the host. These frames are transmitted automatically at a configured interval and do not require host queries.

Cyclic frames provide:

1. Real-time monitoring of system measurements
2. Periodic reporting of operating and fault status
3. Deterministic data updates without host polling
4. Reduced bus load compared to frequent query/response exchanges.

NAME	ADDRESS	DATA (HEX)	DESCRIPTION
MEAS_VOLT_CURR	0x101 + Node ID	Measured Volt (4 byte), Measured Current (4 byte)	Provides real-time voltage and current measurement data.
POW_MPPT	0x201 + Node ID	Measured Power (4 byte), MPPT (4 byte)	Reports output power and MPPT (Maximum Power Point Tracking) data. **NOTE:** MPPT data is available only in PVSIM Mode.
STATUS_FAULT	0x301 + Node ID	System Status Code (4 byte) Fault Status Code (4 byte)	Contains the current system operating and fault status information. 1. The System Status Code includes Operating Mode, Program Type, and Regulation Setting details (Refer to ANNEXURE I – SYSTEM STATUS REGISTER). 2. The Fault Status Code responds to a 32-bit fault register (Refer to ANNEXURE II – FAULT REGISTER).
BAT_STATUS	0x401 + Node ID	SOC (4 byte) ENERGY (4 byte)	Indicates the battery's State of Charge (SOC). Provides total battery pack energy **NOTE:** Available only in Battery Simulation Mode and Battery Test Mode.

Table 6-4. Cyclic frames

NOTE: The CAN interface sends error codes to indicate failures under various scenarios. Refer to ANNEXURE III – CAN / SYSTEM ERROR CODE and ANNEXURE IV – SCPI RESPONSE CAN ERROR CODE for detailed error definitions.

6.4 CONTROL AND CONFIGURATION FRAMES (CAN2B)

The CAN2B control and configuration frames used to configure cyclic telemetry transmission and protocol-level timing behaviour. All frames in this section are host-initiated and affect device transmission behaviour.

6.4.1 CONTROL / CONFIGURATION FRAME TABLE

CATEGORY	NAME	MSGID (20-BIT)	CAN2B ADDRESS	DATA FIELD	FIELD CONSTRAINTS	DESCRIPTION
Cyclic Control	MEAS_VOLT_CURR_CTRL	0x100	0x100 + NodeID	Event Timer (ms)	0 = no cyclic packets transmitted 1…65535 = interval in ms	Configures the periodic transmission interval for MEAS_VOLT_CURR cyclic telemetry (MsgID = 0x101).
Cyclic Control	POW_MPPT_CTRL	0x200	0x200 + NodeID	Event Timer (ms)	0 = no cyclic packets transmitted 1…65535 = interval in ms	Configures the periodic transmission interval for POW_MPPT cyclic telemetry (MsgID = 0x201).
Cyclic Control	STATUS_FAULT_CTRL	0x300	0x300 + NodeID	Event Timer (ms)	0 = no cyclic packets transmitted 1…65535 = interval in ms	Configures the periodic transmission interval for STATUS_FAULT cyclic telemetry (MsgID = 0x301).
Cyclic Control	BAT_STATUS_CTRL	0x400	0x400 + NodeID	Event Timer (ms)	0 = no cyclic packets transmitted 1…65535 = interval in ms	Configures the periodic transmission interval for BAT_STATUS cyclic telemetry (MsgID = 0x401).
Protocol Timing	FRAME_TIMEOUT_CTRL	0x600	0x600 + NodeID	Timeout (ms)	Minimum = 100 ms	Sets the maximum allowed response time for multi-frame CAN2B data transfers.
Protocol Timing	FRAME_ACK_TIMEOUT	0x601	0x601 + NodeID	Timeout (ms)	Minimum = 100 ms	Sets the acknowledgement timeout for frame-level responses.

Table 6-5. Control or Configuration Frame Table

6.4.2 DATA FRAMES

6.4.2.1 CAN2B DATA FRAME FORMAT

All CAN2B messages use a fixed 8-byte data payload:

BYTE RANGE	DESCRIPTION
4 .. 7	Payload data (SCPI value or binary data segment)
2 .. 3	Bytes Sent (little-endian)
0 .. 1	Total Bytes (little-endian)

Table 6-6. CAN2B Data Frame Format

NOTES:

1. The same frame format is used for single-frame and multi-frame transfers.
2. Payload segmentation and reassembly are managed using Bytes Sent and Total Bytes.
3. The same MsgID is retained across all frames belonging to a data exchange.
4. A payload size of 4 bytes or less fits within a single CAN frame.
5. Larger payloads are transmitted across multiple frames without changing the identifier.

6.4.2.2 CAN 2.0B – DATA FRAMES (ALL CAN2B ENTRIES)

CAN2B_ ID	DLC	SCPI COMMAND	ACCESS	DATA TYPE	DESCRIPTION
0x010001	0	*CLS	W	<NONE>	Clears all status reporting data structures including the Status Byte, Standard Event Status Register, and Error Queue.
0x010101	4	*ESE <NR1>	RW	<INT>	Value of the Standard Event Status Enable Register that determines which bits can be set in the Standard Event Status Register.
0x010201	N	*ESR	R	<STRING>	Integer value of the Standard Event Status Register. The ESR and the Status Byte ESR bit are cleared.
0x010301	N	*IDN	R	<STRING>	Returns the device identification as an ASCII string.
0x010401	0	*OPC	W	<NONE>	Enables the Operation Complete bit of the Standard Event Status Register to be set when all pending operations are complete.
0x010501	N	*RST	R	<STRING>	Resets the supply to its Power ON (PON) state.
0x010601	4	*SRE <NR1>	RW	<INT>	Sets the value of the Service Request Enable Register, which determines which bits in the Status Byte will cause a service request from the device
0x010701	N	*STB	R	<STRING>	Returns the integer value of the Status Byte with bit 6 representing the Summary Status (SS) instead of RQS.

CAN2B_ ID	DLC	SCPI COMMAND	ACCESS	DATA TYPE	DESCRIPTION
0x010801	N	*TST	R	<STRING>	Performs the self-test for the power supply and reserves the self-test status with device.
0x020001	N	SOURCE:ANALOG:REMOTE:OUTPUT <0|1>	RW	<STRING>	Enables or disables the remote output ON/OFF. 0 – enable 1 - disable | - Returns the setting of remote output ON/OFF.
0x020101	4	SOURCE:CURRENT <NRF>	RW	<FLOAT>	Sets the output current in amps. | - Returns the output current in amps.
0x020102	4	SOURCE:CURRENT:MAXIMUM?	R	<FLOAT>	Returns the maximum current device limit.
0x020103	4	SOURCE:CURRENT:MINIMUM?	R	<FLOAT>	Returns the minimum current device limit.
0x020104	4	SOURCE:CURRENT:MONITOR:FSC <NR1>	RW	<INT>	Sets Full-scale voltage on Current monitor pin (IMON), when power supply is producing full scale output current. | - Returns the full-scale voltage set for Current monitor pin (IMON)
0x020105	4	SOURCE:CURRENT:NEGATIVE:LIMIT <NRF>	RW	<FLOAT>	Sets the negative current limit in amps. **Example:** In CV/CC mode, the current limit value the user should set, so that once the current reaches this value, the output current regulates at this value. | - Returns the negative current limit set in amps.
0x020106	4	SOURCE:CURRENT:NEGATIVE:LIMIT:MAXIMUM?	R	<FLOAT>	Returns the maximum negative current limit the user can set in amps.
0x020107	4	SOURCE:CURRENT:NEGATIVE:LIMIT:MINIMUM?	R	<FLOAT>	Returns the minimum negative current limit the user can set, in amps.
0x020108	4	SOURCE:CURRENT:POSITIVE:LIMIT <NRF>	RW	<FLOAT>	Sets the positive current limit in amps. **Example:** In CV/CC mode, the current limit value the user should set, so that once the current reaches this value, the output current regulates at this value. | - Returns the positive current limit set in amps.

CAN2B_ ID	DLC	SCPI COMMAND	ACCESS	DATA TYPE	DESCRIPTION
0x020109	4	SOURCE:CURRENT:POSITIVE:LIMIT:MAXIMUM?	R	<FLOAT>	Returns the maximum positive current limit the user can set, in amps.
0x02010A	4	SOURCE:CURRENT:POSITIVE:LIMIT:MINIMUM?	R	<FLOAT>	Returns the minimum positive current limit the user can set, in amps.
0x020201	N	SOURCE:RAMP:STATUS?	R	<STRING>	Returns the current ramp status IDLE INITIALIZING,<progress in %> WAITING FOR TRIGGER RUNNING, <progress in %> ABORTED, <aborted at %> COMPLETE
0x02010B	4	SOURCE:CURRENT:PROGRAM:FSC <NR1>	RW	<INT>	Sets the Full-Scale voltage, at which Rated Current will be programmed in external Current programming Mode with voltage as programming source. Valid Range is from 5 to 10 V. | - Returns the Full-scale Voltage, at which Rated Current will be programmed.
0x02010C	4	SOURCE:CURRENT:PROGRAM:FSCR <NR1>	RW	<INT>	Sets the Full-Scale resistance, at which Rated Current will be programmed in external Current programming Mode with Current as programming source. Valid Range is from 5 to 10 kOhm. | - Returns the Full-scale Resistance, at which Rated Current will be programmed.
0x02010D	4	SOURCE:CURRENT:PROTECTION:NEGATIVE <NRF>	RW	<FLOAT>	Sets the negative overcurrent protection value. | - Returns the negative overcurrent protection value.
0x02010E	4	SOURCE:CURRENT:PROTECTION:NEGATIVE:MAXIMUM?	R	<FLOAT>	Returns the maximum value of negative overcurrent protection that can be set.
0x02010F	4	SOURCE:CURRENT:PROTECTION:NEGATIVE:MINIMUM?	R	<FLOAT>	Returns the minimum value of negative overcurrent protection that can be set.
0x020110	4	SOURCE:CURRENT:PROTECTION:POSITIVE <NRF>	RW	<FLOAT>	Sets the positive overcurrent protection value. | - Returns the set positive overcurrent protection value.

CAN2B_ ID	DLC	SCPI COMMAND	ACCESS	DATA TYPE	DESCRIPTION
0x020111	4	SOURCE:CURRENT:SLEW:MAXIMUM?	R	<FLOAT>	Returns the maximum possible slew rate/time for the current.
0x020112	4	SOURCE:CURRENT:PROTECTION:POSITIVE:MAXIMUM?	R	<FLOAT>	Returns the maximum value of positive overcurrent protection that can be set.
0x020113	4	SOURCE:CURRENT:PROTECTION:POSITIVE:MINIMUM?	R	<FLOAT>	Returns the minimum value of positive overcurrent protection that can be set.
0x020114	N	SOURCE:CURRENT:RAMP <NRF>,<NRF>,<NRF>,<0|1>	RW	<STRING>	Sets the current ramp parameters <From Current>, <To Current>, <Duration>, <HW/SW Trigger> 0 - SW Trigger 1 - HW Trigger | - Returns the current ramp parameters. <From Current>, <To Current>, <Duration>, <HW/SW Trigger>
0x020115	0	SOURCE:CURRENT:RAMP:ABORT	W	<NONE>	Aborts ramping and clears trigger mode.
0x020116	N	SOURCE:CURRENT:RAMP:SLEW <PROGRAMMABLE SLEW/0|MAX SLEW/1>	RW	<STRING>	Sets the ramp slew type value, rate at which the unit current value reaches to the from current value of the ramp function. | - Returns the slew setting as 0 (Programmable slew) or 1(Max slew) used for ramp function
0x020117	4	SOURCE:CURRENT:SLEW <NRF>,<NRF>	RW	<FLOAT>	Sets the slew rate for the output current in A/ms or Sec. <Raising Slew>, <Falling Slew> | - Returns the slew rate set for current <Raising Slew>, <Falling Slew>.
0x020118	4	SOURCE:CURRENT:SLEW:MINIMUM?	R	<FLOAT>	Returns the minimum possible slew rate for the current.
0x020119	N	SOURCE:CURRENT:SLEW:TYPE <RATE/0 | TIME/1>	RW	<STRING>	Changes the Current Slew Type Valid arguments are: RATE / 0 TIME / 1 | - Returns the selected Current Slew Type
0x02011A	4	SOURCE:CURRENT:SOFT:LIMIT:HIGH <NRF>	RW	<FLOAT>	Sets the higher limit for current set value (user limit). | - Returns the higher side of the soft limit for current.

CAN2B_ ID	DLC	SCPI COMMAND	ACCESS	DATA TYPE	DESCRIPTION
0x02011B	4	SOURCE:CURRENT:SOFT:LIMIT:LOW <NRF>	RW	<FLOAT>	Sets the lower limit of the current set value (user limit). | - Returns the lower side of the soft limit for current.
0x02011C	N	SOURCE:CURRENT:PROGRAM <INT/0|EXT/1>	RW	<STRING>	Changes the Current programming mode of the supply. Valid arguments are: INT/0 (Internal SCPI Current programming) EXT/1 (External analog Current programming). | - Returns the Current programming mode of the supply.
0x02011D	N	SOURCE:CURRENT:PROGRAM:SOURCE <0|1>	RW	<STRING>	Changes the source for the external analog current programming. Valid arguments are: 0 – voltage source 1 – current source. | - Returns the selected source for the external analog current programming.
0x020301	N	SOURCE:DIO:OUT1 <0|1>	RW	<STRING>	Sets the status of digital output 1 at the Remote Analog Programming connector. | - Returns the status of digital output 1 at the Remote Analog Programming connector.
0x020302	N	SOURCE:DIO:OUT2 <0|1>	RW	<STRING>	Sets the status of digital output 2 at the Remote Analog Programming connector. | - Returns the status of digital output 2 at the Remote Analog Programming connector.
0x020401	N	SOURCE:EXTERNAL:CONTROL:REL1 <0|1>	RW	<STRING>	Changes the position of the external relay 1 if isolation relay is enabled | - Returns the position of the external relay 1
0x020402	N	SOURCE:EXTERNAL:CONTROL:REL2 <0|1>	RW	<STRING>	Changes the position of the external relay 2 | - Returns the position of the external relay 2
0x020501	4	SOURCE:POWER <NRF>	RW	<FLOAT>	Sets the maximum power limit. | - Returns the power value set by the user.
0x020502	4	SOURCE:POWER:MAXIMUM?	R	<FLOAT>	Returns the Maximum power device limit.
0x020503	4	SOURCE:POWER:MINIMUM?	R	<FLOAT>	Returns the Minimum power device limit.

CAN2B_ ID	DLC	SCPI COMMAND	ACCESS	DATA TYPE	DESCRIPTION
0x020504	4	SOURCE:POWER:NEGATIVE:LIMIT <NRF>	RW	<FLOAT>	Sets the negative power limit. **Example:** In CC/CP mode, the maximum value that can be set for the output power to regulate. | - Returns the negative power limit.
0x020505	4	SOURCE:POWER:NEGATIVE:LIMIT:MAXIMUM?	R	<FLOAT>	Returns the maximum value that the user can set for negative power limit.
0x020506	4	SOURCE:POWER:NEGATIVE:LIMIT:MINIMUM?	R	<FLOAT>	Returns the minimum value that the user can set for negative power limit.
0x020507	4	SOURCE:POWER:POSITIVE:LIMIT <NRF>	RW	<FLOAT>	Sets the positive power limit. **Example:** In CP/CC mode, the maximum value that can be set for the output power to regulate. | - Returns the positive power limit.
0x020508	4	SOURCE:POWER:POSITIVE:LIMIT:MAXIMUM?	R	<FLOAT>	Returns the maximum value that the user can set for positive power limit.
0x020509	4	SOURCE:POWER:POSITIVE:LIMIT:MINIMUM?	R	<FLOAT>	Returns the minimum value that the user can set for positive power limit.
0x02050A	4	SOURCE:POWER:SOFT:LIMIT:HIGH <NRF>	RW	<FLOAT>	Sets the higher side of soft limit for power set value (User Limit). | - Returns the higher side soft limit for power.
0x02050B	4	SOURCE:POWER:SOFT:LIMIT:LOW <NRF>	RW	<FLOAT>	Sets the lower side of soft limit for power set value (User Limit). | - Returns the lower side of soft limit for power.
0x02050C	4	SOURCE:POWER:SLEW <NRF>,<NRF>	RW	<FLOAT>	Sets the slew rate for the output Power in kW/ms or Sec. <Raising Slew>, <Falling Slew> | - Returns the slew rate set for Power <Raising Slew>, <Falling Slew>.
0x02050D	4	SOURCE:POWER:SLEW:MAXIMUM?	R	<FLOAT>	Returns the maximum possible slew rate for the Power.
0x02050E	4	SOURCE:POWER:SLEW:MINIMUM?	R	<FLOAT>	Returns the minimum possible slew rate for the Power.

