AMETEK®
PROGRAMMABLE POWER

P/N M580793-01
Revision A
October 2025

Sorensen

Mi-BEAM Series

External CAN Programming Manual

This page intentionally left blank

About AMETEK

AMETEK Programmable Power, Inc., a unit of AMETEK Electronic Instruments Group (a division of AMETEK, Inc.), is a global leader in the design and manufacture of precision, programmable power supplies for R&D, test and measurement, process control, power bus simulation and power conditioning applications across diverse industrial segments. Offering bench-top supplies to rack-mounted industrial power subsystems, AMETEK Programmable Power is the proud manufacturer of Elgar, Sorensen, California Instruments, and Amrel brand power supplies and electronic loads.

AMETEK, Inc. is a leading global manufacturer of electronic instruments and electromechanical devices with annualized sales of $6.9 billion. The company has over 21,000 colleagues working at more than 150 manufacturing facilities and nearly 150 sales and service centers in the United States and 30 other countries around the world.

Trademarks

AMETEK is a registered trademark of AMETEK, Inc. Sorensen is a trademark owned by AMETEK, Inc. Other trademarks, registered trademarks, and product names are the property of their respective owners and are used herein for identification purposes only.

Notice of Copyright

Exclusion for Documentation

UNLESS SPECIFICALLY AGREED TO IN WRITING, AMETEK PROGRAMMABLE POWER, INC. (“AMETEK”)

(a) MAKES NO WARRANTY AS TO THE ACCURACY, SUFFICIENCY OR SUITABILITY OF ANY TECHNICAL OR OTHER INFORMATION PROVIDED IN ITS MANUALS OR OTHER DOCUMENTATION.

(b) ASSUMES NO RESPONSIBILITY OR LIABILITY FOR LOSSES, DAMAGES, COSTS OR EXPENSES, WHETHER SPECIAL, DIRECT, INDIRECT, CONSEQUENTIAL OR INCIDENTAL, WHICH MIGHT ARISE OUT OF THE USE OF SUCH INFORMATION. THE USE OF ANY SUCH INFORMATION WILL BE ENTIRELY AT THE USER’S RISK.

(c) IF THIS MANUAL IS IN ANY LANGUAGE OTHER THAN ENGLISH, ALTHOUGH STEPS HAVE BEEN TAKEN TO MAINTAIN THE ACCURACY OF THE TRANSLATION, THE ACCURACY CANNOT BE GUARANTEED. APPROVED AMETEK CONTENT IS CONTAINED WITH THE ENGLISH LANGUAGE VERSION, WHICH IS POSTED AT WWW.PROGRAMMABLEPOWER.COM.

Date and Revision

October 2025, Revision A

Document Part Number

M580793-01

Contact Information

Telephone: 800 733 5427 (toll free in North America)
858 450 0085 (direct)
Fax: 858 458 0267
Email: sales.ppd@ametek.com
service.ppd@ametek.com
Web: www.programmablepower.com

Product Family: Mi-BEAM Series Power Supply
Warranty Period: 5 Years

Warranty Terms

AMETEK provides the following warranty for the product listed above ("Product"): If a defect in materials or workmanship is discovered and reported in writing within the applicable warranty period, AMETEK, at its discretion, will:

1. Repair or replace the defective Product,
2. Issue a credit note for the defective Product, or
3. Provide replacement parts for the defective Product.

The Buyer is responsible for returning the defective Product or parts to AMETEK at their own expense, following the specified return procedure. AMETEK will cover the costs of delivering the repaired or replaced Product or parts back to the Buyer.

4. The Product is damaged due to misuse, accident, negligence, or failure to maintain it as required by AMETEK's specifications.
5. The Product is modified, altered, or combined with unauthorized attachments.
6. The Product is installed or operated contrary to AMETEK's instructions.
7. The Product is opened, modified, or disassembled without AMETEK's prior written consent.
8. The Product is used with items, articles, or materials not authorized by AMETEK.

The Buyer may not make any warranty-related claims unless all payments under the Purchase Order Agreement have been completed.

Product Return Procedure

- Request a Return Material Authorization (RMA) number from the repair facility (**must originate in the country in which it where it was purchased**):
- **In the USA**, contact the AMETEK Customer Service Department prior to the return of the product to AMETEK for repair:
- Telephone: 800-733-5427, ext. 2295 or ext. 2463 (toll free North America) 858-450-0085, ext. 2295 or ext. 2463 (direct).
- **Outside the United States**, contact the nearest Authorized Service Center (ASC). A full listing can be found either through your local distributor, or on our website, www.programmablepower.com, by tapping the Support button or going to the Service Centers tab.
- When requesting an RMA, have the following information ready:
  Model number
  Serial number
  Description of the problem

NOTE: Unauthorized returns will not be accepted and will be returned at the shipper's expense.

NOTE: A returned product found upon inspection by AMETEK to be in the specification is subject to an evaluation fee and applicable freight charges.

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.

AMETEK Programmable Power Inc., San Diego, California, USA, or any of the subsidiary sales organizations, cannot accept any responsibility for personnel, material or inconsequential injury, loss or damage that results from improper use of the equipment and accessories.

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.

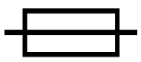
TECHNICIAN SYMBOL: All operations marked with this symbol are to be performed by qualified maintenance personnel only.

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.

CONTENTS

1 INTRODUCTION 1-1

2 CAN 2-1

2.1 Getting Started with CAN 2-1
2.1.1 CANopen 2-1
2.1.2 CAN 2.0B 2-1

2.2 Physical Configuration 2-2
2.2.1 CAN_L and CAN_H 2-2
2.2.2 CABLING HINTS 2-2

3 CAN CONFIGURATION STEPS 3-3

4 CANOPEN 4-5

4.1 CANopen CONFIGURATION 4-5
4.2 DATA FRAME STRUCTURE 4-5
4.3 NETWORK MANAGEMENT (NMT) 4-6
4.3.1 Enable CAN (Remote Control Mode) 4-7
4.3.2 Disable CAN (Local Mode) 4-7
4.3.3 Heartbeat (Node Monitoring) 4-7
4.4 CANopen: TPDO PACKETS 4-8
4.5 CANopen : SDO PACKETS 4-8
4.5.1 Timing Configurations 4-9
4.5.2 TPDOx Communication Parameter — Object Index: 0x180(x) 4-9
4.5.3 DEVICE IDENTIFICATION 4-10
4.5.4 SOURCE COMMANDS 4-11
4.5.5 MEASURE COMMANDS 4-32
4.5.6 OUTPUT COMMANDS 4-36
4.5.7 SYSTEM COMMANDS 4-39
4.5.8 LIST COMMANDS 4-45
4.5.9 CALIBRATE:INITIAL COMMANDS 4-51
4.5.10 CALIBRATE COMMANDS 4-80
4.5.11 STATUS COMMANDS 4-96
4.5.12 SASIMULATOR COMMANDS 4-97
4.5.13 BATTERY:SIMULATION COMMANDS 4-119
4.5.14 BATTERY:TEST COMMANDS 4-137

5 CAN 2.0B 5-148

5.1 Configuration 5-148

5.2 System I/O and Protocol Configuration 5-148

5.3 Identifier Layout 5-148

5.3.1 Class Field (3 bits) 5-149

5.4 Frame Types 5-149

5.4.1 Cyclic Frames – periodic measurement/status updates 5-149

5.4.2 Single Frames – DLC ≤ 6, for small commands/responses 5-150

5.4.3 MULTI-PACKET FRAMES – FOR LARGE PAYLOADS, REASSEMBLED BY RECEIVER 5-219

LIST OF TABLES

Table 2-1. CAN_L and CAN_H 2-2
Table 4-1. CANopen Configuration 4-5
Table 4-2. CANopen Data Frame Structure 4-5
Table 4-3. Network management 4-6
Table 4-4. TPDO Packets 4-8
Table 4-5. Heartbeat Timing Configuration 4-9
Table 4-6. TPDOx Communication Parameter 4-10
Table 4-7. Manufacture Device Name 4-10
Table 4-8. Instrument Model 4-10
Table 4-9. Serial Number 4-10
Table 4-10. Frimware Version 4-10
Table 4-11. SOURCE:ANALOG — Object Index: 0x3000 4-11
Table 4-12. SOURCE:CURRENT — Object Index: 0x3001 4-18
Table 4-13. Object Index: 0x3002 4-18
Table 4-14. Object Index: 0x3003 4-18
Table 4-15. Object Index: 0x3004 4-19
Table 4-16. Object Index: 0x3005 4-22
Table 4-17. Object Index: 0x3006 4-22
Table 4-18. Object Index: 0x3007 4-23
Table 4-19. Object Index: 0x3008 4-32
Table 4-20. Object Index: 0x3020 4-32
Table 4-21. Object Index: 0x3021 4-32
Table 4-22. Object Index: 0x3022 4-33
Table 4-23. Object Index: 0x3023 4-34
Table 4-24. Object Index: 0x3024 4-34
Table 4-25. Object Index: 0x3025 4-35
Table 4-26. Object Index: 0x3026 4-35
Table 4-27. Object Index: 0x3040 4-36
Table 4-28. Object Index: 0x3041 4-36
Table 4-29. Object Index: 0x3042 4-37
Table 4-30. Object Index: 0x3043 4-37
Table 4-31. Object Index: 0x3044 4-38
Table 4-32. Object Index: 0x3045 4-39
Table 4-33. Object Index: 0x3046 4-39
Table 4-34. Object Index: 0x3060 4-40
Table 4-35. Object Index: 0x3061 4-40
Table 4-36. Object Index: 0x3062 4-40
Table 4-37. Object Index: 0x3063 4-40
Table 4-38. Object Index: 0x3064 4-41
Table 4-39. Object Index: 0x3065 4-41