CAN2B_ ID	DLC	SCPI COMMAND	ACCESS	DATA TYPE	DESCRIPTION
0x02050F	N	SOURCE:POWER:SLEW:TYPE <RATE/0 | TIME/1>	RW	<STRING>	Changes the Power Slew Type Valid arguments are: RATE / 0 TIME / 1 | - Returns the selected Power Slew Type
0x020601	4	SOURCE:SERIES:RESISTANCE <NRF>	RW	<FLOAT>	Sets the value for series resistance. | - Returns the value for series resistance.
0x020602	4	SOURCE:SERIES:RESISTANCE:MAXIMUM?	R	<FLOAT>	Returns the maximum possible value for series resistance.
0x020603	4	SOURCE:SERIES:RESISTANCE:MINIMUM?	R	<FLOAT>	Returns the minimum possible value for series resistance.
0x020701	4	SOURCE:SINK:RESISTANCE <NRF>	RW	<FLOAT>	Sets the value for sink resistance. | - Returns the value for sink resistance.
0x020702	4	SOURCE:SINK:RESISTANCE:MAXIMUM?	R	<FLOAT>	Returns the maximum possible value for sink resistance.
0x020703	4	SOURCE:SINK:RESISTANCE:MINIMUM?	R	<FLOAT>	Returns the minimum possible value for sink resistance.
0x020801	4	SOURCE:VOLTAGE <NRF>	RW	<FLOAT>	Sets the output voltage to be regulated. | - Returns the set voltage value.
0x020802	4	SOURCE:VOLTAGE:HIGH:LIMIT <NRF>	RW	<FLOAT>	Sets the higher limit of voltage. **Example:** In CC/CV mode, the higher side voltage to be regulated once the output voltage reaches this value. | - Returns the higher side voltage limit value set by the user.
0x020803	4	SOURCE:VOLTAGE:HIGH:LIMIT:MAXIMUM?	R	<FLOAT>	Returns the maximum possible value for higher side of the output voltage.
0x020804	4	SOURCE:VOLTAGE:HIGH:LIMIT:MINIMUM?	R	<FLOAT>	Returns the minimum possible value for higher side of the output voltage.
0x020805	4	SOURCE:VOLTAGE:LOW:LIMIT <NRF>	RW	<FLOAT>	Sets the lower limit of voltage. **Example:** In CC/CV mode, the lower side voltage to be regulated once the output voltage reaches this value. | - Returns the lower side voltage limit value set by the user.

CAN2B_ ID	DLC	SCPI COMMAND	ACCESS	DATA TYPE	DESCRIPTION
0x020806	4	SOURCE:VOLTAGE:MAXIMUM?	R	<FLOAT>	Returns the maximum voltage of the unit.
0x020807	4	SOURCE:VOLTAGE:MINIMUM?	R	<FLOAT>	Returns the minimum voltage of the unit.
0x020808	4	SOURCE:VOLTAGE:MONITOR:FSC <NRF>	RW	<FLOAT>	Sets Full-scale voltage on voltage monitor pin (VMON), when power supply is producing full scale output voltage. | - Returns the full-scale voltage set for Voltage monitor pin (VMON)
0x020809	4	SOURCE:VOLTAGE:PROGRAM:FSC <NRF>	RW	<FLOAT>	Sets the Full-scale voltage, at which Rated Voltage will be programmed in external Voltage programming Mode with voltage as programming source. Valid Range is from 5 to 10V. | - Returns the Full-scale Voltage, at which Rated Voltage will be programmed.
0x02080A	4	SOURCE:VOLTAGE:PROGRAM:FSCR <NRF>	RW	<FLOAT>	Sets the Full-scale resistance, at which Rated Voltage will be programmed in external Voltage programming Mode with Current as programming source. Valid Range is from 5 to 10kOhm. | - Returns the Full-scale Resistance, at which Rated Voltage will be programmed.
0x02080B	N	SOURCE:VOLTAGE:PROGRAM <0|1>	RW	<STRING>	Changes the Voltage programming mode of the supply. Valid arguments are: INT/0 (Internal SCPI Voltage programming) EXT/1 (External analog Voltage programming). | - Returns the setting of Voltage programming mode.
0x02080C	N	SOURCE:VOLTAGE:PROGRAM:SOURCE <0|1>	RW	<STRING>	Changes the source for the external analog voltage programming. Valid arguments are: 0 – (voltage source) 1 – (Current source). | - Returns the selected source for the external analog voltage programming.
0x02080D	4	SOURCE:VOLTAGE:PROTECTION <NRF>	RW	<FLOAT>	Sets the overvoltage protection trip point in volts. | - Returns the set overvoltage protection trip point in volts.

CAN2B_ ID	DLC	SCPI COMMAND	ACCESS	DATA TYPE	DESCRIPTION
0x02080E	4	SOURCE:VOLTAGE:PROTECTION:MAXIMUM?	R	<FLOAT>	Returns the maximum possible value for setting overvoltage protection limit.
0x02080F	4	SOURCE:VOLTAGE:PROTECTION:MINIMUM?	R	<FLOAT>	Returns the minimum possible value for setting overvoltage protection limit.
0x020810	N	SOURCE:VOLTAGE:PROTECTION:PROGRAM <0/INT|1/EXT>	RW	<STRING>	Changes the Overvoltage programming mode of the supply. Valid arguments are: INT/0 (Internal Digital Voltage programming) EXT/1 (External analog Voltage programming). | - Returns the setting of Overvoltage programming mode.
0x020811	4	SOURCE:VOLTAGE:PROTECTION:PROGRAM:FSC <NRF>	RW	<FLOAT>	Sets the Full-scale voltage, at which Rated Overvoltage will be programmed in external Overvoltage programming Mode with voltage as programming source. Valid Range is from 5 to 10V. | - Returns the Full-scale Voltage, at which Rated Overvoltage will be programmed.
0x020812	N	SOURCE:VOLTAGE:RAMP <NRF>,<NRF>,<NRF>,<0|1>	RW	<STRING>	Sets the voltage ramp parameters <From Voltage>, <To Voltage>, <Duration>, <HW/SW Trigger> 0 - SW Trigger 1 - HW Trigger | - Returns voltage ramp configuration parameters: <From Voltage>, <To Voltage>, <Duration>, <HW/SW Trigger>
0x020813	0	SOURCE:VOLTAGE:RAMP:ABORT	W	<NONE>	Aborts ramping and clears trigger mode.
0x020814	N	SOURCE:VOLTAGE:RAMP:SLEW<PROGRAMMABLE SLEW/0|MAX SLEW/1>	RW	<STRING>	Changes the Ramp slew configuration, Valid arguments are: 0 - Programmable slew 1 - Max slew | - Returns the Ramp Slew configuration
0x020815	4	SOURCE:VOLTAGE:SLEW <NRF>,<NRF>	RW	<FLOAT>	Sets the slew rate for the output voltage in V/ms (first argument) or seconds (second argument). | - Returns the slew rate for the output voltage.

CAN2B_ ID	DLC	SCPI COMMAND	ACCESS	DATA TYPE	DESCRIPTION
0x020816	4	SOURCE:VOLTAGE:SLEW:MAXIMUM?	R	<FLOAT>	Returns the maximum slew rate possible for output voltage.
0x020817	4	SOURCE:VOLTAGE:SLEW:MINIMUM?	R	<FLOAT>	Returns the minimum slew rate possible for output voltage.
0x020818	N	SOURCE:VOLTAGE:SLEW:TYPE <RATE/0 | TIME/1>	RW	<STRING>	Changes the Voltage Slew Type Valid arguments are: RATE / 0 TIME / 1 | - Returns the selected Voltage Slew Type
0x020819	4	SOURCE:VOLTAGE:SOFT:LIMIT:HIGH <NRF>	RW	<FLOAT>	Sets the maximum soft limit for the output voltage (user limit). | - Returns the maximum soft limit for the output voltage.
0x02081A	4	SOURCE:VOLTAGE:SOFT:LIMIT:LOW <NRF>	RW	<FLOAT>	Sets the minimum soft limit for the output voltage (user limit). | - Returns the minimum soft limit for the output voltage.
0x030001	4	SASIMULATOR:VM <NRF>	RW	<FLOAT>	Sets the voltage multiplier for EN50530 curve (Operating Type: Steady State/ Profile and Operating Mode: Standard) during the profile execution.
0x030101	4	SASIMULATOR:IM <NRF>	RW	<FLOAT>	Sets the current multiplier for EN50530 curve (Operating Type: Steady State/ Profile and Operating Mode: Standard) during the profile execution.
0x030201	N	SASIMULATOR:CURVE:ADD <STRING>	W	<STRING>	Creates the curve with provided file name in the selected curve type and operation type, mode, alphanumeric string.
0x030202	N	SASIMULATOR:CURVE:CATALOG?	R	<STRING>	Returns the curves present in selected SAS configuration.
0x030203	N	SASIMULATOR:CURVE:DATA:VOLTAGE <NRF>,<NRF>,...,<NRF>	RW	<FLOAT>	Sets the 1024 Voltage points of the selected IV Curve in the User Defined curve type in volts. | - Returns the 1024 Voltage points of Selected IV Curve in the User Defined curve type in volts
0x030204	N	SASIMULATOR:CURVE:DATA:CURRENT <NRF>,<NRF>,...,<NRF>	RW	<FLOAT>	Sets the 1024 Current point of the selected IV Curve in the User Defined Curve type in amps. | - Returns the 1024 current points of the selected IV Curve in the User Defined Curve type in amps

CAN2B_ ID	DLC	SCPI COMMAND	ACCESS	DATA TYPE	DESCRIPTION
0x030205	4	SASIMULATOR: CURVE:DATA:INDEX <NR1>	RW	<INT>	Sets the Index value to get the next 25 points of IV Curve. | - Returns the Index value to get the next 25 points of IV Curve
0x030206	0	SASIMULATOR: CURVE:DELETE	W	<NONE>	Delete the selected IV Curve.
0x030207	4	SASIMULATOR: CURVE:EN50530:COEFFICIENTS:ALPHA <NRF>	RW	<FLOAT>	Sets the ALPHA value in the EN50530 Curve | - Returns the ALPHA Value of the EN50530 Curve
0x030208	4	SASIMULATOR: CURVE:EN50530:COEFFICIENTS:ALPHA:MAXIMUM?	R	<FLOAT>	Returns the maximum ALPHA value that can be set
0x030209	4	SASIMULATOR: CURVE:EN50530:COEFFICIENTS:ALPHA:MINIMUM?	R	<FLOAT>	Returns the minimum APLPA value that can be set
0x03020A	4	SASIMULATOR: CURVE:EN50530:COEFFICIENTS:BETA <NRF>	RW	<FLOAT>	Sets the BETA value in the EN50530 Curve | - Returns the BETA Value of the EN50530 Curve
0x03020B	4	SASIMULATOR: CURVE:EN50530:COEFFICIENTS:BETA:MAXIMUM?	R	<FLOAT>	Returns the maximum BETA value that can be set
0x03020C	4	SASIMULATOR: CURVE:EN50530:COEFFICIENTS:BETA:MINIMUM?	R	<FLOAT>	Returns the minimum BETA value that can be set
0x03020D	4	SASIMULATOR: CURVE:EN50530:COEFFICIENTS:CG <NRF>	RW	<FLOAT>	Sets the CG value in the selected EN50530 Curve | - Returns the CV Value of the EN50530 Curve
0x03020E	4	SASIMULATOR: CURVE:EN50530:COEFFICIENTS:CG:MAXIMUM?	R	<FLOAT>	Returns the maximum CG value that can be set

CAN2B_ ID	DLC	SCPI COMMAND	ACCESS	DATA TYPE	DESCRIPTION
0x03020F	4	SASIMULATOR: CURVE:EN50530:COEFFICIENTS:CG:MINIMUM?	R	<FLOAT>	Returns the minimum CG value that can be set
0x030210	4	SASIMULATOR: CURVE:EN50530:COEFFICIENTS:CR <NRF>	RW	<FLOAT>	Sets the CR value in the EN50530 Curve | - Returns the CR Value of the EN50530 Curve
0x030211	4	SASIMULATOR: CURVE:EN50530:COEFFICIENTS:CR:MAXIMUM?	R	<FLOAT>	Returns the maximum CR value that can be set
0x030212	4	SASIMULATOR: CURVE:EN50530:COEFFICIENTS:CR:MINIMUM?	R	<FLOAT>	Returns the minimum CR value that can be set
0x030213	4	SASIMULATOR: CURVE:EN50530:COEFFICIENTS:CV <NRF>	RW	<FLOAT>	Sets the CV value in the EN50530 Curve | - Returns the CV Value of the EN50530 Curve
0x030214	4	SASIMULATOR: CURVE:EN50530:COEFFICIENTS:CV:MAXIMUM?	R	<FLOAT>	Returns the maximum CV value that can be set
0x030215	4	SASIMULATOR: CURVE:EN50530:COEFFICIENTS:CV:MINIMUM?	R	<FLOAT>	Returns the minimum CV value that can be set
0x030216	0	SASIMULATOR: CURVE:EN50530:COEFFICIENTS:DEFAULTS	W	<NONE>	Sets the default values to the coefficients with respect to the technology type in EN50530 Curve
0x030217	4	SASIMULATOR: CURVE:EN50530:COEFFICIENTS:FFI <NRF>	RW	<FLOAT>	Sets the FFI value in the EN50530 Curve | - Returns the FFI Value of the EN50530 Curve
0x030218	4	SASIMULATOR: CURVE:EN50530:COEFFICIENTS:FFI:MAXIMUM?	R	<FLOAT>	Returns the maximum FFI value that can be set

CAN2B_ ID	DLC	SCPI COMMAND	ACCESS	DATA TYPE	DESCRIPTION
0x030219	4	SASIMULATOR: CURVE:EN50530:COEFFICIENTS:FFI:MINIMUM?	R	<FLOAT>	Returns the minimum FFI value that can be set
0x03021A	4	SASIMULATOR: CURVE:EN50530:COEFFICIENTS:FFU <NRF>	RW	<FLOAT>	Sets the FFU value in the EN50530 Curve | - Returns the FFU Value of the EN50530 Curve
0x03021B	4	SASIMULATOR: CURVE:EN50530:COEFFICIENTS:FFU:MAXIMUM?	R	<FLOAT>	Returns the maximum FFU value that can be set
0x03021C	4	SASIMULATOR: CURVE:EN50530:COEFFICIENTS:FFU:MINIMUM?	R	<FLOAT>	Returns the minimum FFU value that can be set
0x03021D	4	SASIMULATOR: CURVE:EN50530:COEFFICIENTS:VL2H <NRF>	RW	<FLOAT>	Sets the VL2H value in the EN50530 Curve | - Returns the VL2H Value of the EN50530 Curve
0x03021E	4	SASIMULATOR: CURVE:EN50530:COEFFICIENTS:VL2H:MAXIMUM?	R	<FLOAT>	Returns the maximum VL2H value that can be set
0x03021F	4	SASIMULATOR: CURVE:EN50530:COEFFICIENTS:VL2H:MINIMUM?	R	<FLOAT>	Returns the minimum VL2H value that can be set
0x030220	4	SASIMULATOR: CURVE:EN50530:MPPPARAMS:PMP <NRF>	RW	<FLOAT>	Sets the Power at maximum power point of EN50530 Curve in kW | - Returns the Power at maximum power point of EN50530 Curve in kW
0x030221	4	SASIMULATOR: CURVE:EN50530:MPPPARAMS:PMP:MAXIMUM?	R	<FLOAT>	Returns the maximum power value of maximum power point that can be set in kW
0x030222	4	SASIMULATOR: CURVE:EN50530:MPPPARAMS	R	<FLOAT>	Returns the minimum power value of maximum power point that can be set in kW

CAN2B_ ID	DLC	SCPI COMMAND	ACCESS	DATA TYPE	DESCRIPTION
		:PMP:MINIMUM ?			
0x030223	4	SASIMULATOR: CURVE:EN5053 0:MPPPARAMS :VMP <NRF>	RW	<FLOAT>	Sets the Voltage at maximum power point of EN50530 Curve in kW | - Returns the Voltage at maximum power point of EN50530 Curve in volts
0x030224	4	SASIMULATOR: CURVE:EN5053 0:MPPPARAMS :VMP:MAXIMU M?	R	<FLOAT>	Returns the maximum Voltage value of maximum power point that can be set in volts
0x030225	4	SASIMULATOR: CURVE:EN5053 0:MPPPARAMS :VMP:MINIMUM ?	R	<FLOAT>	Returns the minimum Voltage value of maximum power point that can be set in volts
0x030226	N	SASIMULATOR: CURVE:EN5053 0:SIMTYPE:TE CHNOLOGY <CSI/0|THINFLI M/1>	RW	<STRING>	Sets the Technology type of the EN50530 curve | - Returns the technology type of the EN50530 Curve 0 – CSI 1 – Thin Film
0x030227	N	SASIMULATOR: CURVE:EN5053 0:SIMTYPE:TES TTYPE <STATIC/0|DYN AMIC/1>	RW	<STRING>	Sets the test type of the EN50530 Curve | - Returns the Test type of the EN50530 Curve 0 – Static 1 – Dynamic
0x030228	0	SASIMULATOR: CURVE:SAVE	W	<NONE>	Saves the selected IV Curve
0x030229	N	SASIMULATOR: CURVE:SELEC T <STRING>	RW	<STRING>	Selects the curve with provided file name. | - Returns the File name of the selected IV Curve
0x03022A	4	SASIMULATOR: CURVE:SNL:BE TAPARAMS:P <NRF>	RW	<FLOAT>	Sets the BETA P Value to Selected SNL Curve | - Returns the BETA P of the Selected SNL Curve
0x03022B	4	SASIMULATOR: CURVE:SNL:BE TAPARAMS:P: MAXIMUM?	R	<FLOAT>	Returns the maximum BETA P Value that can be set
0x03022C	4	SASIMULATOR: CURVE:SNL:BE TAPARAMS:P: MINIMUM?	R	<FLOAT>	Returns the minimum BETA P Value that can be set