Table 4-40. Object Index: 0x3066 4-42
Table 4-41. Object Index: 0x3067 4-42
Table 4-42. Object Index: 0x3068 4-42
Table 4-43. Object Index: 0x3069 4-43
Table 4-44. Object Index: 0x306A 4-45
Table 4-45. Object Index: 0x3080 4-45
Table 4-46. Object Index: 0x3081 4-46
Table 4-47. Object Index: 0x3082 4-46
Table 4-48. Object Index: 0x3083 4-46
Table 4-49. Object Index: 0x3084 4-47
Table 4-50. Object Index: 0x3085 4-47
Table 4-51. Object Index: 0x3086 4-47
Table 4-52. Object Index: 0x3087 4-48
Table 4-53. Object Index: 0x3088 4-48
Table 4-54. Object Index: 0x3089 4-48
Table 4-55. Object Index: 0x308A 4-49
Table 4-56. Object Index: 0x308B 4-49
Table 4-57. Object Index: 0x308C 4-49
Table 4-58. Object Index: 0x308D 4-50
Table 4-59. Object Index: 0x308E 4-50
Table 4-60. Object Index: 0x308F 4-50
Table 4-61. Object Index: 0x3090 4-51
Table 4-62. Object Index: 0x3091s 4-51
Table 4-63. Object Index: 0x30A0 4-52
Table 4-64. Object Index: 0x30A1 4-52
Table 4-65. Object Index: 0x30A2 4-59
Table 4-66. Object Index: 0x30A3 4-61
Table 4-67. Object Index: 0x30A5 4-61
Table 4-68. Object Index: 0x30A5 4-63
Table 4-69. Object Index: 0x30A6 4-63
Table 4-70. Object Index: 0x30A7 4-69
Table 4-71. Object Index: 0x30A8 4-70
Table 4-72. Object Index: 0x30A9 4-71
Table 4-73. Object Index: 0x30AA 4-72
Table 4-74. Object Index: 0x30AB 4-80
Table 4-75. Object Index: 0x30C0 4-80
Table 4-76. Object Index: 0x30C1 4-82
Table 4-77. Object Index: 0x30C2 4-82
Table 4-78. Object Index: 0x30C3 4-85
Table 4-79. Object Index: 0x30C4 4-85

Table 4-80. Object Index: 0x30C5 4-94
Table 4-81. Object Index: 0x30C6 4-95
Table 4-82. Object Index: 0x30C7 4-95
Table 4-83. Object Index: 0x30C8 4-96
Table 4-84. Object Index: 0x30C8 4-96
Table 4-85. Object Index: 0x30E0 4-96
Table 4-86. Object Index: 0x30E1 4-97
Table 4-87. Object Index: 0x3100 4-97
Table 4-88. Object Index: 0x3101 4-97
Table 4-89. Object Index: 0x3102 4-113
Table 4-90. Object Index: 0x3103 4-113
Table 4-91. Object Index: 0x3104 4-114
Table 4-92. Object Index: 0x3105 4-114
Table 4-93. Object Index: 0x3106 4-117
Table 4-94. Object Index: 0x3107 4-118
Table 4-95. Object Index: 0x3108 4-118
Table 4-96. Object Index: 0x3109 4-119
Table 4-97. Object Index: 0x310A 4-119
Table 4-98. Object Index: 0x3120 4-120
Table 4-99. Object Index: 0x3121 4-121
Table 4-100. Object Index: 0x3122 4-121
Table 4-101. Object Index: 0x3123 4-124
Table 4-102. Object Index: 0x3124 4-125
Table 4-103. Object Index: 0x3125 4-126
Table 4-104. Object Index: 0x3126 4-126
Table 4-105. Object Index: 0x3127 4-126
Table 4-106. Object Index: 0x3128 4-127
Table 4-107. Object Index: 0x3129 4-131
Table 4-108. Object Index: 0x312A 4-134
Table 4-109. Object Index: 0x312B 4-134
Table 4-110. Object Index: 0x312C 4-135
Table 4-111. Object Index: 0x312D 4-136
Table 4-112. Object Index: 0x312E 4-136
Table 4-113. Object Index: 0x312F 4-137
Table 4-114. Object Index: 0x3130 4-137
Table 4-115. Object Index: 0x3140 4-138
Table 4-116. Object Index: 0x3141 4-142
Table 4-117. Object Index: 0x3142 4-143
Table 4-118. Object Index: 0x3143 4-144
Table 4-119. Object Index: 0x3144 4-144
Table 4-120. Object Index: 0x3145 4-145

Table 4-121. Object Index: 0x3146 4-145
Table 4-122. Object Index: 0x3147 4-145
Table 4-123. Object Index: 0x3148 4-146
Table 4-124. Object Index: 0x3149 4-146
Table 4-125. Object Index: 0x314As 4-147
Table 5-1. Configuration 5-148
Table 5-2. Identifier Layout 5-148
Table 5-3. Class Field 5-149
Table 5-4. Cyclic frames 5-150
Table 5-5. Source Commands 5-162
Table 5-6. Simulator Commands 5-173
Table 5-7. Simulation Commands 5-181
Table 5-8. Test Commands 5-187
Table 5-9. Calibrate Initial Commands 5-203
Table 5-10. Calibrate Commands 5-212
Table 5-11. List Commands 5-213
Table 5-12. Measure Commands 5-216
Table 5-13.Output Commands 5-217
Table 5-14. Trigger Commands 5-218
Table 5-15. System Commands 5-219
Table 5-16. Source Commands 5-222
Table 5-17. Sasimulator Commands 5-225
Table 5-18. Simulation Commands 5-228
Table 5-19. Battery test Commands 5-229
Table 5-20. Calibrate Initial Commands 5-231
Table 5-21. Calibrate Commands 5-232
Table 5-22. List Commands 5-235
Table 5-23.Output Commands 5-236
Table 5-24.Status Commands 5-237
Table 5-25.System Commands 5-242

LIST OF FIGURES

Figure 2-1. CAN bus interface 2-2
Figure 3-1. Control Interface 3-3
Figure 3-2. External CAN 3-3
Figure 3-3. External CAN Settings 3-4
Figure 4-1. Network management 4-6

This page intentionally left blank

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

2 CAN

2.1 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**:

2.1.1 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

2.1.2 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**: For custom integration, proprietary command/response handling, or extended addressing needs.
6. **Reference**: Bosch – CAN Specification Version 2.0

2.2 Physical Configuration

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

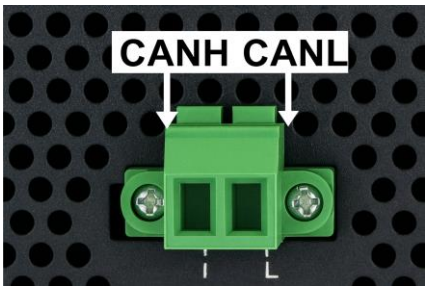


Figure 2-1. CAN bus interface

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

Table 2-1. CAN_L and CAN_H

2.2.1 CAN_L and CAN_H

1. CAN_H is the high side of the differential signal; in dominant state, it rises ~3.5 V.
2. CAN_L is the low side of the differential signal; in dominant state, it drops ~1.5 V.
3. Differential voltage between CAN_H and CAN_L determines logic state, giving noise immunity.
4. Twisted-pair cabling (120 Ω characteristic impedance) is recommended.

2.2.2 CABLING HINTS

To ensure reliable CAN communication;

1. All nodes must be connected in series (bus topology), not star wiring.
2. Keep stub lengths short (preferably < 0.3 m).
3. 120 Ω termination resistors are required only at the two ends of the CAN bus.

Note: Mi- BEAM boards do not have internal termination resistors; they must be installed externally. All nodes must use the same baud rate. The highest usable baud rate is limited by the slowest node in the network.