CAN2B_ ID	DLC	SCPI COMMAND	ACCESS	DATA TYPE	DESCRIPTION
0x03022D	4	SASIMULATOR: CURVE:SNL:BE TAPARAMS:V <NRF>	RW	<FLOAT>	Sets the BETA V Value to Selected SNL Curve | - Returns the BETA V Value of the Selected SNL Curve
0x03022E	4	SASIMULATOR: CURVE:SNL:BE TAPARAMS:V: MAXIMUM?	R	<FLOAT>	Returns the maximum BETA V Value that can be set
0x03022F	4	SASIMULATOR: CURVE:SNL:BE TAPARAMS:V: MINIMUM?	R	<FLOAT>	Returns the minimum BETA V Value that can be set
0x030230	4	SASIMULATOR: CURVE:SNL:FIL LFACTOR <NRF>	RW	<FLOAT>	Sets the Fill Factor Value to Selected SNL Curve | - Returns the Fill Factor Value of the Selected SNL Curve
0x030231	4	SASIMULATOR: CURVE:SNL:FIL LFACTOR:MAXI MUM?	R	<FLOAT>	Returns the maximum Fill Factor Value that can be set
0x030232	4	SASIMULATOR: CURVE:SNL:FIL LFACTOR:MINI MUM?	R	<FLOAT>	Returns the minimum Fill Factor Value that can be set
0x030233	N	SASIMULATOR: CURVE:SNL:FIL LFACTOR:STA TE <BOOLEAN>	RW	<STRING>	Sets the state of the Fill Factor to the SNL Curve 0 - Fill Factor Value provided is not considered 1 – Fill Factor Value provided is considered | - Returns the State of the Fill Factor in the Selected SNL Curve. <0|1>
0x030234	4	SASIMULATOR: CURVE:SNL:KF ACTOR:IRRADI ANCE <NRF>	RW	<FLOAT>	Sets the KFactor Irradiance Value to Selected SNL Curve | - Returns the KFactor Irradiance Value of the Selected SNL Curve
0x030235	4	SASIMULATOR: CURVE:SNL:KF ACTOR:IRRADI ANCE:MAXIMU M?	R	<FLOAT>	Returns the maximum KFactor Irradiance Value that can be set
0x030236	4	SASIMULATOR: CURVE:SNL:KF ACTOR:IRRADI ANCE:MINIMU M?	R	<FLOAT>	Returns the minimum KFactor Irradiance Value that can be set

CAN2B_ ID	DLC	SCPI COMMAND	ACCESS	DATA TYPE	DESCRIPTION
0x030237	4	SASIMULATOR: CURVE:SNL:KF ACTOR:VOLTA GE <NRF>	RW	<FLOAT>	Sets the KFactor Voltage Value to Selected SNL Curve | - Returns the KFactor Voltage Value of the Selected SNL Curve
0x030238	4	SASIMULATOR: CURVE:SNL:KF ACTOR:VOLTA GE:MAXIMUM?	R	<FLOAT>	Returns the maximum KFactor Voltage Value that can be set in
0x030239	4	SASIMULATOR: CURVE:SNL:KF ACTOR:VOLTA GE:MINIMUM?	R	<FLOAT>	Returns the minimum KFactor Voltage Value that can be set
0x03023A	4	SASIMULATOR: CURVE:SNL:M PPPARAMS:IM P <NRF>	RW	<FLOAT>	Sets the Current at Maximum power point to Selected SNL Curve | - Returns the Current at Maximum power point of Selected SNL Curve in amps
0x03023B	4	SASIMULATOR: CURVE:SNL:M PPPARAMS:IM P:MAXIMUM?	R	<FLOAT>	Returns the Maximum Current Value at maximum power point in the SNL Curve type that can be set in amps
0x03023C	4	SASIMULATOR: CURVE:SNL:M PPPARAMS:IM P:MINIMUM?	R	<FLOAT>	Returns the Minimum Current Value at maximum power point in the SNL Curve type that can be set in amps
0x03023D	4	SASIMULATOR: CURVE:SNL:M PPPARAMS:VM P <NRF>	RW	<FLOAT>	Sets the Voltage at Maximum power point to Selected SNL Curve in volts | - Returns the Voltage at Maximum power point of Selected SNL Curve in volts
0x03023E	4	SASIMULATOR: CURVE:SNL:M PPPARAMS:VM P:MAXIMUM?	R	<FLOAT>	Returns the Maximum Voltage Value at maximum power point in the SNL Curve type that can be set in volts
0x03023F	4	SASIMULATOR: CURVE:SNL:M PPPARAMS:VM P:MINIMUM?	R	<FLOAT>	Returns the Minimum Voltage Value at maximum power point in the SNL Curve type that can be set in volts
0x030240	4	SASIMULATOR: CURVE:SNL:VI PARAMS:ISC <NRF>	RW	<FLOAT>	Sets the Short Circuit Current to Selected SNL Curve in amps | - Returns the Short Circuit Current of Selected SNL Curve in amps
0x030241	4	SASIMULATOR: CURVE:SNL:VI PARAMS:ISC:M AXIMUM?	R	<FLOAT>	Returns the Maximum Short Circuit Current in the SNL Curve type that can be set in amps

CAN2B_ ID	DLC	SCPI COMMAND	ACCESS	DATA TYPE	DESCRIPTION
0x030242	4	SASIMULATOR: CURVE:SNL:VI PARAMS:ISC:M INIMUM?	R	<FLOAT>	Returns the Minimum Short Circuit current in the SNL Curve type that can be set in amps
0x030243	4	SASIMULATOR: CURVE:SNL:VI PARAMS:VOC <NRF>	RW	<FLOAT>	Sets the Open Circuit Voltage Selected SNL Curve in volts | - Returns the Open Circuit Voltage of Selected SNL Curve in volts
0x030244	4	SASIMULATOR: CURVE:SNL:VI PARAMS:VOC: MAXIMUM?	R	<FLOAT>	Returns the Maximum Open Circuit Voltage in the SNL Curve type that can be set in volts
0x030245	4	SASIMULATOR: CURVE:SNL:VI PARAMS:VOC: MINIMUM?	R	<FLOAT>	Returns the Minimum Open Circuit voltage in the SNL Curve type that can be set in volts
0x030246	N	SASIMULATOR: CURVE:TYPE <SNL/0|EN5053 0/1|USERDEFIN ED VI POINTS/2>	RW	<STRING>	Sets the Operating Curve type of the PV Simulator | - Returns the Selected curve type of PV Simulator 0 – SNL 1 – EN50530 2 – User Defined Curve
0x030301	4	SASIMULATOR: MPP?	R	<FLOAT>	Returns the MPPT Tracking efficiency of the UUT
0x030401	N	SASIMULATOR: OPERATING:M ODE <STANDARD/0| ARRAY/1>	RW	<STRING>	Sets the Operating mode of the Curve type | - Returns the Selected operating mode of the curve type 0 – Standard 1 – Array
0x030402	N	SASIMULATOR: OPERATING:TY PE <STEADYSTAT E/0|PROFILES/ 1>	RW	<STRING>	Sets the Operating type of the Selected Operating mode that PV Simulator operates | - Returns the operating type of the Selected Operating mode
0x030501	4	SASIMULATOR: PMP?	R	<FLOAT>	Returns the Calculated Maximum power at Maximum power point of Selected IV Curve in kW
0x030601	4	SASIMULATOR: SOURCE:EN50 530:POWER <NRF>	RW	<FLOAT>	Sets the Rated Power of Selected EN50530 Curve in kW | - Returns the Rated Power Value of the selected EN50530 Curve in kW

CAN2B_ ID	DLC	SCPI COMMAND	ACCESS	DATA TYPE	DESCRIPTION
0x030602	4	SASIMULATOR: SOURCE:EN50 530:POWER:M AXIMUM?	R	<FLOAT>	Returns the Maximum Rated power Value that can be set in the EN50530 Curve in kW
0x030603	4	SASIMULATOR: SOURCE:EN50 530:POWER:MI NIMUM?	R	<FLOAT>	Returns the Minimum Rated Power Value that can be sets in the EN50530 Curve in kW
0x030604	N	SASIMULATOR: SOURCE:EN50 530:SIMTYPE:T ECHNOLOGY <CSI/0|THINFLI M/1>	RW	<STRING>	Sets the Technology of the Selected EN50530 Curve | - Returns the Technology type of the EN50530 curve 0 – CSI Type 1 – Thin Film type
0x030605	N	SASIMULATOR: SOURCE:EN50 530:SIMTYPE:T ESTTYPE <STATIC/0|DYN AMIC/1>	RW	<STRING>	Sets the Test Type of the EN50530 Curve | - Returns the Test type of the EN50530 Curve 0 – Static 1 – Dynamic
0x030606	4	SASIMULATOR: SOURCE:EN50 530:VOLTAGE< NRF>	RW	<FLOAT>	Sets the Rated Voltage Value of the EN50530 Curve in volts | - Returns the Rated Voltage value of the selected EN50530 Curve in volts
0x030607	4	SASIMULATOR: SOURCE:EN50 530:VOLTAGE: MAXIMUM?	R	<FLOAT>	Returns the Maximum Rated Voltage Value that can be set in the EN50530 Curve in volts
0x030608	4	SASIMULATOR: SOURCE:EN50 530:VOLTAGE: MINIMUM?	R	<FLOAT>	Returns the Minimum Rated Voltage Value that can be sets in the EN50530 Curve in volts
0x030609	4	SASIMULATOR: SOURCE:IRRA DIANCE <NRF>	RW	<FLOAT>	Sets the Irradiance of the Selected IV Curve | - Returns the Irradiance value of the selected Curve
0x03060A	4	SASIMULATOR: SOURCE:IRRA DIANCE:MAXIM UM?	R	<FLOAT>	Returns the Maximum Irradiance Value that can be set to the Curve
0x03060B	4	SASIMULATOR: SOURCE:IRRA DIANCE:MINIM UM?	R	<FLOAT>	Returns the Minimum Irradiance Value that can be set to the curve
0x03060C	4	SASIMULATOR: SOURCE:TEMP	RW	<FLOAT>	Sets the Temperature of the Selected IV Curve

CAN2B_ ID	DLC	SCPI COMMAND	ACCESS	DATA TYPE	DESCRIPTION
		ERATURE <NRF>			| - Returns the Temperature value of the selected Curve
0x03060D	4	SASIMULATOR: SOURCE:TEMP ERATURE:MAX IMUM?	R	<FLOAT>	Returns the Maximum Temperature Value that can be set to the Curve
0x03060E	4	SASIMULATOR: SOURCE:TEMP ERATURE:MINI MUM?	R	<FLOAT>	Returns the Minimum Temperature Value that can be set to the curve
0x030701	N	SASIMULATOR: STATUS?	R	<STRING>	Returns the status of the PV Simulator 0 – IDLE 1 – INITIALIZING 2 – INITIALIZED 3 – RUNNING 5 – ABORTED 6 – PAUSED 7 - TRIPPED
0x030801	N	SASIMULATOR: LOAD	RW	<STRING>	Query the Selected IV Curve to PV Simulator 0 – Unloads the IV Curve 1 – Loads the Selected IV Curve | - Returns the load status of the selected IV Curve to the PV Simulator 0 – Not Loaded 1 – Loaded
0x030802	0	SASIMULATOR: LOAD0	W	<NONE>	Loads the Selected IV Curve to PV Simulator 0 – Unloads the IV Curve 1 – Loads the Selected IV Curve | - Returns the load status of the selected IV Curve to the PV Simulator 0 – Not Loaded 1 – Loaded
0x030803	0	SASIMULATOR: LOAD1	W	<NONE>	Loads the Selected IV Curve to PV Simulator 0 – Unloads the IV Curve 1 – Loads the Selected IV Curve | - Returns the load status of the selected IV Curve to the PV Simulator 0 – Not Loaded 1 – Loaded
0x030901	N	SASIMULATOR: CLIPPED?	R	<STRING>	Return IV Curve status as CLIPPED – Curve is clipped, NOT CLIPPED – Curve is Not Clipped

CAN2B_ ID	DLC	SCPI COMMAND	ACCESS	DATA TYPE	DESCRIPTION
0x030247	4	SASIMULATOR:CURVE:EN50530:COEFFICIENTS:VL2H:MAXIMUM??	R	<FLOAT>	Returns the maximum VL2H value that can be set
0x032001	4	BATTERY:SIMULATION:CAPACITY <NRF>	RW	<FLOAT>	Sets the Capacity of the Battery in Ah to the Selected Battery Configuration profile | - Returns the Capacity value of the Selected Battery configuration profile in Ah
0x032002	4	BATTERY:SIMULATION:CAPACITY:MAXIMUM?	R	<FLOAT>	Returns the Maximum value of the capacity can be set for the Battery simulation in Ah
0x032003	4	BATTERY:SIMULATION:CAPACITY:MINIMUM?	R	<FLOAT>	Returns the Minimum value of the capacity can be set for the Battery simulation in Ah
0x032101	4	BATTERY:SIMULATION:CHARGE:CURRENT <NRF>	RW	<FLOAT>	Sets the charging current of the Selected battery configurating in Amps | - Returns the charging current of the battery configuration in Amps
0x032102	4	BATTERY:SIMULATION:CHARGE:CURRENT:MAXIMUM?	R	<FLOAT>	Returns the maximum charging current of the battery configuration in Amps
0x032103	4	BATTERY:SIMULATION:CHARGE:CURRENT:MINIMUM?	R	<FLOAT>	Returns the minimum charging current of the battery configuration in Amps
0x032201	4	BATTERY:SIMULATION:CURRENT:MAXIMUM?	R	<FLOAT>	Returns the Maximum current that can be set to the battery simulator in Amps
0x032202	4	BATTERY:SIMULATION:CURRENT:MINIMUM?	R	<FLOAT>	Returns the Minimum Current that can be set to the battery simulator in Amps
0x032301	4	BATTERY:SIMULATION:CUTOFF:CAPACITY:HIGH <NRF>	RW	<FLOAT>	Sets Capacity High cut off condition value at which battery turns off the output in Ah. | - Returns the capacity High Cut off condition value of battery simulator in Ah.
0x032302	4	BATTERY:SIMULATION:CUTOFF:CAPACITY:HIGH:MAXIMUM?	R	<FLOAT>	Returns the Maximum capacity cutoff condition value of battery simulator in Ah.