3
CAN CONFIGURATION STEPS

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

1. Navigate To Control Interface Menu

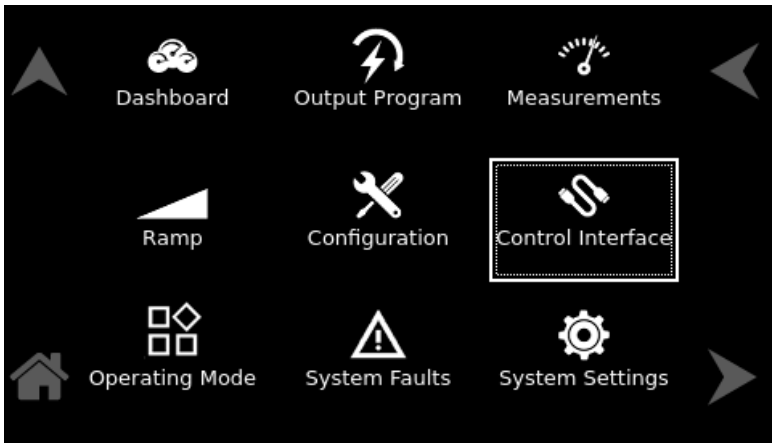


Figure 3-1. Control Interface

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

2. Navigate To External Can Submenu

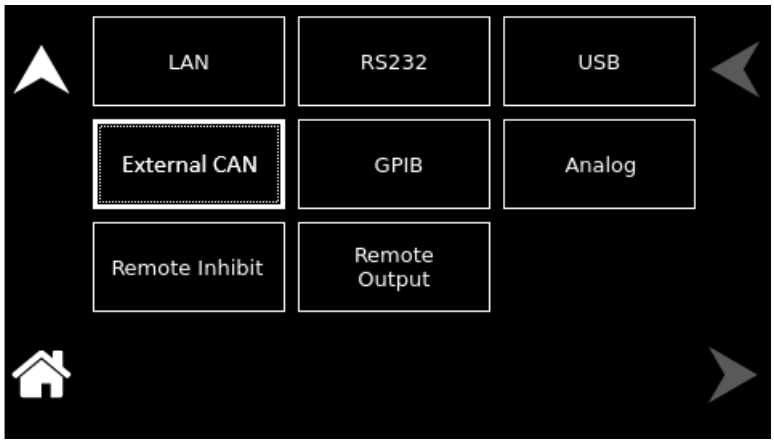


Figure 3-2. External CAN

- 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

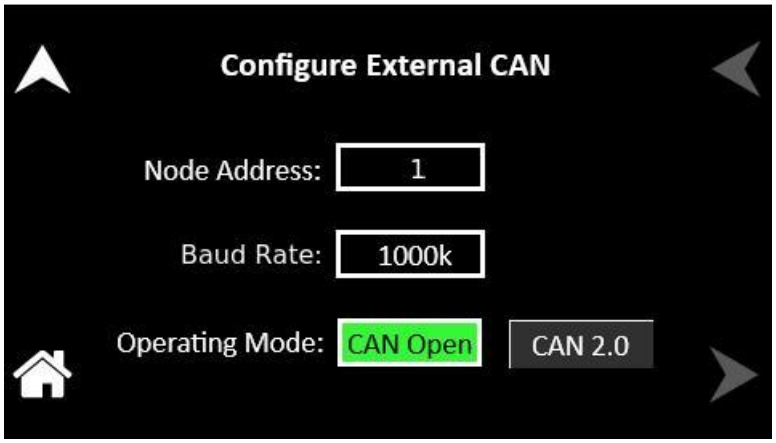


Figure 3-3. External CAN Settings

- Enter the Node ID value. Range: 1–127 (default = 1). Each device on the network must have a unique Node ID.
- Select the baud rate from the list. Supported values:
  20k, 40k, 50k, 8s0k, 100k, 125k, 150k, 200k, 250k, 400k, 500k, 1000k.

  Example: Use 125k for basic test setups or 500k for faster communication.
- Choose between CANopen and CAN 2.0B depending on your network requirements.

4
CANOPEN

4.1 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 4-1. CANopen Configuration

4.2 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 (more on these later).

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 4-2. CANopen Data Frame Structure

4.3 NETWORK MANAGEMENT (NMT)

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: the command specifier (CS) and the node ID. They are typically used to start or stop a node or reset communication.

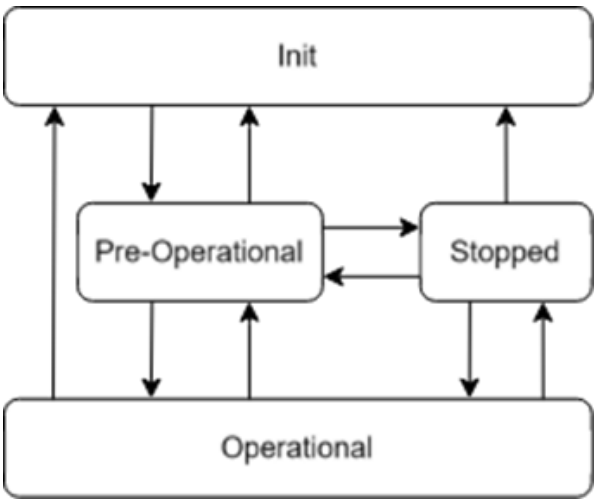


Figure 4-1. Network management

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 4-3. Network management

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

4.3.1 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

4.3.2 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

4.3.3 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

4.4 CANopen: TPDO PACKETS

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)	DEFINES
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. **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. The *System Status Code* includes *Operating Mode*, *Program Type*, and *Regulation Setting* details (*Refer Annexture I*). The *Fault Status Code* corresponds to a 32-bit fault register (*Refer Annexture II*).
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** or **Battery Test Mode**.

Table 4-4. TPDO Packets

4.5 CANopen : SDO PACKETS

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

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)

4.5.1 Timing Configurations

4.5.1.1 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 4-5. Heartbeat Timing Configuration

4.5.2 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.

SUB INDEX	ACCESS	DATA TYPE	BYTE	DESCRIPTION
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>s	2	Event Timer (in ms). Defines the periodic transmission interval for TPDOx. **Range:** 0x0000…0xFFFF. **Default:** 0 (disabled).

Table 4-6. TPDOx Communication Parameter

4.5.3 DEVICE IDENTIFICATION

4.5.3.1 MANUFACTURE DEVICE NAME— OBJECT INDEX: 0X1008

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

Table 4-7. Manufacture Device Name

4.5.3.2 INSTRUMENT MODEL— OBJECT INDEX: 0X1009

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

Table 4-8. Instrument Model

4.5.3.3 SERIAL NUMBER— OBJECT INDEX: 0X1018

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

Table 4-9. Serial Number

4.5.3.4 FIRMWARE VERSION— OBJECT INDEX: 0X100A

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

Table 4-10. Frimware Version

4.5.4 SOURCE COMMANDS

4.5.4.1 SOURCE:ANALOG — OBJECT INDEX: 0X3000

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No of Sub Index
0x01	SOURCE:ANALOG:REMOTE:OUTPUT <0|1>	RW	<BYTE>	1	Enables or disables the remote output ON/OFF. 0 – enable 1 - disable | Returns the setting of remote output ON/OFF.

Table 4-11. SOURCE:ANALOG — Object Index: 0x3000

4.5.4.2 SOURCE:CURRENT — OBJECT INDEX: 0X3001

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No 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.
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

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					voltage set for Current monitor pin (IMON)
0x05	SOURCE:CURRENT:NEGATIVE:LIMIT <NRF>	RW	<FLOAT>	1	Sets the negative current limit in amps. For 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.
0x08	SOURCE:CURRENT:POSITIVE:LIMIT <NRF>	RW	<FLOAT>	1	Sets the positive current limit in amps. For Example: in CV/CC mode, the current limit value the user should set, so that once the current

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					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 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

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					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. | Returns the set positive overcurrent

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					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	<FLOAT><FLOAT><FLOAT><BYTE>	4	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		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,

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					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
0x17	SOURCE:CURRENT:SLEW <NRF>,<NRF>	RW	<FLOAT><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	<UNKNOWN>	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). |

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					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 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	<BYTE>	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

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					programming .

Table 4-12. SOURCE:CURRENT — Object Index: 0x3001

4.5.4.3 SOURCE:RAMP — OBJECT INDEX: 0X3002

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No 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 4-13. Object Index: 0x3002

4.5.4.4 SOURCE:DIO — OBJECT INDEX: 0X3003

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No of Sub Index
0x01	SOURCE:DIO:OUT1 <0|1>	RW	<BYTE>	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	<BYTE>	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 4-14. Object Index: 0x3003

4.5.4.5 SOURCE:EXTERNAL — OBJECT INDEX: 0X3004

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No of Sub Index
0x01	SOURCE:EXTERNAL:CONTROL:REL1 <0|1>	RW	<BYTE>	1	Changes the position of the external relay 1 if isolation relay is enabled | Returns the position of the external relay 1
0x02	SOURCE:EXTERNAL:CONTROL:REL2 <0|1>	RW	<BYTE>	1	Changes the position of the external relay 2 | Returns the position of the external relay 2

Table 4-15. Object Index: 0x3004

4.5.4.6 SOURCE:POWER — OBJECT INDEX: 0X3005

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No 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.