CAN2B_ ID	DLC	SCPI COMMAND	ACCESS	DATA TYPE	DESCRIPTION
0x032303	4	BATTERY:SIMULATION:CUTOFF:CAPACITY:HIGH:MINIMUM?	R	<FLOAT>	Returns the minimum capacity high cut off condition value of battery simulator in Ah.
0x032304	4	BATTERY:SIMULATION:CUTOFF:CAPACITY:LOW <NR1>	RW	<INT>	Sets the Capacity Low cut off condition value of battery simulator in Ah. | - Returns the capacity Low Cut off value of the battery simulator in Ah.
0x032305	4	BATTERY:SIMULATION:CUTOFF:CAPACITY:LOW:MAXIMUM?	R	<FLOAT>	Returns the maximum capacity low of the battery simulator in Ah.
0x032306	4	BATTERY:SIMULATION:CUTOFF:CAPACITY:LOW:MINIMUM?	R	<FLOAT>	Returns the minimum capacity low cut off that can be set to the battery simulator in Ah
0x032307	4	BATTERY:SIMULATION:CUTOFF:SOC:HIGH <NRF>	RW	<FLOAT>	Sets the SOC High Cut Off value to the battery simulator in Ah. | - Returns the SOC High Cut off Value of the Battery simulator.
0x032308	4	BATTERY:SIMULATION:CUTOFF:SOC:HIGH:MAXIMUM?	R	<FLOAT>	Returns the maximum SOC High Cut off Value that can be set to Battery simulator.
0x032309	4	BATTERY:SIMULATION:CUTOFF:SOC:HIGH:MINIMUM?	R	<FLOAT>	Returns the minimum SOC High Cut off Value that can be set to Battery simulator
0x03230A	4	BATTERY:SIMULATION:CUTOFF:SOC:LOW <NRF>	RW	<FLOAT>	Sets the SOC Low Cut Off value to the battery simulator | - Returns the SOC Low Cut off Value of the Battery simulator
0x03230B	4	BATTERY:SIMULATION:CUTOFF:SOC:LOW:MAXIMUM?	R	<FLOAT>	Returns the maximum SOC Low Cut off Value that can be set to Battery simulator
0x03230C	4	BATTERY:SIMULATION:CUTOFF:SOC:LOW:MINIMUM?	R	<FLOAT>	Returns the minimum SOC Low Cut off Value that can be set to Battery simulator
0x032401	4	BATTERY:SIMULATION:DISCHARGE:CURRENT <NRF>	RW	<FLOAT>	Sets the Discharge current to the Selected battery profile in Amps | - Returns the Discharge Current of the Selected Battery configuration in Amps

CAN2B_ ID	DLC	SCPI COMMAND	ACCESS	DATA TYPE	DESCRIPTION
0x032402	4	BATTERY:SIMULATION:DISCHARGE:CURRENT:MAXIMUM?	R	<FLOAT>	Returns the maximum Discharge current that can be set to battery simulator in Amps
0x032403	4	BATTERY:SIMULATION:DISCHARGE:CURRENT:MINIMUM?	R	<FLOAT>	Returns the minimum Discharge Current that can be set to the battery simulator in Amps
0x032501	4	BATTERY:SIMULATION:EMPTYVOLT <NRF>	RW	<FLOAT>	Sets the Empty Volt value to the selected battery configuration in Volts | - Returns the Empty Volt Value of the selected battery configuration in Volts
0x032601	4	BATTERY:SIMULATION:FULLVOLT <NRF>	RW	<FLOAT>	Sets the Full Volt value to the selected battery configuration in Volts | - Returns the Full Volt Value of the selected battery configuration in Volts
0x032701	4	BATTERY:SIMULATION:INITIAL:SOC <NRF>	RW	<FLOAT>	Sets the Initial SOC value to the selected battery configuration | - Returns the Initial SOC Value of the selected battery configuration
0x032801	4	BATTERY:SIMULATION:PARALLEL <NR1>	RW	<INT>	Sets the Number of batteries connected in parallel in battery pack of the selected battery configuration | - Returns the Number of batteries connected in parallel in battery pack of the selected battery configuration
0x032802	4	BATTERY:SIMULATION:PARALLEL:MAXIMUM?	R	<FLOAT>	Returns the maximum Number of batteries connected in parallel in battery pack to the selected battery configuration
0x032803	4	BATTERY:SIMULATION:PARALLEL:MINIMUM?	R	<FLOAT>	Returns the minimum Number of batteries connected in parallel in battery pack of the selected battery configuration
0x032901	N	BATTERY:SIMULATION:PROFILE:ADD <STRING>	W	<STRING>	Creates the profile with file name in selected battery configuration
0x032902	0	BATTERY:SIMULATION:PROFILE:SAVE	W	<NONE>	Saves the Selected battery profiles to device
0x032903	N	BATTERY:SIMULATION:PROFILE:SELECT <STRING>	RW	<STRING>	Sets the battery profile file name to be selected | - Returns the battery profile selected in the battery type configuration

CAN2B_ ID	DLC	SCPI COMMAND	ACCESS	DATA TYPE	DESCRIPTION
0x032904	N	BATTERY:SIMULATION:PROFILE:TYPE <BATTERY MODEL/0|TABLE MODEL/1>	RW	<STRING>	Sets the Battery configuration type to the battery simulator | - Returns the Selected battery configuration of battery simulator 0 – Battery Model 1 – Table Model
0x032905	N	BATTERY:SIMULATION:PROFILE:CATALOG?	R	<STRING>	Returns all the file names of battery profiles present in the selected battery configuration
0x032906	N	BATTERY:SIMULATION:PROFILE:DEL <STRING>	W	<STRING>	Deletes the provided battery profile file in the selected battery configuration
0x032907	0	BATTERY:SIMULATION:PROFILE:DEL:ALL	W	<NONE>	Deletes all the profiles present in the selected battery configuration
0x032908	N	BATTERY:SIMULATION:PROFILE:LOAD <UNLOADED/0|LOADED/1>	RW	<STRING>	Loads the selected battery profile to the battery simulator | - Returns the Load status of the battery simulator 0 – UNLOADED 1 – LOADED
0x032909	N	BATTERY:SIMULATION:PROFILE:TABLE:DEF:OCV:POINTS <NRF>,<NRF>,...,<NRF>	RW	<FLOAT>	Sets the Open circuit voltage points of the battery to the selected battery profile in Volts. Number of points provided to be same as provided table size | - Returns the opens circuit voltage points of the selected battery profile in Volts
0x03290A	4	BATTERY:SIMULATION:PROFILE:TABLE:DEF:POINTS:SIZE <NR1>	RW	<INT>	Sets the table size to the selected battery profile in the table mode | - Returns the table size of the selected battery profile in the table mode
0x03290B	N	BATTERY:SIMULATION:PROFILE:TABLE:DEF:RESISTANCE:POINTS <NRF>,<NRF>,...,<NRF>	RW	<FLOAT>	Sets the Series resistance points in ohms to selected battery profile in the table mode configuration | - Return the series resistance points in ohms of the selected battery profile in the table mode configuration
0x03290C	N	BATTERY:SIMULATION:PROFILE:TABLE:DEF:SOC:POINTS	RW	<FLOAT>	Sets the State of Charge points of the battery to selected battery profile. 1st point of the table must be “0”. And last point in the table must be “100”.

CAN2B_ ID	DLC	SCPI COMMAND	ACCESS	DATA TYPE	DESCRIPTION
		<NRF>,<NRF>,...,<NRF>			| - Returns the State of Charge points of the selected battery profile
0x032A01	4	BATTERY:SIMULATION:SERIES:RESISTANCE <NRF>	RW	<FLOAT>	Sets the Series resistance of the battery to the selected battery profile in the Battery model type in ohms. | - Returns the Series resistance of the battery to the selected battery profile in the Battery model type in ohms
0x032A02	4	BATTERY:SIMULATION:SERIES:RESISTANCE:MAXIMUM?	R	<FLOAT>	Returns the Maximum Series resistance of the battery that can be set in the Battery model type in ohms
0x032A03	4	BATTERY:SIMULATION:SERIES:RESISTANCE:MINIMUM?	R	<FLOAT>	Returns the Minimum Series resistance of the battery that can be set in the Battery model type in ohms.
0x032A04	4	BATTERY:SIMULATION:SERIES <NR1>	RW	<INT>	Sets the number of batteries connected in series in the battery pack to the selected Battery profile | - Returns the number of batteries connected in series in the battery pack to the selected Battery profile
0x032A05	4	BATTERY:SIMULATION:SERIES:MAXIMUM?	R	<FLOAT>	Returns the Maximum number of batteries connected in series in the battery pack that can be set to battery simulator
0x032A06	4	BATTERY:SIMULATION:SERIES:MINIMUM?	R	<FLOAT>	Returns the Minimum number of batteries connected in series in the battery pack that can be set to battery simulator
0x032B01	4	BATTERY:SIMULATION:SOC:MAXIMUM?	R	<FLOAT>	Returns maximum state of charge of the battery that can be set
0x032B02	4	BATTERY:SIMULATION:SOC:MINIMUM?	R	<FLOAT>	Returns minimum state of charge of the battery that can be set
0x032C01	N	BATTERY:SIMULATION:STATE <ABORT/0|RUN/1|PAUSE/2|RESUME/3|TRIPPED/4|IDLE/5|INIT/6>	RW	<STRING>	Sets the operation state of the battery simulator | - Returns the operation state of the battery simulator 0 – Abort (Simulation Aborted) 1 – RUN (Simulation Running) 2 – PAUSE (Simulation paused) 3 – RESUME (Simulation resumed) 4 – TRIPPED 5 – IDLE 6 – INIT (Simulation Initialized)

CAN2B_ ID	DLC	SCPI COMMAND	ACCESS	DATA TYPE	DESCRIPTION
0x032D01	N	BATTERY:SIMULATION:STATUS?	R	<STRING>	Returns the Status of the Battery simulator 0 – IDLE 1 – INITIALIZING 2 – INITIALIZED 3 – RUNNING 5 – ABORTED 6 – PAUSED 7 – TRIPPED
0x032E01	N	BATTERY:SIMULATION:TIME:ELAPSED?	R	<STRING>	Returns the time elapsed in the RUN state of battery simulator in seconds
0x032F01	4	BATTERY:SIMULATION:TOTAL:CAPACITY?	R	<FLOAT>	Returns the Total Calculated capacity of the battery pack in Ah
0x032F02	4	BATTERY:SIMULATION:TOTAL:EMPTYVOLT?	R	<FLOAT>	Returns the Total Empty Voltage of the battery pack in volts
0x032F03	4	BATTERY:SIMULATION:TOTAL:FULLVOLT?	R	<FLOAT>	Returns the Total Full Voltage of battery pack in volts
0x032F04	4	BATTERY:SIMULATION:TOTAL:ESR?	R	<FLOAT>	Returns the Total series resistance of the battery pack in Ohms
0x033001	4	BATTERY:SIMULATION:VOLTAGE:MAXIMUM?	R	<FLOAT>	Returns the maximum voltage value that can be set in the battery simulator in volts
0x033002	4	BATTERY:SIMULATION:VOLTAGE:MINIMUM?	R	<FLOAT>	Returns the minimum voltage value that can be set in the battery simulator in volts
0x034001	4	BATTERY:TEST:CHARGE:CURRENT <NRF>	RW	<FLOAT>	Sets the Charging Current value to battery tester in Amps | - Returns the Charging Current value of battery tester in amps
0x034002	N	BATTERY:TEST:CHARGE:TYPE <0|1>	RW	<STRING>	Sets the Charging type value to the Selected Battey tester profile | - Returns the Charging type in the selected battery tester profile 0 – CC 1 – CC/CV
0x034003	4	BATTERY:TEST:CHARGE:STOP:CAPACITY <NRF>	RW	<FLOAT>	Sets the Stop Capacity Value to the battery tester at which System turns the Output OFF in Ah | - Returns the Stop Capacity Value of the battery tester in Ah

CAN2B_ ID	DLC	SCPI COMMAND	ACCESS	DATA TYPE	DESCRIPTION
0x034004	4	BATTERY:TEST :CHARGE:STO P:VOLTAGE <NRF>	RW	<FLOAT>	Sets the Stop Voltage Value in volts to the battery tester at which System turns the Output OFF | - Returns the Stop Voltage Value of the battery tester in volts
0x034005	4	BATTERY:TEST :CHARGE:VOLT AGE:LIMIT <NRF>	RW	<FLOAT>	Sets the Charging Voltage Limit value to the Selected Battery tester profile in volts | - Returns the Charging Voltage Limit value of the selected battery tester profile in volts
0x034101	N	BATTERY:TEST :CONFIGURE:A DD <STRING>	W	<STRING>	Creates the Battery tester profile with provided file name
0x034102	4	BATTERY:TEST :CONFIGURE:C APACITY:LIMIT <NRF>	RW	<FLOAT>	Sets the Capacity Limit Value that the user can set to Selected battery tester profile in Ah | - Returns the Capacity Limit Value set in the selected battery tester profile in Ah
0x034103	N	BATTERY:TEST :CONFIGURE:C ATALOG?	R	<STRING>	Returns all profile file names present in the selected Battery tester operating type
0x034104	4	BATTERY:TEST :CONFIGURE:C APACITY:MAXI MUM?	R	<FLOAT>	Returns the maximum capacity that can be set to the battery tester in Ah
0x034105	4	BATTERY:TEST :CONFIGURE:C APACITY:MINI MUM?	R	<FLOAT>	Returns the minimum capacity that can be set to the battery tester in Ah
0x034106	4	BATTERY:TEST :CONFIGURE:C HARGE:CURRE NT:LIMIT <NRF>	RW	<FLOAT>	Sets the charging current limit that can be set to selected battery tester profile in amps | - Returns the charging current limit of the selected battery tester profile in amps
0x034107	N	BATTERY:TEST :CONFIGURE:D ELETE <STRING>	W	<STRING>	Deletes the profile with the provided file name from the Selected battery tester operation type
0x034108	4	BATTERY:TEST :CONFIGURE:D ISCHARGE:CU RRENT:LIMIT <NRF>	RW	<FLOAT>	Sets the Discharging current limit to the selected battery tester profile in amps | - Returns the Discharging Current limit value from the selected battery tester profile in amps

CAN2B_ ID	DLC	SCPI COMMAND	ACCESS	DATA TYPE	DESCRIPTION
0x034109	N	BATTERY:TEST :CONFIGURE:L OAD <UNLOAD/0|LO AD/1>	RW	<STRING>	Loads the selected battery profile | - Returns the load status of the battery tester 0 – UNLOADED 1 – LOADED
0x03410A	0	BATTERY:TEST :CONFIGURE:S AVE	W	<NONE>	Saves the Selected Battery tester profile
0x03410B	N	BATTERY:TEST :CONFIGURE:S ELECT <STRING>	RW	<STRING>	Selects the battery tester profile with the provided file name | - Returns the Selected battery tester profile
0x03410C	4	BATTERY:TEST :CONFIGURE:V OLTAGE:MAXI MUM <NRF>	RW	<FLOAT>	Sets the Maximum Voltage that can be set by the user in volts | - Returns the Maximum Voltage Value that can be set by the user in the battery tester in volts
0x03410D	4	BATTERY:TEST :CONFIGURE:V OLTAGE:MINIM UM <NRF>	RW	<FLOAT>	Sets the Minimum Voltage value that can be set by the user in Battery tester in volts | - Returns the Minimum Voltage value that can be set by the user in Battery tester in volts
0x034201	4	BATTERY:TEST :DISCHARGE:C URRENT <NRF>	RW	<FLOAT>	Sets the Discharging current Value to battery tester in amps | - Returns the Discharging Current Value to battery tester in amps
0x034202	4	BATTERY:TEST :DISCHARGE:S TOP:CAPACITY <NRF>	RW	<FLOAT>	Sets the Stop Capacity value in Ah at which the system stops the discharging by turning the system off | - Returns the stop Capacity value of the discharging operation type in Ah
0x034203	4	BATTERY:TEST :DISCHARGE:S TOP:VOLTAGE <NRF>	RW	<FLOAT>	Sets the Stop Voltage value in volts, at which the system stops the discharging by turning the system off | - Returns the Stop Voltage Value of the discharging operation type in volts
0x034204	4	BATTERY:TEST :DISCHARGE:V OLTAGE:LIMIT <NRF>	RW	<FLOAT>	Sets the Discharging voltage limit value to the selected battery tester profile. | - Returns the Discharging voltage limit value from the selected battery tester profile in volts
0x034301	4	BATTERY:TEST :INITIAL:CAPAC ITY <NRF>	RW	<FLOAT>	Sets the Initial Capacity of the battery to the selected battery tester profile in Ah | - Returns the Initial Capacity of the

CAN2B_ ID	DLC	SCPI COMMAND	ACCESS	DATA TYPE	DESCRIPTION
					battery to the selected battery tester profile in Ah
0x034401	N	BATTERY:TEST :MODE <0|1>	RW	<STRING>	Sets the Operation Mode of the battery tester | - Returns the operation Mode of the battery tester 0 – Steady State 1 – Sequence
0x034501	N	BATTERY:TEST :OPERATION:T YPE <0|1>	RW	<STRING>	Sets the Operation type of the battery tester | - Returns the operation type of the battery tester 0 – Charging 1 – Discharging
0x034601	N	BATTERY:TEST :STATE <ABORT/0|RUN /1|PAUSE/2|RE SUME/3|TRIPP ED/4|IDLE/5>	RW	<STRING>	Sets the State of the battery tester | - Returns the state of the Battery tester 0 – Abort 1 – RUN 2 – PAUSE 3 – RESUME 4 – IDLE 5 – INIT
0x034701	N	BATTERY:TEST :STATUS?	R	<STRING>	Returns the status of the battery tester 0 – IDLE 1 – INITIALIZING 2 – INITIALIZED 3 – RUNNING 5 - ABORTED 6 – PAUSED 7 – TRIPPED
0x034801	4	BATTERY:TEST :STOP:TIME <NR1>	RW	<INT>	Sets the stop time in seconds, the system will turns output off after the provided period of seconds | - Returns the stop time in seconds
0x034802	4	BATTERY:TEST :STOP:TIME:MA XIMUM?	R	<FLOAT>	Returns the maximum stop time in seconds that can be set by the user
0x034803	4	BATTERY:TEST :STOP:TIME:MI NIMUM?	R	<FLOAT>	Returns the minimum stop time in seconds that can be set by the user
0x034901	4	BATTERY:TEST :TERMINATION: CURRENT <NRF>	RW	<FLOAT>	Sets the termination current in amps to the battery tester profile. The Output of the system will turn off when the charging current reaches the termination current | - Returns the termination current from the selected battery tester profile

CAN2B_ ID	DLC	SCPI COMMAND	ACCESS	DATA TYPE	DESCRIPTION
0x034A01	N	BATTERY:TEST :TIME:ELAPSE D?	R	<STRING>	Returns the elapsed run time in seconds
0x02A001	N	CALIBRATE:INI TIAL:AC:INPUT: CONFIGURE <0|1>	RW	<STRING>	Changes the power-on AC input settings. Valid arguments are: 0 – High Line (380 – 480 V Nominal) 1 – Low Line (200 – 240 V Nominal). | - Returns the AC input settings.
0x02A101	4	CALIBRATE:INI TIAL:CHASSIS: ADDRESS <NR1>	RW	<INT>	Sets the power-on default chassis address. | - Returns the power-on default chassis address.
0x02A201	4	CALIBRATE:INI TIAL:CURRENT <NRF>	RW	<FLOAT>	Sets the power-on value of current. | - Returns the value of power-on current.
0x02A202	4	CALIBRATE:INI TIAL:CURRENT :MAXIMUM?	R	<FLOAT>	Returns the power-on value of maximum current that can be set.
0x02A203	4	CALIBRATE:INI TIAL:CURRENT :MINIMUM?	R	<FLOAT>	Returns the power-on value of minimum current that can be set.
0x02A204	4	CALIBRATE:INI TIAL:CURRENT :MONITOR <NRF>	W	<FLOAT>	Initializes the current monitor (IMON) signal calibration.
0x02A205	4	CALIBRATE:INI TIAL:CURRENT :MONITOR:FSC <NRF>	RW	<FLOAT>	Sets the power-on default voltage on IMON signal for full scale output current. | - Returns the power-on default full scale voltage value on IMON signal.
0x02A206	4	CALIBRATE:INI TIAL:CURRENT :NEGATIVE:LIM IT <NRF>	RW	<FLOAT>	Sets the power-on default value for negative current limit. | - Returns the power-on default value for negative current limit.
0x02A207	4	CALIBRATE:INI TIAL:CURRENT :NEGATIVE:LIM IT:MAXIMUM?	R	<FLOAT>	Returns the power-on default value for maximum level of negative current limit.
0x02A208	4	CALIBRATE:INI TIAL:CURRENT :NEGATIVE:LIM IT:MINIMUM?	R	<FLOAT>	Returns the power-on default value for minimum level of negative current limit.
0x02A209	4	CALIBRATE:INI TIAL:CURRENT :POSITIVVE:LI MIT <NRF>	W	<FLOAT>	Sets the power-on default value for positive current limit.

CAN2B_ ID	DLC	SCPI COMMAND	ACCESS	DATA TYPE	DESCRIPTION
0x02A20A	4	CALIBRATE:INITIAL:CURRENT:POSITIVE:LIMIT?	R	<FLOAT>	Returns the power-on default value for positive current limit.
0x02A20B	4	CALIBRATE:INITIAL:CURRENT:POSITIVE:LIMIT:MAXIMUM?	R	<FLOAT>	Returns the power-on default value for maximum level of positive current limit.
0x02A20C	4	CALIBRATE:INITIAL:CURRENT:POSITIVE:LIMIT:MINIMUM?	R	<FLOAT>	Returns the power-on default value for minimum level of positive current limit.
0x02A20D	N	CALIBRATE:INITIAL:CURRENT:PROGRAM <0|1>	RW	<STRING>	Changes the power-on default current reference of External Analog Current Programming. Valid arguments are: 0 – INT 1 – EXT | - Returns the power-on default current reference of external analog current programming.
0x02A20E	4	CALIBRATE:INITIAL:CURRENT:PROGRAM:FSC <NRF>	RW	<FLOAT>	Sets the power-on default full-scale voltage value for rated current from external analog programming. | - Returns the power-on default full scale voltage value for rated current from external analog programming.
0x02A20F	4	CALIBRATE:INITIAL:CURRENT:PROGRAM:FSCR <NRF>	RW	<FLOAT>	Sets the power-on default full-scale resistance value for rated current from external analog programming. | - Returns the power-on default full scale resistance value for rated current from external analog programming.
0x02A210	N	CALIBRATE:INITIAL:CURRENT:PROGRAM:SOUR <0|1>	RW	<STRING>	Changes the power-on default current reference source of External Analog Current Programming. Valid arguments are: 0 – Voltage 1 – Current | - Returns the power-on default current reference source of external analog current programming.
0x02A211	4	CALIBRATE:INITIAL:CURRENT:SLEW <NRF>,<NRF>	RW	<FLOAT>	Sets the power-on default slew rate for current. | - Returns the power-on default slew rate for current.

CAN2B_ ID	DLC	SCPI COMMAND	ACCESS	DATA TYPE	DESCRIPTION
0x02A212	N	CALIBRATE:INITIAL:CURRENT:SLEW:TYPE <0|1>	RW	<STRING>	Changes the power-on default slew type for current. Valid arguments are: 0 – Slew in A/ms 1 – Slew in seconds. | - Returns the power-on default slew type for current.
0x02A213	4	CALIBRATE:INITIAL:CURRENT:SOFT:LIMIT:HIGH <NRF>	RW	<FLOAT>	Sets the power-on default value for maximum soft-limit of current. | - Returns the power-on default value for maximum soft-limit of current.
0x02A214	4	CALIBRATE:INITIAL:CURRENT:SOFT:LIMIT:LOW <NRF>	RW	<FLOAT>	Sets the power-on default value for minimum soft-limit of current. | - Returns the power-on default value for minimum soft-limit of current.
0x02A215	4	CALIBRATE:INITIAL:CURRENT:PROTECTION:NEGATIVE <NRF>	RW	<FLOAT>	Sets the power-on default overcurrent protection limit for negative current. | - Returns the power-on default overcurrent protection limit for negative current.
0x02A216	4	CALIBRATE:INITIAL:CURRENT:PROTECTION:NEGATIVE:MAXIMUM?	R	<FLOAT>	Returns the power-on default maximum value of negative overcurrent protection that can be set.
0x02A217	4	CALIBRATE:INITIAL:CURRENT:PROTECTION:NEGATIVE:MINIMUM?	R	<FLOAT>	Returns the power-on default minimum value of negative overcurrent protection that can be set.
0x02A218	4	CALIBRATE:INITIAL:CURRENT:PROTECTION:POSITIVE <NRF>	RW	<FLOAT>	Sets the power-on default positive overcurrent protection value. | - Returns the power-on default power-on default positive overcurrent protection value.
0x02A219	4	CALIBRATE:INITIAL:CURRENT:PROTECTION:POSITIVE:MAXIMUM?	R	<FLOAT>	Returns the power-on default maximum value of positive overcurrent protection that can be set.
0x02A21A	4	CALIBRATE:INITIAL:CURRENT:PROTECTION:POSITIVE:MINIMUM?	R	<FLOAT>	Returns the power-on default minimum value of positive overcurrent protection that can be set.
0x02A301	4	CALIBRATE:INITIAL:MEAS:CU	RW	<INT>	Sets the number of readings to average together when returning the current

CAN2B_ ID	DLC	SCPI COMMAND	ACCESS	DATA TYPE	DESCRIPTION
		RRENT:AVERAGE <NR1>			value with the MEAS:CURR? command to reduce noise in the readback readings. Enter a value of 3 to 9, with the value of 3 (factory default) providing the fastest response time in the readings, but less rejection of noise. | - Returns the number 3 to 9 to indicate the number of readings to average together when taking a current reading.
0x02A302	4	CALIBRATE:INITIAL:MEAS:VOLTAGE:AVERAGE <NR1>	RW	<INT>	Sets the number of readings to average together when returning the voltage value with the MEAS:VOLT? command to reduce noise in the readback readings. Enter a value of 1 to 10, with the value of 1 (factory default) providing the fastest response time in the readings, but less rejection of noise. | - Returns the number 1 to 10 to indicate the number of readings to average together when taking a current reading.
0x02A401	N	CALIBRATE:INITIAL:OPERATING:MODE <SOUR|ELOAD|BIDIR|BATSIM|PVSIM|BATTEST>	RW	<STRING>	Changes the power-on default operating mode. | - Returns the power-on default operating mode.
0x02A501	N	CALIBRATE:INITIAL:OUTPUT:ISOLATION <0|1>	RW	<STRING>	Changes the power-on default state for output isolation relays. | - Returns the power-on default state for output isolation relays.
0x02A502	N	CALIBRATE:INITIAL:OUTPUT:PROGRAM:TYPE <0|1>	RW	<STRING>	Changes the Output Programming type, valid arguments are: 0 – Voltage Programming type 1 – Current Programming type | - Returns the Output Programming type
0x02A503	4	CALIBRATE:INITIAL:OUTPUT:PROTECTION:DELAY <NRF>	RW	<FLOAT>	Sets the power-on default delay time for the protection. | - Returns the power-on default delay time for the protection.
0x02A504	N	CALIBRATE:INITIAL:OUTPUT:PROTECTION:FOLD <NR1>	RW	<STRING>	Sets the power-on default foldback protection setting. Valid arguments are same as for OUTP:PROT:FOLD.

CAN2B_ ID	DLC	SCPI COMMAND	ACCESS	DATA TYPE	DESCRIPTION
					| - Returns the power-on default setting of foldback protection.
0x02A505	N	CALIBRATE:INITIAL:OUTPUT:SENSE <0/LOCAL|1/REMOTE>	RW	<STRING>	Changes the power-on default method for sensing. Valid arguments are: 0 – Local sense 1 – Remote sense. | - Returns the power-on default method for sensing.
0x02A601	0	CALIBRATE:INITIAL:PONS:DEFAULT	W	<NONE>	Sets all the values to factory default.
0x02A701	4	CALIBRATE:INITIAL:POWER <NRF>	RW	<FLOAT>	Sets the power-on default value of Power | - Returns the power-on default power set to regulate.
0x02A702	4	CALIBRATE:INITIAL:POWER:MAXIMUM?	R	<FLOAT>	Returns the power-on default Maximum power that can be programmed with given Input voltage conditions.
0x02A703	4	CALIBRATE:INITIAL:POWER:MINIMUM?	R	<FLOAT>	Returns the power-on default Minimum power that can be programmed with given Input voltage conditions.
0x02A704	4	CALIBRATE:INITIAL:POWER:NEGATIVE:LIMIT <NRF>	RW	<FLOAT>	Sets the power-on default negative power limit. | - Returns the power-on default negative power limit.
0x02A705	4	CALIBRATE:INITIAL:POWER:NEGATIVE:LIMIT:MAXIMUM?	R	<FLOAT>	Returns the power-on default maximum value that the user can set for negative power limit.
0x02A706	4	CALIBRATE:INITIAL:POWER:NEGATIVE:LIMIT:MINIMUM?	R	<FLOAT>	Returns the power-on default minimum value that the user can set for negative power limit.
0x02A707	4	CALIBRATE:INITIAL:POWER:POSITIVE:LIMIT <NRF>	RW	<FLOAT>	Sets the power-on default positive power limit | - Returns the power-on default positive power limit.
0x02A708	4	CALIBRATE:INITIAL:POWER:POSITIVE:LIMIT:MAXIMUM?	R	<FLOAT>	Returns the power-on default maximum value that the user can set for positive power limit.
0x02A709	4	CALIBRATE:INITIAL:POWER:POSITIVE:LIMIT:MINIMUM?	R	<FLOAT>	Returns the power-on default minimum value that the user can set for positive power limit.

CAN2B_ ID	DLC	SCPI COMMAND	ACCESS	DATA TYPE	DESCRIPTION
0x02A70A	4	CALIBRATE:INITIAL:POWER:PROTECTION:NEGATIVE <NRF>	RW	<FLOAT>	Sets the power-on default negative overpower protection limit. | - Returns the power-on default negative overpower protection limit.
0x02A70B	4	CALIBRATE:INITIAL:POWER:PROTECTION:NEGATIVE:MAXIMUM?	R	<FLOAT>	Returns the power-on default maximum possible value for the negative overpower protection limit.
0x02A70C	4	CALIBRATE:INITIAL:POWER:PROTECTION:NEGATIVE:MINIMUM?	R	<FLOAT>	Returns the power-on default minimum possible value for the negative overpower protection limit.
0x02A70D	4	CALIBRATE:INITIAL:POWER:PROTECTION:POSITIVE <NRF>	RW	<FLOAT>	Sets the power-on default positive overpower protection limit. | - Returns the power-on default positive overpower protection limit.
0x02A70E	4	CALIBRATE:INITIAL:POWER:PROTECTION:POSITIVE:MAXIMUM?	R	<FLOAT>	Returns the power-on default maximum possible value for the positive overpower protection limit.
0x02A70F	4	CALIBRATE:INITIAL:POWER:PROTECTION:POSITIVE:MINIMUM?	R	<FLOAT>	Returns the power-on default minimum possible value for the positive overpower protection limit.
0x02A710	4	CALIBRATE:INITIAL:POWER:SLEW <NRF>,<NRF>	RW	<FLOAT>	Sets the power-on default slew rate for the output power in terms of W/ms (first argument) or time in s (second argument). | - Returns the slew rate set for the output power.
0x02A711	N	CALIBRATE:INITIAL:POWER:SLEW:TYPE <0|1>	RW	<STRING>	Sets the power-on default slew type for power. | - Returns the power-on default slew type for power.
0x02A712	4	CALIBRATE:INITIAL:POWER:SOFT:LIMIT:HIGH <NRF>	RW	<FLOAT>	Sets the power-on default higher power limit. **Example:** In CV/CP mode, the value set for the higher power to regulate once the output power reaches this value.

CAN2B_ ID	DLC	SCPI COMMAND	ACCESS	DATA TYPE	DESCRIPTION
					| - Returns the power-on default higher power limit.
0x02A713	4	CALIBRATE:INITIAL:POWER:SOFT:LIMIT:LOW <NRF>	RW	<FLOAT>	Sets the power-on default soft limit for lower power. **Example:** In CP/CC mode, the maximum value that can be set for the output power to regulate. | - Returns the power-on default soft limit for lower power.
0x02A801	N	CALIBRATE:INITIAL:REMOTE:INHIBIT:INPUT:STATE <0/OFF|1/ON>	RW	<STRING>	Sets the power-on default state for remote inhibit. Valid arguments are: 0 - OFF 1 - ON. | - Returns the power-on default state for remote inhibit.
0x02A802	N	CALIBRATE:INITIAL:REMOTE:INHIBIT:INPUT:TYPE <0/CONTACT CLOSURE|1/ACTIVE SOURVE>	RW	<STRING>	Sets the power-on default type for remote inhibit. Valid arguments are: 0 - Contact Closure 1 - Active Source. | - Returns the power-on default type for remote inhibit.
0x02A803	N	CALIBRATE:INITIAL:REMOTE:INHIBIT:MODE <0/OFF|1/LIVE|2/LATCHING>	RW	<STRING>	Sets the power-on default mode for remote inhibit. Valid arguments are: 0 - OFF 1 - LIVE 2 - LATCH. | - Returns the power-on default mode for remote inhibit.
0x02A901	4	CALIBRATE:INITIAL:SERIES:RESISTANCE <NRF>	RW	<FLOAT>	Sets the power-on default series resistance. | - Returns the power-on default value for series resistance.
0x02A902	4	CALIBRATE:INITIAL:SERIES:RESISTANCE:MAXIMUM?	R	<FLOAT>	Returns the power-on default maximum possible value for series resistance.
0x02A903	4	CALIBRATE:INITIAL:SERIES:RESISTANCE:MINIMUM?	R	<FLOAT>	Returns the power-on default minimum possible value for series resistance.
0x02AA01	4	CALIBRATE:INITIAL:SINK:RESISTANCE <NRF>	RW	<FLOAT>	Sets the power-on default sink resistance value for which the unit behaves as constant resistive load (in eLoad Mode).