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					For 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.
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. For 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.

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
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><FLOAT>	2	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>.
0x0D	SOURCE:POWER:SLEW:MAXIMUM?	RO	<FLOAT>	1	Returns the maximum possible slew rate

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					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	<UNKNOWN>	1	Changes the Power Slew Type Valid arguments are: RATE / 0 TIME / 1 | Returns the selected Power Slew Type

Table 4-16. Object Index: 0x3005

4.5.4.7 SOURCE:SERIES — OBJECT INDEX: 0X3006

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No 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 for series resistance.
0x03	SOURCE:SERIES:RESISTANCE:MINIMUM?	RO	<FLOAT>	1	Returns the minimum possible value for series resistance.

Table 4-17. Object Index: 0x3006

4.5.4.8 SOURCE:SINK — OBJECT INDEX: 0X3007

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No 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 4-18. Object Index: 0x3007

4.5.4.9 SOURCE:VOLTAGE — OBJECT INDEX: 0X3008

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No 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. For Example: In CC/CV mode, the higher side voltage to be

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					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. For Example: In CC/CV mode, the lower side voltage to be regulated once the output voltage reaches this value. | Returns the lower side

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					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.
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

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					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. | Returns the Full-scale Resistance, at which Rated Voltage will be programmed.
0x0B	SOURCE:VOLTAGE:PROGRAM <0|1>	RW	<BYTE>	1	Changes the

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					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	<BYTE>	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

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					protection trip point in volts. | Returns the set overvoltage protection trip point in volts.
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 programmi

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					ng). | 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 which Rated Overvoltage will be programmed.
0x12	SOURCE:VOLTAGE:RAMP <NRF>,<NRF>,<NRF>,<0|1>	RW	<FLOAT><FLOAT><FLOAT><BYTE>	4	Sets the voltage ramp parameters <From Voltage>, <To Voltage>, <Duration>,

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					<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		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><FLOAT>	2	Sets the slew rate for the output voltage in V/ms (first argument) or seconds (second

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					argument). | Returns the slew rate for 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	<UNKNOWN>	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

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					soft limit for the output voltage (user limit). | Returns the minimum soft limit for the output voltage.

Table 4-19. Object Index: 0x3008

4.5.5 MEASURE COMMANDS

4.5.5.1 MEASURE:AHO — OBJECT INDEX: 0X3020

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No of Sub Index
0x01	MEASURE:AHO?	RO	<FLOAT>	1	Returns the floating value of Capacity in Ah

Table 4-20. Object Index: 0x3020

4.5.5.2 MEASURE:ALL — OBJECT INDEX: 0X3021

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No of Sub Index
0x0s1	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 4-21. Object Index: 0x3021

4.5.5.3 MEASURE:CURRENT — OBJECT INDEX: 0X3022

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No 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 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 4-22. Object Index: 0x3022

4.5.5.4 MEASURE:POWER — OBJECT INDEX: 0X3023

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No of Sub Index
0x01	MEASURE:POWER:PROGRAM?	RO	<FLOAT>	1	Returns the programmed output power from external

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					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 4-23. Object Index: 0x3023

4.5.5.5 MEASURE:SOC — OBJECT INDEX: 0X3024

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No of Sub Index
0x01	MEASURE:SOC?	RO	<FLOAT>	1	Returns the floating-point value of state of charge of the battery

Table 4-24. Object Index: 0x3024

4.5.5.6 MEASURE:VOLTAGE — OBJECT INDEX: 0X3025

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No 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

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					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 4-25. Object Index: 0x3025

4.5.5.7 MEASURE:WHO — OBJECT INDEX: 0X3026

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No of Sub Index
0x01	MEASURE:WHO?	RO	<FLOAT>	1	Returns the floating-point value of the energy in watt-hour

Table 4-26. Object Index: 0x3026

4.5.6 OUTPUT COMMANDS

4.5.6.1 OUTPUT:ISOLATION — OBJECT INDEX: 0X3040

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No 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 4-27. Object Index: 0x3040

4.5.6.2 OUTPUT:POLARITY — OBJECT INDEX: 0X3041

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No of Sub Index
0x01	OUTPUT:POLARITY<NORM/0/OFF|INV/1/ON>	RW	<UNKNOWN>	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 4-28. Object Index: 0x3041

4.5.6.3 OUTPUT:PROGRAM — OBJECT INDEX: 0X3042

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No 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 4-29. Object Index: 0x3042