CAN2B_ ID	DLC	SCPI COMMAND	ACCESS	DATA TYPE	DESCRIPTION
					| - Returns the power-on default sink resistance value.
0x02AA02	4	CALIBRATE:INITIAL:SINK:RESISTANCE:MAXIMUM?	R	<FLOAT>	Returns the power-on default value of maximum sink resistance possible.
0x02AA03	4	CALIBRATE:INITIAL:SINK:RESISTANCE:MINIMUM?	R	<FLOAT>	Returns the power-on default value of minimum sink resistance possible.
0x02AB01	4	CALIBRATE:INITIAL:VOLTAGE <NRF>	RW	<FLOAT>	Sets the power-on default output voltage to be regulated. | - Returns the power-on default output voltage to be regulated.
0x02AB02	4	CALIBRATE:INITIAL:VOLTAGE:HIGH:LIMIT <NRF>	RW	<FLOAT>	Sets the power-on default higher limit of voltage. **Example:** In CC/CV mode, the higher side voltage to be regulated once the output voltage reaches this value. | - Returns the power-on default higher limit of voltage
0x02AB03	4	CALIBRATE:INITIAL:VOLTAGE:LOW:LIMIT <NRF>	RW	<FLOAT>	Sets the power-on default lower limit of voltage. **Example:** In CC/CV mode, the lower side voltage to be regulated once the output voltage reaches this value. | - Returns the power-on default lower side voltage limit value set by the user.
0x02AB04	4	CALIBRATE:INITIAL:VOLTAGE:MAXIMUM?	R	<FLOAT>	Returns the power-on default maximum voltage of the unit.
0x02AB05	4	CALIBRATE:INITIAL:VOLTAGE:MINIMUM?	R	<FLOAT>	Returns the power-on default minimum voltage of the unit.
0x02AB06	4	CALIBRATE:INITIAL:VOLTAGE:MONITOR:FSC <NRF>	RW	<FLOAT>	Sets power-on default Full-scale voltage on voltage monitor pin (VMON), when power supply is producing full scale output voltage. | - Returns the power-on default full-scale voltage set for Voltage monitor pin (VMON)
0x02AB07	4	CALIBRATE:INITIAL:VOLTAGE:	RW	<FLOAT>	Sets the power-on default Full-scale voltage, at which Rated Voltage will be programmed in external Voltage

CAN2B_ ID	DLC	SCPI COMMAND	ACCESS	DATA TYPE	DESCRIPTION
		PROGRAM:FSC <NRF>			programming Mode with voltage as programming source. Valid Range is from 5 to 10 V. | - Returns the power-on default Full-scale Voltage, at which Rated Voltage will be programmed.
0x02AB08	4	CALIBRATE:INITIAL:VOLTAGE:PROGRAM:FSCR <NRF>	RW	<FLOAT>	Sets the power-on default Full-scale resistance, at which Rated Voltage will be programmed in external Voltage programming Mode with Current (Resistance) as programming source. Valid Range is from 5 to 10 kOhm. | - Returns the power-on default Full-scale Resistance, at which Rated Voltage will be programmed.
0x02AB09	N	CALIBRATE:INITIAL:VOLTAGE:PROGRAM:SOUR <0|1>	RW	<STRING>	Changes the power-on default source for the external analog voltage programming. Valid arguments are: 0 - voltage source 1 - Resistance source. | - Returns the power-on default selected source for the external analog voltage programming.
0x02AB0A	N	CALIBRATE:INITIAL:VOLTAGE:PROGRAM <0/INT|1/EXT>	RW	<STRING>	Changes the power-on default Voltage programming mode of the supply. Valid arguments are: INT/0 - Internal Digital Voltage programming EXT/1 - External analog Voltage programming. | - Returns the power-on default setting of Voltage programming mode.
0x02AB0B	4	CALIBRATE:INITIAL:VOLTAGE:PROTECTION <NRF>	RW	<FLOAT>	Sets the power-on default overvoltage protection trip point in volts. | - Returns the power-on default set overvoltage protection trip point in volts.
0x02AB0C	4	CALIBRATE:INITIAL:VOLTAGE:PROTECTION:FSC <NRF>	RW	<FLOAT>	Sets the power-on default Full-scale voltage, at which Rated Overvoltage will be programmed in external Overvoltage programming Mode with voltage as programming source. Valid Range is from 5 to 10V. | - Returns the power-on default Full-scale Voltage, at which Rated Overvoltage will be programmed.

CAN2B_ ID	DLC	SCPI COMMAND	ACCESS	DATA TYPE	DESCRIPTION
0x02AB0D	N	CALIBRATE:INITIAL:VOLTAGE:PROTECTION:PROGRAM <0/INT|1/EXT>	RW	<STRING>	Changes the power-on default Overvoltage programming mode of the supply. Valid arguments are: INT/0 - Internal Digital Voltage programming EXT/1 - External analog Voltage programming. | - Returns the power-on default setting of Overvoltage programming mode.
0x02AB0E	4	CALIBRATE:INITIAL:VOLTAGE:SLEW <NRF>,<NRF>	RW	<FLOAT>	Sets the power-on default slew rate for the output voltage in V/ms (first argument) or seconds (second argument). | - Returns the power-on default slew rate for the output voltage.
0x02AB0F	N	CALIBRATE:INITIAL:VOLTAGE:SLEW:TYPE <0|1>	RW	<STRING>	Sets the power-on default type of slew rate for the output voltage. 0 - V/ms 1 - second. | - Returns the power-on default type of slew rate for the output voltage.
0x02AB10	4	CALIBRATE:INITIAL:VOLTAGE:SOFT:LIMIT:HIGH <NRF>	RW	<FLOAT>	Sets the power-on default maximum soft limit for the output voltage. **Example:** In CV mode, the maximum possible voltage that can be set. | - Returns the power-on default maximum soft limit for the output voltage.
0x02AB11	4	CALIBRATE:INITIAL:VOLTAGE:SOFT:LIMIT:LOW <NRF>	RW	<FLOAT>	Sets the power-on default minimum soft limit for the output voltage. **Example:** In CV mode, the maximum possible voltage that can be set. | - Returns the power-on default minimum soft limit for the output voltage.
0x02C001	0	CALIBRATE:CURRENT:CALCULATE	W	<NONE>	Calculates the value of gain and offset for the Current sense
0x02C101	0	CALIBRATE:ISOLATION:VOLTAGE:SENSE:CALCULATE	W	<NONE>	Calculates the value of the gain and offset for isolated voltage sense.
0x02C102	4	CALIBRATE:ISOLATION:VOLT	R	<FLOAT>	Returns the entered values for 5-point calibration for isolated voltage sense.

CAN2B_ ID	DLC	SCPI COMMAND	ACCESS	DATA TYPE	DESCRIPTION
		AGE:SENSE:FI VEPOINT?			
0x02C103	4	CALIBRATE:IS OLATION:VOLT AGE:SENSE:FI VEPOINT1 <NRF>	W	<FLOAT>	Sets isolated voltage value for calibration point 1
0x02C104	4	CALIBRATE:IS OLATION:VOLT AGE:SENSE:FI VEPOINT2 <NRF>	W	<FLOAT>	Sets isolated voltage value for calibration point 2
0x02C105	4	CALIBRATE:IS OLATION:VOLT AGE:SENSE:FI VEPOINT3 <NRF>	W	<FLOAT>	Sets isolated voltage value for calibration point 3
0x02C106	4	CALIBRATE:IS OLATION:VOLT AGE:SENSE:FI VEPOINT4 <NRF>	W	<FLOAT>	Sets isolated voltage value for calibration point 4
0x02C107	4	CALIBRATE:IS OLATION:VOLT AGE:SENSE:FI VEPOINT5 <NRF>	W	<FLOAT>	Sets isolated voltage value for calibration point 5
0x02C108	4	CALIBRATE:IS OLATION:VOLT AGE:SENSE:G AIN <NRF>	RW	<FLOAT>	Sets the value of the gain for the isolated voltage sense | - Returns the value of the gain for the isolated voltage sense
0x02C109	4	CALIBRATE:IS OLATION:VOLT AGE:SENSE:OF FSET <NRF>	RW	<FLOAT>	Sets the value of the offset for the isolated voltage sense. | - Returns the value of the offset for the isolated voltage sense.
0x02C201	0	CALIBRATE:LO CK	W	<NONE>	Disables access to the non-volatile memory. Prevents attempts to store calibration values. (Issue after CAL:UNLock and CAL:STORe commands).
0x02C301	N	CALIBRATE:MO DULE:CONFIG URE <0|1>	RW	<STRING>	Configures the modules inside the chassis as parallel or series. Valid arguments are: 0 - Parallel 1 - Series. | - Returns the module configuration.

CAN2B_ ID	DLC	SCPI COMMAND	ACCESS	DATA TYPE	DESCRIPTION
0x02C302	4	CALIBRATE:MODULE:COUNT:CONFIGURE <NR1>	RW	<INT>	Sets the number of modules present in the chassis (Maximum of 3). | - Returns the number of modules present in the chassis.
0x02C303	4	CALIBRATE:MODULE:CURRENT:LIMIT <NRF>	RW	<FLOAT>	Sets the rated current limit of the modules. | - Returns the rated current limit of the modules.
0x02C304	N	CALIBRATE:MODULE:LASTCALDATE <MM DD YYYY>	RW	<STRING>	Assigns the last calibration date; format: MM DD YYYY (space after MM and DD required) | - Returns the last calibration date.
0x02C305	4	CALIBRATE:MODULE:POWER:DERATING <NRF>	RW	<FLOAT>	Sets the power derating factor for the LOW_LINE AC input. For Low Line operation, output power is derated by 0.5. | - Returns the power derating factor.
0x02C306	4	CALIBRATE:MODULE:POWER:LIMIT <NRF>	RW	<FLOAT>	Sets the rated power limit of the modules. | - Returns the rated power limit of the modules.
0x02C307	N	CALIBRATE:MODULE:SNUM <STRING>	RW	<STRING>	Assigns the serial number of the module. | - Returns the serial number of the module.
0x02C308	4	CALIBRATE:MODULE:VOLTAGE:LIMIT <NRF>	RW	<FLOAT>	Sets the rated voltage limit of the modules. | - Returns the rated voltage limit of the modules.
0x02C309	4	CALIBRATE:MODULE:CURRENT?	R	<FLOAT>	Returns the maximum current of the module.
0x02C30A	N	CALIBRATE:MODULE:NEXTCALDATE <MM DD YYYY>	RW	<STRING>	Sets the date next calibration is required; format: MM DD YYYY (space after MM and DD required) | - Returns the date next calibration is required.
0x02C30B	4	CALIBRATE:MODULE:VOLTAGE:PROTECTION?	R	<FLOAT>	Returns the maximum rated voltage of the module.
0x02C30C	4	CALIBRATE:MODULE:VOLTAGE?	R	<FLOAT>	Sets the maximum rated voltage of the module.

CAN2B_ ID	DLC	SCPI COMMAND	ACCESS	DATA TYPE	DESCRIPTION
0x02C401	4	CALIBRATE:OUTPUT:CURRENT:EXTI:GAIN <NRF>	RW	<FLOAT>	Sets the calibration full-scale point for current programming from external resistance source. | - Returns the calibration full-scale point for current programming from external resistance source.
0x02C402	4	CALIBRATE:OUTPUT:CURRENT:EXTI:OFFSET <NRF>	RW	<FLOAT>	Sets the calibration Offset point for current programming from external resistance source. | - Returns the calibration Offset point for current programming from external resistance source.
0x02C403	4	CALIBRATE:OUTPUT:CURRENT:EXTV:GAIN <NRF>	RW	<FLOAT>	Sets the calibration Gain point for current programming from external voltage source. | - Returns the calibration full-scale point for current programming from external voltage source.
0x02C404	4	CALIBRATE:OUTPUT:CURRENT:EXTV:OFFSET <NRF>	RW	<FLOAT>	Sets the calibration Gain point for current programming from external voltage source. | - Returns the calibration Offset point for current programming from external voltage source.
0x02C405	4	CALIBRATE:OUTPUT:CURRENT:EXTV:POINT1 <NRF>	W	<FLOAT>	Sets the external voltage value-1 for current calibration.
0x02C406	4	CALIBRATE:OUTPUT:CURRENT:EXTV:POINT2 <NRF>	W	<FLOAT>	Sets the external voltage value-2 for current calibration.
0x02C407	4	CALIBRATE:OUTPUT:CURRENT:EXTV:POINTS?	R	<FLOAT>	Returns the external voltage value-1 for current calibration.
0x02C408	4	CALIBRATE:OUTPUT:CURRENT:FIVEPOINT1 <NRF>	W	<FLOAT>	Sets output current value for calibration point 1.
0x02C409	4	CALIBRATE:OUTPUT:CURRENT:FIVEPOINT2 <NRF>	W	<FLOAT>	Sets output current value for calibration point 2.
0x02C40A	4	CALIBRATE:OUTPUT:CURREN	W	<FLOAT>	Sets output current value for calibration point 3.

CAN2B_ ID	DLC	SCPI COMMAND	ACCESS	DATA TYPE	DESCRIPTION
		T:FIVEPOINT3 <NRF>			
0x02C40B	4	CALIBRATE:OUTPUT:CURRENT:FIVEPOINT4 <NRF>	W	<FLOAT>	Sets output current value for calibration point 4.
0x02C40C	4	CALIBRATE:OUTPUT:CURRENT:FIVEPOINT5 <NRF>	W	<FLOAT>	Sets output current value for calibration point 5.
0x02C40D	4	CALIBRATE:OUTPUT:CURRENT:FIVEPOINT?	R	<FLOAT>	Returns the entered values for 5-point calibration for current sense.
0x02C40E	4	CALIBRATE:OUTPUT:CURRENT:GAIN <NRF>	RW	<FLOAT>	Sets the value of the gain for the output current sense. | - Returns the value of the gain for the output current sense.
0x02C40F	4	CALIBRATE:OUTPUT:CURRENT:MONITOR:FSC <NRF>	RW	<FLOAT>	Sets the calibration full-scale point for current monitor signal. | - Returns the calibration full-scale point for current monitor signal.
0x02C410	4	CALIBRATE:OUTPUT:CURRENT:MONITOR:OFFSET <NRF>	RW	<FLOAT>	Sets the calibration Offset point for current monitor signal. | - Returns the calibration Offset point for current monitor signal.
0x02C411	4	CALIBRATE:OUTPUT:CURRENT:OFFSET <NRF>	RW	<FLOAT>	Sets the calibration Offset point for output current. | - Returns the calibration Offset point for output current.
0x02C412	4	CALIBRATE:OUTPUT:CURRENT:PERCENTAGE <NR1>	RW	<INT>	Sets the percentage of output current set for calibration. | - Returns the percentage of output current set for calibration.
0x02C413	4	CALIBRATE:OUTPUT:CURRENT:PROTECTION:NEGATIVE:PERCENTAGE <NR1>	RW	<INT>	Sets the negative current protection limit in percentage during calibration. | - Returns the negative current protection limit in percentage during calibration.
0x02C414	4	CALIBRATE:OUTPUT:CURRENT:PROTECTION:POSITIVE:PERCENTAGE <NR1>	RW	<INT>	Sets the positive current protection limit in percentage during calibration. | - Returns the positive current protection limit in percentage during calibration.

CAN2B_ ID	DLC	SCPI COMMAND	ACCESS	DATA TYPE	DESCRIPTION
0x02C415	4	CALIBRATE:OUTPUT:OVERVOLTAGE:EXTV:FSC <NRF>	W	<FLOAT>	Sets the calibration full-scale point for overvoltage programming from external voltage source.
0x02C416	4	CALIBRATE:OUTPUT:OVERVOLTAGE:EXTV:GAIN?	R	<FLOAT>	Returns the gain for overvoltage programming from external voltage source.
0x02C417	4	CALIBRATE:OUTPUT:OVERVOLTAGE:EXTV:OFFSET <NRF>	RW	<FLOAT>	Sets the offset for overvoltage programming from external voltage source. | - Returns the offset for overvoltage programming from external voltage source.
0x02C418	4	CALIBRATE:OUTPUT:VOLTAGE:EXTI:FSC <NRF>	W	<FLOAT>	Sets the calibration full-scale point for voltage programming from external resistance source.
0x02C419	4	CALIBRATE:OUTPUT:VOLTAGE:EXTI:GAIN?	R	<FLOAT>	Returns the gain for voltage programming from external resistance source.
0x02C41A	4	CALIBRATE:OUTPUT:VOLTAGE:EXTI:OFFSET <NRF>	W	<FLOAT>	Sets the calibration full-scale point for voltage programming from external resistance source.
0x02C41B	4	CALIBRATE:OUTPUT:VOLTAGE:EXTV:FSC <NRF>	W	<FLOAT>	Sets the calibration full-scale point for voltage programming from external voltage source.
0x02C41C	4	CALIBRATE:OUTPUT:VOLTAGE:EXTV:GAIN?	R	<FLOAT>	Returns the gain for voltage programming from external voltage source.
0x02C41D	4	CALIBRATE:OUTPUT:VOLTAGE:EXTV:OFFSET <NRF>	RW	<FLOAT>	Sets the calibration full-scale point for voltage programming from external voltage source. | - Returns the gain for voltage programming from external voltage source.
0x02C41E	4	CALIBRATE:OUTPUT:VOLTAGE:FIVEPOINT1 <NRF>	W	<FLOAT>	Sets output voltage value for calibration point 1.
0x02C41F	4	CALIBRATE:OUTPUT:VOLTAGE:FIVEPOINT2 <NRF>	W	<FLOAT>	Sets output voltage value for calibration point 2.

CAN2B_ ID	DLC	SCPI COMMAND	ACCESS	DATA TYPE	DESCRIPTION
0x02C420	4	CALIBRATE:OUTPUT:VOLTAGE:FIVEPOINT3 <NRF>	W	<FLOAT>	Sets output voltage value for calibration point 3.
0x02C421	4	CALIBRATE:OUTPUT:VOLTAGE:FIVEPOINT4 <NRF>	W	<FLOAT>	Sets output voltage value for calibration point 4.
0x02C422	4	CALIBRATE:OUTPUT:VOLTAGE:FIVEPOINT5 <NRF>	W	<FLOAT>	Sets output voltage value for calibration point 5.
0x02C423	N	CALIBRATE:OUTPUT:VOLTAGE:FIVEPOINT?	R	<STRING>	Returns the entered values for 5-point calibration for voltage sense.
0x02C424	4	CALIBRATE:OUTPUT:VOLTAGE:GAIN <NRF>	RW	<FLOAT>	Sets the value of the gain for the output voltage sense. | - Returns the value of the gain for the output voltage sense.
0x02C425	4	CALIBRATE:OUTPUT:VOLTAGE:MONITOR:FSC <NRF>	RW	<FLOAT>	Sets the calibration full-scale point for voltage monitor signal. | - Returns the calibration full-scale point for voltage monitor signal.
0x02C426	4	CALIBRATE:OUTPUT:VOLTAGE:MONITOR:OFFS <NRF>	RW	<FLOAT>	Sets the calibration Offset point for voltage monitor signal. | - Returns the calibration Offset point for voltage monitor signal.
0x02C427	4	CALIBRATE:OUTPUT:VOLTAGE:OFFSET <NRF>	RW	<FLOAT>	Sets the calibration Offset point for output voltage. | - Returns the calibration Offset point for output voltage.
0x02C501	4	CALIBRATE:REMOTE:OUTPUT:VOLTAGE:GAIN <NRF>	RW	<FLOAT>	Sets the value of the gain for the output voltage at remote sense terminal. | - Returns the value of the gain for the output voltage at remote sense terminal.
0x02C502	4	CALIBRATE:REMOTE:OUTPUT:VOLTAGE:OFFSET <NRF>	RW	<FLOAT>	Sets the value of the offset for the output voltage at remote sense terminal. | - Returns the value of the offset for the output voltage at remote sense terminal.
0x02C601	0	CALIBRATE:STORE	W	<NONE>	Stores the calibration constants in non-volatile memory.

CAN2B_ ID	DLC	SCPI COMMAND	ACCESS	DATA TYPE	DESCRIPTION
0x02C701	N	CALIBRATE:UNLOCK <STRING>	W	<STRING>	Sets the non-volatile memory available to store calibration constants. The access string is “6867”.
0x02C801	0	CALIBRATE:VOLTAGE:CALCULATE	W	<NONE>	Calculates the gain and offset for the voltage sense
0x028001	N	LIST:ADD <STRING>	W	<STRING>	Creates the list with provided file name, file name can be alphanumeric up to 29 characters
0x028101	4	LIST:CATALOG?	R	<FLOAT>	Returns all the list file names present in the selected regulation and programming type
0x028201	4	LIST:COUNT <NR1>	RW	<INT>	Sets the count value, i.e. Number of the times the selected list to be executed, Maximum value that can be entered is 65535, if the count value is -1, the list will be executed indefinite times | - Returns the List count value
0x028301	N	LIST:CURRENT <NRF>,<NRF>,..,<NRF>	W	<FLOAT>	Sets the values to the List Current points in amps
0x028302	N	LIST:CURRENT:POINTS?	R	<FLOAT>	Returns the values of list current points in amps
0x028401	N	LIST:DEL <STRING>	W	<STRING>	Deletes the provided list file name from the device
0x028402	0	LIST:DEL:ALL	W	<NONE>	Deletes all the profiles present in the selected programming and output type
0x028501	N	LIST:DWELL <NRF>,<NRF>,..,<NRF>	W	<FLOAT>	Sets the values to dwell points of the list in seconds
0x028502	N	LIST:DWELL:POINTS?	R	<FLOAT>	Returns the dwell points of the selected list file in seconds
0x028601	N	LIST:LINK <NR1>,<NR1>,..,<NR1>	W	<INT>	Sets the values to link points of the list in the selected list file
0x028602	N	LIST:LINK:POINTS?	R	<INT>	Returns the link points of the selected list file
0x028701	4	LIST:POINTS:COUNT <NR1>	RW	<INT>	Sets the value to number of points in the list file, maximum number of link points that can be set by the user are 50 | - Returns the value of points count from the selected list file
0x028801	N	LIST:REPEAT <NR1>,<NR1>,..,<NR1>	W	<INT>	Sets the values to the repeat count of each point

CAN2B_ ID	DLC	SCPI COMMAND	ACCESS	DATA TYPE	DESCRIPTION
0x028802	N	LIST:REPEAT:POINTS?	R	<INT>	Returns the values of the repeat count point of the selected list file
0x028901	N	LIST:RESISTANCE <NR1>,<NR1>,..,<NR1>	W	<INT>	Sets the values to series resistance points in the selected list file
0x028902	N	LIST: RESISTANCE:POINTS?	R	<FLOAT>	Returns the values of the series resistance points in the selected list file
0x028A01	0	LIST:SAVE	W	<NONE>	Saves the selected list file to device
0x028B01	N	LIST:SELECT <STRING>	RW	<STRING>	Selects the list file with provided file name | - Returns the file name of the selected list file
0x028C01	N	LIST:STATE <IDLE/0|LOAD/1|RUN/3|ABORT/4>	RW	<STRING>	Sets the value to list state, RUN can be set only after the list file has been loaded and validated | - Returns the value of the list state 0 – Idle, 1 – Load, 3 – Run, 4 - Abort
0x028D01	N	LIST:STATUS?	R	<STRING>	Returns the status of the list. 0 – Idle, 1- Initializing, 2 – waiting for trigger, 3 – running, 4 – complete, 5 – Abort.
0x028E01	1	LIST:STEP <0|1>	RW	<BYTE>	Sets the value to List step in the selected list file 0 – Auto Trigger 1 – Once Trigger | - Returns the value of the list step in the selected list file
0x028F01	1	LIST:TRIGGER:TYPE <0|1>	RW	<BYTE>	Sets the value to trigger type of the list in the selected list file 0 – Software trigger 1 – Hardware trigger | - Returns the value of the type of trigger in the selected list file
0x029001	N	LIST:TTLTRG <0|1>,<0|1>,,,<0|1>	W	<BYTE>	Sets the values to the output trigger points for each list data point. 0 – Trigger out disabled for the data point

CAN2B_ ID	DLC	SCPI COMMAND	ACCESS	DATA TYPE	DESCRIPTION
					1 – Trigger Out enabled for the data point
0x029002	N	LIST:TTLTRG:POINTS?	R	<BYTE>	Returns the values of the output trigger of each data in the selected list file
0x029101	N	LIST:VOLTAGE <NRF>,<NRF>,..,<NRF>	W	<FLOAT>	Sets the value to the voltage points of selected list file in volts
0x029102	N	LIST:VOLTAGE:POINTS?	R	<FLOAT>	Returns the Values of the voltage points in the selected list file in volts
0x022001	4	MEASURE:AHO?	R	<FLOAT>	Returns the floating value of Capacity in Ah
0x022101	4	MEASURE:ALL?	R	<FLOAT>	Returns Output Voltage in Volts, Output Current in Amps, Output Power in kW, MPPT Efficiency, Present SOC of the battery, Present Capacity of the battery in Ah, Energy in Wh
0x022201	4	MEASURE:CURRENT:AVERAGE <NR1>	RW	<INT>	Sets the number of readings to average together when returning the current value with the MEASure:CURRent? command to reduce noise in the readback readings. Enter a value of 1 to 10, with the value of 1 (factory default) providing the fastest response time in the readings, but less rejection of noise. | - Returns the number 1 to 10 to indicate the number of readings to average together when taking a current reading.
0x022202	4	MEASURE:CURRENT:PROGRAM?	R	<FLOAT>	Returns the programmed output current from external Analog current programming feature.
0x022203	4	MEASURE:CURRENT:TOTAL?	R	<FLOAT>	Returns the sum of all currents when multiple chassis are connected in parallel in amps
0x022301	4	MEASURE:POWER:PROGRAM?	R	<FLOAT>	Returns the programmed output power from external Analog current programming feature.
0x022302	4	MEASURE:POWER:TOTAL?	R	<FLOAT>	Returns the sum of power from individual chassis when multiple chassis are connected in parallel in amps
0x022204	4	MEASURE:CURRENT?	R	<FLOAT>	Returns the floating-point value of the DC output current in amps.
0x022303	4	MEASURE:POWER?	R	<FLOAT>	Returns the floating-point value of the measured output power in kilowatts.

CAN2B_ ID	DLC	SCPI COMMAND	ACCESS	DATA TYPE	DESCRIPTION
0x022401	4	MEASURE:SOC ?	R	<FLOAT>	Returns the floating-point value of state of charge of the battery
0x022501	4	MEASURE:VOL TAGE:AVERAG E <NR1>	RW	<INT>	Sets the number of readings to average together when returning the voltage value with the MEASure:Voltage? command to reduce noise in the readback readings. Enter a value of 1 to 10, with the value of 1 (factory default) providing the fastest response time in the readings, but less rejection of noise. | - Returns the number 1 to 10 to indicate the number of readings to average together when taking a current reading.
0x022502	4	MEASURE:VOL TAGE:PROGRA M?	R	<FLOAT>	Returns the programmed output voltage from external Analog current programming feature.
0x022503	4	MEASURE:VOL TAGE:PROTEC TION:PROGRA M?	R	<FLOAT>	Returns the programmed Over voltage trip point from external Analog over voltage programming feature.
0x022504	4	MEASURE:VOL TAGE?	R	<FLOAT>	Returns the floating-point value of the DC output voltage in volts.
0x022601	N	MEASURE:WH O?	R	<STRING>	Returns the floating-point value of the energy in watt-hour
0x024001	N	OUTPUT:ISOLA TION <OPEN/0|CLOS ED/1>	RW	<STRING>	Sets the rear panel isolation relay control signal ON or OFF. Valid arguments are 1/ON or 0/OFF. | - Returns the state of the rear panel isolation relay control signal: 0 – OFF 1 – ON
0x024101	N	OUTPUT:POLA RITY<NORM/0/ OFF|INV/1/ON>	RW	<STRING>	Changes the state of the polarity relay signal. This command requires that the isolation relay be open beforehand | - Returns the state of the polarity relay: <NORM|INV>
0x024201	N	OUTPUT:PROG RAM:TYPE <VOLT/0|CURR/ 1>	RW	<STRING>	Sets the Output programming type. Valid arguments are 1/Current and 0/Voltage | - Returns the output programming type:<VOLT|CURR>
0x024301	0	OUTPUT:PROT ECTION:CLEAR	W	<NONE>	Clears the faults occurred due to protection settings

CAN2B_ ID	DLC	SCPI COMMAND	ACCESS	DATA TYPE	DESCRIPTION
0x024302	4	OUTPUT:PROTECTION:DELAY <NRF>	RW	<FLOAT>	Sets the programmable time delay executed by the supply before reporting output protection conditions after a new output voltage or current is specified. | - Returns the time delay to be executed by the supply..
0x024303	N	OUTPUT:PROTECTION:FOLD <NR1>	RW	<STRING>	Sets the Foldback setting of the supply, valid arguments are 0 to 12 | - Returns the Foldback setting of the supply
0x024401	N	OUTPUT:REMOTE:INHIBIT:INPUT:STATE <0|1>	RW	<STRING>	Sets the input state of the remote inhibit, valid arguments are 0(Open) or 1(Close) | - Returns the input state of the remote inhibit :<Open|Close>
0x024402	N	OUTPUT:REMOTE:INHIBIT:INPUT:TYPE <0|1>	RW	<STRING>	Sets the input type of the remote inhibit, valid arguments are 0(Contact Closure) or 1(Active Source) | - Returns the input state of the remote inhibit :<Contact Closure| Active Source>
0x024403	N	OUTPUT:REMOTE:INHIBIT:MODE <OFF/0|LIVE/1|LATCHING/2>	RW	<STRING>	Sets the mode of the remote inhibit. Valid Arguments are 0 – OFF, 1 – LIVE, 2 - LATCHING | - Returns the mode of remote inhibit.
0x024501	N	OUTPUT:SENSE <REMOTE/0|LOCAL/1>	RW	<STRING>	Sets the output voltage sense signal setting. Valid arguments are 1/REMOTE or 0/LOCAL. When REMOTE option is selected, voltage sense signal must be connected at RVS connector at the rear side of power supply. | - Returns the setting of the output voltage sense signal.
0x024601	N	OUTPUT:STATE <BOOLEAN>	RW	<STRING>	Sets the output to zero or the programmed value; opens or closes the isolation relay. Valid arguments are 1/ON or 0/OFF. *RST state value is ON. | - Returns the state of the output: 1 - ON 0 - OFF
0x024701	4	OUTPUT:TRIP?	R	<INT>	Returns the integer value 1 - TRIPPED or

CAN2B_ ID	DLC	SCPI COMMAND	ACCESS	DATA TYPE	DESCRIPTION
					0 - UNTRIPPED state of the output.
0x02F001	0	TRIGGER:SOFT	W	<NONE>	Sets the Software trigger for RAMP and LIST functions.
0x02F101	0	TRIGGER:ABORT	W	<NONE>	Stops the Ramp and List function, sets the output voltage or current to present value based on the output regulation type.
0x02F201	0	TRIGGER:RAMP:INITIALIZE	W	<NONE>	Send initialization trigger command to initiate the ramp initialization and move to the start location.
0x02F202	0	TRIGGER:RAMP	W	<NONE>	Trigger command to start ramp.
0x02E001	N	STATUS:FAULT:CHASSIS?	R	<STRING>	Returns the fault status of all chassis connected in parallel, each bit represents the fault status of each individual chassis
0x02E002	N	STATUS:FAULT:STATUS?	R	<STRING>	Returns the System faults
0x02E101	4	STATUS:MODULE<1|2|3>:FAULT?	R	<INT>	Returns the status of faults of the specified module
0x02E102	N	STATUS:MODULE<1|2|3>:TEMPERATURE:FAULT:STATUS?	R	<STRING>	Returns the status of the temperature faults occurred in the module.
0x026001	4	SYSTEM:CHASSIS:ADDRESS?	R	<INT>	Returns the chassis address
0x026101	4	SYSTEM:ENUM:COUNT?	R	<INT>	Returns number of chassis connected in parallel
0x026201	N	SYSTEM:FAULT:STATUS?	R	<STRING>	Returns the system fault status
0x026301	4	SYSTEM:MODULE:COUNT?	R	<INT>	Returns the number of modules present inside the chassis
0x026302	N	SYSTEM:MODULE<1|2|3>:TEMPERATURE:FAULT:STATUS?	R	<STRING>	Returns the temperature fault status of specified module
0x026401	N	SYSTEM:OPERATING:MODE <SOUR|ELOAD|BIDIR|BATSIM|PVSIM|BATTEST>	RW	<STRING>	Sets the operating mode of the system | - Returns the operating mode of the system: :<0/SOUR|1/BIDIR|2/ELOAD|3/BATSIM|4/PVSIM|5/BATTEST>

CAN2B_ ID	DLC	SCPI COMMAND	ACCESS	DATA TYPE	DESCRIPTION
0x026501	N	SYSTEM:OUTPUT:REGULATION:FAULT?	R	<STRING>	Returns the foldback faults of the system
0x026601	N	SYSTEM:REVISION?	R	<STRING>	Returns the firmware revision number of the all the controller
0x026701	N	SYSTEM:ERROR?	R	<STRING>	Queries Error Queue for next error/event entry (first in, first out). Entries contain an error number and descriptive text. A 0-return value indicates no error occurred; negative numbers are reserved by SCPI. The maximum return string length is 255 characters. The queue holds up to 10 error/entries. All entries are cleared by the *CLS command.
0x026801	N	SYSTEM:LOCAL <BOOLEAN>	RW	<STRING>	Forces the supply to local or remote state. <ON> or <1> sets operation to local mode. <OFF> or <0> sets the operation to remote mode. | - Returns ON or 1 if in local mode. Returns OFF or 0 if in remote mode.
0x026901	N	SYSTEM:NET:AUTOIP <BOOLEAN>	RW	<STRING>	Sets the network Auto IP mode in the Primary configuration without affecting the Secondary configuration. 0 - disable AutoIP; 1 - enable AutoIP | - Returns 1 if AutoIP is enabled in the Primary configuration. Returns 0 if AutoIP is disabled in the Primary configuration.
0x026902	N	SYSTEM:NET:DESC <STRING>	RW	<STRING>	Set the network Description, a 36-character alphanumeric string | - Returns the network Description.
0x026903	N	SYSTEM:NET:DHCPMODE <BOOLEAN>	RW	<STRING>	Sets the network DHCP Mode in the Primary configuration without affecting the Secondary configuration. 0 - disable DHCP; 1 - enable DHCP | - Returns 1 if DHCP Mode is enabled in the Primary configuration. Returns 0 if DHCP mode is disabled in the Primary configuration.
0x026904	N	SYSTEM:NET:DNS <STRING>	RW	<STRING>	Sets the network DNS IP address for the device. String is in the format “NNN.NNN.NNN.NNN” where “NNN” = 0 through 255, inclusive.

CAN2B_ ID	DLC	SCPI COMMAND	ACCESS	DATA TYPE	DESCRIPTION
					| - Returns the network DNS address for the device.
0x026905	N	SYSTEM:NET:GATE <STRING>	RW	<STRING>	Sets the network gateway IP address for the device. String is in the format "NNN.NNN.NNN.NNN" where "NNN" = 0 through 255, inclusive. | - Returns the network gateway IP address for the device.
0x026906	N	SYSTEM:NET:HOST <STRING>	RW	<STRING>	Set the network Host Name, a 15-character (maximum) alphanumeric string. (Must be limited to 15 characters for LXI compliance) | - Returns the network Host Name
0x026907	N	SYSTEM:NET:IP <STRING>	RW	<STRING>	Sets the Primary configuration to STATICIP mode and sets the network IP address for the device. String is in the format "NNN.NNN.NNN.NNN" where "NNN" = 0 through 255, inclusive. | - Returns two IP addresses: the first is the IP address set to be used when the system boots up; the second is the IP address presently in use by the power supply. (The first address will either be 0.0.0.0. if the Primary configuration is DHCP or DHCP+AUTOIP, or it will be the static IP last specified).
0x026908	N	SYSTEM:NET:LANLED:BLINK <STRING>	W	<STRING>	ON changes front panel screen to device identify. OFF changes to dashboard screen.
0x026909	N	SYSTEM:NET:MAC?	R	<STRING>	Returns the network MAC address. xx:xx:xx:xx:xx:xx (Hexadecimal digit pairs)
0x02690A	N	SYSTEM:NET:MASK <STRING>	RW	<STRING>	Set the network Subnet Mask for the device. String is in the format "NNN.NNN.NNN.NNN" where "NNN" = 0 through 255, inclusive. | - Returns the network Subnet Mask for the device.
0x02690B	N	SYSTEM:NET:NETBUTTON <STRING>	W	<STRING>	Returns configuration parameters to factory default. (Software equivalent of pressing the Reset switch on the rear panel of the power supply). You must cycle the power to effect the change. The access string is "6867."

CAN2B_ ID	DLC	SCPI COMMAND	ACCESS	DATA TYPE	DESCRIPTION
0x02690C	4	SYSTEM:NET:PORT <NRF>	RW	<FLOAT>	Set the network TCP/IP socket listening port. Valid values are 1025 to 65535. | - Returns the network TCP/IP socket listening port.
0x02690D	4	SYSTEM:NET:TERM <NRF>	RW	<FLOAT>	Sets the incoming string termination character to be used by the device. Factory set to 3. The valid range is 1-4. Values indicate the following terminator(s): 1 - 0x0d only (CR), 2 - 0x0a only (LF), 3 - 0x0d 0x0a (CR LF), 4 - 0x0a 0x0d (LF CR) | - Returns the string terminators to be used by the device.

Table 6-7. CAN2.0B – Data Frames

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7
ANNEXURES

7.1 ANNEXURE I – SYSTEM STATUS REGISTER

NUMBER	DESCRIPTION	DEFINITION
0x00000001	Output ON Status	Indicate that the output of the unit is enabled and active.
0x00000002	Remote Control Active	Unit is controlled through a remote interface (communication controller).
0x00000004	Fault Status	One or more faults are active in the system.
0x00000008	Constant Power Mode	Unit is operating in Constant Power (CP) regulation mode.
0x00000010	Constant Current Mode	Unit is operating in Constant Current (CC) regulation mode.
0x00000020	Constant Voltage Mode	Unit is operating in Constant Voltage (CV) regulation mode.
0x00000040	LXI Interface Active	LXI interface is enabled and handled by the communication controller.
0x00000080	Master Enable Status	Master enable signal is active, allowing output operation.
0x00000100	AC Input Line Status	Indicates AC input line selection: 0 - High line, 1 - Low line.
0x00000200	Remote Sense Enabled	Remote voltage sense feature is enabled.
0x00000400	Polarity Relay Status	Polarity relay is active.
0x00000800	Isolation Relay Status	Isolation relay is enabled and active.
0x00001000	Single Chassis Mode	Unit is operating as a standalone (single chassis) system.

NUMBER	DESCRIPTION	DEFINITION
0x00002000	Leader Chassis	Unit is configured as the leader in a parallel system.
0x00004000	Follower Chassis	Unit is configured as a follower in a parallel system.
0x00008000	Identification Complete	Chassis/module identification process is completed successfully.
0x00010000	Source Mode	Unit is operating in Source mode.
0x00020000	Bidirectional Mode	Unit is operating in Bidirectional mode.
0x00040000	Electronic Load Mode	Unit is operating as an Electronic Load.
0x00080000	Battery Simulator Mode	Unit is operating in Battery Simulation mode.
0x00100000	Battery Test Mode	Unit is operating in Battery Test mode.
0x00200000	PV Array Mode	Unit is operating in PV Array simulation mode.
0x00400000	Program Type Selected	Indicates selected program type or profile is active.
0x00800000	Reserved	Reserved for future use.
0x01000000	Chassis Address Bit 1	Chassis address bit used for system addressing.
0x02000000	Chassis Address Bit 2	Chassis address bit used for system addressing.
0x04000000	Chassis Address Bit 3	Chassis address bit used for system addressing.
0x08000000	Chassis Address Bit 4	Chassis address bit used for system addressing.
0x10000000	Chassis Address Bit 5	Chassis address bit used for system addressing.
0x20000000	Chassis Address Bit 6	Chassis address bit used for system addressing.

NUMBER	DESCRIPTION	DEFINITION
0x40000000	Reserved	Reserved for future use.
0x80000000	Firmware Update Mode	Unit is operating in firmware update mode.

Table 7-1. Annexure I – System Status Register

7.2 ANNEXURE II – FAULT REGISTER

NUMBER	DESCRIPTION	DEFINITION
0x00000001	Overvoltage Protection Fault	Output voltage of Mi- BEAM has exceeded the programmed Over Voltage protection (OVP) limit. OVP is an instantaneous trip. Hence, applying (or generating) an output voltage close to OVP limit may trigger this fault. Hence, always program the OVP trip limit well above the set voltage and applied output voltage. The OVP trip limit ensures that unit voltage will never exceed the programmed OVP limit, thus protecting the connected UUT from overvoltage failure.
0x00000002	Overcurrent Protection Fault	Output Current exceeded Over Current trip limit. OCP is an instantaneous trip. Hence, supplying (or drawing) an output current close to OCP limit may trigger this fault. Hence, always program the OCP trip limit well above the set current and load current. The OCP trip limit ensures that unit current will never exceed the programmed OCP limit, thus protecting the connected UUT from overcurrent failure.
0x00000004	Foldback Fault	Output trip is activated due to foldback operation setting. Foldback operation corresponds to the regulation operation other than the main regulation operation. **Example:** Assume that user has selected CC mode as the regulation setting. Then, both CV and CP modes are foldback regulation operation. If the protection limit corresponding to Volt high or Volt low or Power high or Power low is hit during a Current control (CC) operation occurs, then a foldback fault is displayed. Similarly in CC/CV mode of operation, Power high or Power low is hit, then also a foldback fault is triggered. It is to be noted that in CC/CV mode if voltage high limit is hit, then present regulation operation is changed from current control to voltage control.
0x00000008	External Shutdown	External Shutdown activated from External Analog Programming Connector (contact closure or Vsource)

NUMBER	DESCRIPTION	DEFINITION
0x00000010	Module 1 Fault	Internal Module-1 Fault. It can happen when module power stage parameter (like voltage current, power or temperature) exceeds the limit.
0x00000020	Module 2 Fault	Internal Module-2 Fault. It can happen when module power stage parameter (like voltage current, power or temperature) exceeds the limit.
0x00000040	Module 3 Fault	Internal Module-3 Fault. It can happen when module power stage parameter (like voltage current, power or temperature) exceeds the limit.
0x00000080	Module 1 Over temperature fault	Internal Module 1 Over temperature fault. This refers to an increased temperature more than the specified limit in one of the power stages of module-1. The over-temperature fault would occur due to following reasons; 1. Blockage of airflow in chassis air vents. 2. Fan not running at sufficient speed. 3. The chassis is operated at an elevated room temperature more than that specified level. 4. Due to hardware issue.
0x00000100	Module 2 Over temperature fault	Internal Module 2 Over temperature fault. This refers to an increased temperature more than the specified limit in one of the power stages of module-2. The over-temperature fault would occur due to following reasons; 1. Blockage of airflow in chassis air vents. 2. Fan not running at sufficient speed. 3. The chassis is operated at an elevated room temperature more than that specified level 4. Due to hardware issue.
0x00000200	Module 3 Over temperature fault	Internal Module 3 Over temperature fault. This refers to an increased temperature more than the specified limit in one of the power stages of module-3. The over-temperature fault would occur due to following reasons; 1. Blockage of airflow in chassis air vents. 2. Fan not running at sufficient speed. 3. The chassis is operated at an elevated room temperature more than that specified level. 4. Due to hardware issue.

NUMBER	DESCRIPTION	DEFINITION
0x00000400	Remote Analog Programming Error	Remote programming Analog signal level is out of the specified range. Remote Analog Programming error can occur when the applied voltage/connected resistance in any of the analog programming pins of 26-Pin Digital I/O interface (**E.g.:** VPRG_VOLT, VPRG_CURR, IPRG_VOLT, IPRG_CURR, or OVPRG_VOLT) has exceeded the full-scale rated output voltage or is lower than minimum limit specified.
0x00000800	AC input Line Fault	AC input voltage to the power supply is not in specified operating range. This fault will be triggered if a unit configured as Low line and is supplied with input voltage corresponding to High line. The fault will also be triggered if the input supply voltage goes out of limit due to a voltage swell or sag during operation.
0x00001000	NEG_POLARITY_FAULT	Negative voltage polarity is applied at the output of isolation relay. Since the unit can have only positive voltage applied at the output, the isolation relay will be operated only when there is positive voltage at its terminal. Applying a negative voltage at the load side of isolation relay terminal will trigger this fault.
0x00002000	Fan1 Fault	Fault from cooling Fan-1. This condition is caused when Fan is not running at the required speed for cooling the unit.
0x00004000	Fan2 Fault	Fault from cooling Fan-2. This condition is caused when Fan is not running at the required speed for cooling the unit.
0x00008000	Fan3 Fault	Fault from cooling Fan-3. This condition is caused when Fan is not running at the required speed for cooling the unit.
0x00010000	Calibration Fault	Calibration data is not within the required range (Calibration data is corrupted or EEPROM is not working, or calibration data is invalid).
0x00020000	Remote Sense Fault	Remote voltage sense fault occurs if; 1. The remote sense voltage is out of range from power supply voltage specification. 2. There is a difference between the sensed voltage at the output terminal and the sensed voltage of the remote sense terminal.
0x00040000	Module Output Mismatch Fault	Module output currents or voltages are not equal. This fault is triggered when there is a mismatch in the current sharing between the modules or a mismatch in module voltages. The modules are expected to share the output current or voltage equally. However, during large output transients or during a hardware fault, the current or voltage sharing may not be equal resulting in module output mismatch fault. This fault

NUMBER	DESCRIPTION	DEFINITION
		protects the individual module from current or voltage overload.
0x00080000	OPP_FAULT	Output power of the unit has exceeded the Overpower protection (OPP) limit. OPP is an instantaneous trip and is not a programmable feature. The OPP trip limit is kept higher than the model power limit. The OPP trip limit ensures that unit power will never exceed the unit's power rating, even during output transient conditions, thus protecting the unit and the connected UUT from overpower failure.
0x00100000	VSNS_OUTP_SYNC_FAULT	Not able to synchronize Mi-BEAM output voltage with isolation relay output voltage. This fault is checked only when Isolation relay feature of the unit is enabled. The fault occurs when the unit is not able to produce an output voltage equal to the load side voltage of isolation relay when the unit output is turned ON. This would happen if the load side voltage is either negative or is set more than the model voltage limit.
0x00200000	Module Firmware Mismatch Fault	Firmware versions of the Module Controllers are not matching
0x00400000	CHASSIS_MOD_ENUMERATION_FAULT	Module present signal not matching with Number of modules
0x00800000	CHASSIS STARTUP SEQ FAULT	Startup sequence of power modules is not completed within stipulated time. This would happen under the following conditions: 1. If the AC input line voltage is not sufficient for charging the DC bus. 2. There is a hardware fault.
0x01000000	Parallel Cable Fault	This fault occurs if: 1. Chassis Parallel cables PARALLEL IN/ PARALLEL OUT cables are disconnected. 2. Enumeration does not complete within the specified time during bootup.
0x02000000	Paralleled System Incompatible	Voltage and Power Model limits are different in paralleled units. Parallel operation is allowed only for units with the same voltage rating, power rating and firmware versions only.
0x04000000	Parallel System Fault	Fault occurred in any one of the parallel systems including leader
0x08000000	Parallel chassis current sharing fault	Any of the unit's current is out of 10% margin from the current reference value given by the LEADER unit.

NUMBER	DESCRIPTION	DEFINITION
0x10000000	RESERVED	RESERVED
0x20000000	RESERVED	RESERVED
0x40000000	RESERVED	RESERVED
0x80000000	RESERVED	RESERVED

Table 7-2. Annexure II – Fault Register

7.3 ANNEXURE III – CAN / SYSTEM ERROR CODE

NUMBER	DESCRIPTION	DEFINITION
0x00000000	No Error	No errors are present in the system.
0x05030000	Toggle Error	Expected toggle or sequence change did not occur during communication.
0x05040000	Communication Timeout	Communication protocol timed out.
0x05040001	Invalid Command	Command identifier or format is invalid or unknown.
0x05040002	Invalid Block Size	Block size exceeds allowed limits.
0x05040003	Invalid Sequence Number	Data sequence mismatch detected.
0x05040004	Data Integrity Error	Data integrity checks failed (CRC error).
0x05040005	Insufficient Memory	Not enough memory available to process the request.
0x06010000	Unsupported Access	Requested access type is not supported.
0x06010001	Write-Only Resource Read Attempt	Attempted to read a write-only resource.
0x06010002	Read-Only Resource Write Attempt	Attempted to write a read-only resource.
0x06020000	Resource Not Available	Requested resource does not exist.
0x06040041	Mapping Not Allowed	Resource cannot be mapped to the requested operation.
0x06040042	Mapping Size Exceeded	Mapping size exceeds allowable limit.
0x06040043	Parameter Incompatibility	Provided parameters are incompatible.
0x06040047	Device Incompatibility	Internal device incompatibility detected.
0x06060000	Hardware Error	Operation failed due to a hardware fault.
0x06070010	Data Type Mismatch	Data type does not match the expected format.
0x06070012	Data Length Too Long	Data length exceeds the expected size.
0x06070013	Data Length Too Short	Data length is shorter than expected.

NUMBER	DESCRIPTION	DEFINITION
0x06090011	Invalid Sub-Resource	Requested sub-resource does not exist.
0x06090030	Invalid Parameter Value	Parameter value is invalid.
0x06090031	Parameter Value Too High	Parameter value exceeds the maximum allowed limit.
0x06090032	Parameter Value Too Low	Parameter value is below the minimum allowed limit.
0x06090036	Invalid Parameter Range	Maximum value is less than minimum value.
0x060A0023	Resource Not Available	Required system resource is unavailable.
0x08000000	General Error	Unspecified system error occurred.
0x08000020	Data Transfer Failed	Data could not be transferred or stored.
0x08000021	Local Control Restriction	Operation blocked due to local control being active.
0x08000022	Invalid Device State	Operation not allowed in the current device state.
0x08000023	Data Source Unavailable	Required data source is missing or unavailable.
0x08000024	No Data Available	No data available for the requested operation.
0x0A000043	Acknowledgment Timeout	No acknowledgment was received from the destination node within the expected time.
0x0A000044	Data Timeout	Expected data was not received from the destination node within the timeout period.

Table 7-3. Annexure III – CAN / System Error Code

7.4 ANNEXURE IV – SCPI RESPONSE CAN ERROR CODE

NUMBER	DESCRIPTION	DEFINITION
-357	Operation Not Supported in Current Mode	Command is not allowed in the current operating mode.
-354	Data Not Initialized	Required data has not been initialized or loaded.
-353	Resource Not Selected	No resource selected for the requested operation.
-352	Identification In Progress	Identification process is currently in progress.
-351	Data Not Saved	Data has not been saved before use.
-350	Error Queue Overflow	Error queue has overflowed.
-331	System Error	Internal system error occurred.
-260	Name Already Exists	Resource name already exists.
-258	Configuration Not Loaded	Required configuration is not loaded.
-257	Data Integrity Error	Stored data integrity has been compromised.
-255	Parameter Count Mismatch	Number of parameters does not match the configured size.
-254	File Read Error	Error occurred while reading stored data.
-253	File Not Found	Requested file or resource does not exist.

NUMBER	DESCRIPTION	DEFINITION
-252	Invalid File Name	File or resource name format is invalid.
-251	Storage Path Not Found	Storage directory or path not found.
-250	Storage Full	No sufficient space available to save new data.
-222	Parameter Out of Range	Parameter value is outside the allowable range.
-221	Settings Conflict	Requested setting conflicts with current system settings.
-203	Command Protected	Requested command is locked or protected.
-200	Execution Error	Error occurred while executing the command.
-102	Syntax Error	Command syntax is incorrect or unrecognized.
-101	System Busy	System is busy processing a previously requested operation.
000	No Error	No errors are present in the error queue.
001	Operation Pending	Internal operation or self-test is in progress.
008	Feature Not Supported	Requested operation is not supported in the current configuration.

Table 7-4. Annexure IV – SCPI Response CAN Error Code

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