4.5.6.4 OUTPUT:PROTECTION — OBJECT INDEX: 0X3043

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No of Sub Index
0x01	OUTPUT:PROTECTION:CLEAR	W		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	<INT>	1	Sets the Foldback setting of the supply, valid arguments are 0 to 12 | Returns the Foldback setting of the supply

Table 4-30. Object Index: 0x3043

4.5.6.5 OUTPUT:REMOTE — OBJECT INDEX: 0X3044

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No of Sub Index
0x01	OUTPUT:REMOTE:INHIBIT:INPUT:STATE <0|1>	RW	<BYTE>	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	<BYTE>	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 4-31. Object Index: 0x3044

4.5.6.6 OUTPUT:SENSE — OBJECT INDEX: 0X3045

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No 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

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					rear side of power supply. | Returns the setting of the output voltage sense signal.

Table 4-32. Object Index: 0x3045

4.5.6.7 OUTPUT:STATE — OBJECT INDEX: 0X3046

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No 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 4-33. Object Index: 0x3046

4.5.6.8 OUTPUT:TRIP — OBJECT INDEX: 0X3047

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No of Sub Index
0x01	OUTPUT:TRIP?	RO	<STRING>	1	Returns the integer value 1 - TRIPPED or 0 - UNTRIPPED state of the output.

4.5.7 SYSTEM COMMANDS

4.5.7.1 SYSTEM:CHASSIS — OBJECT INDEX: 0X3060

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No of Sub Index

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x01	SYSTEM:CHASSIS:ADDRESS?	RO	<STRING>	1	Returns the chassis address

Table 4-34. Object Index: 0x3060

4.5.7.2 SYSTEM:ENUM — OBJECT INDEX: 0X3061

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No of Sub Index
0x01	SYSTEM:ENUM:COUNT?	RO	<INT>	1	Returns number of chassis connected in parallel

Table 4-35. Object Index: 0x3061

4.5.7.3 SYSTEM:FAULT — OBJECT INDEX: 0X3062

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No of Sub Index
0x01	SYSTEM:FAULT:STATUS?	RO	<STRING>	1	Returns the system fault status

Table 4-36. Object Index: 0x3062

4.5.7.4 SYSTEM:MODULE — OBJECT INDEX: 0X3063

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No of Sub Index
0x01	SYSTEM:MODULE:COUNT?	RO	<INT>	1	Returns the number of modules present inside the chassis

Table 4-37. Object Index: 0x3063

4.5.7.5 SYSTEM — OBJECT INDEX: 0X3064

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No of Sub Index
0x01	SYSTEM<N>:MODULE<1|2|3>:TEMPERATURE:FAULT:STATUS?	RO	<STRING>	1	Returns the temperature fault status of specified module

Table 4-38. Object Index: 0x3064

4.5.7.6 SYSTEM:OPERATING — OBJECT INDEX: 0X3065

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No of Sub Index
0x01	SYSTEM:OPERATING:MODE <SOUR|ELOAD|BIDIR|BATSIM|PVSIM|BATTEST>	RW	<UNKNOWN>	1	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>

Table 4-39. Object Index: 0x3065

4.5.7.7 SYSTEM:OUTPUT — OBJECT INDEX: 0X3066

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No of Sub Index
0x01	SYSTEM:OUTPUT:REGULATION:FAULT?	RO	<STRING>	1	Returns the foldback faults of the system

Table 4-40. Object Index: 0x3066

4.5.7.8 SYSTEM:REVISION — OBJECT INDEX: 0X3067

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No of Sub Index
0x01	SYSTEM:REVISION?	RO	<STRING>	1	Returns the firmware revision number of the all the controller

Table 4-41. Object Index: 0x3067

4.5.7.9 SYSTEM:ERROR — OBJECT INDEX: 0X3068

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No 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 4-42. Object Index: 0x3068

4.5.7.10 SYSTEM:LOCAL — OBJECT INDEX: 0X3069

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No 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

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					the operation to remote mode. | Returns ON or 1 if in local mode. Returns OFF or 0 if in remote mode.

Table 4-43. Object Index: 0x3069

4.5.7.11 SYSTEM:NET — OBJECT INDEX: 0X306A

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No 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.
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.

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
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” 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

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					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 4-44. Object Index: 0x306A

4.5.8 LIST COMMANDS

4.5.8.1 LIST:ADD — OBJECT INDEX: 0X3080

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No of Sub Index
0x01	LIST:ADD <STRINGs>	W	<STRING>	1	Creates the list with provided file name, file name can be alphanumeric up to 29 characters

Table 4-45. Object Index: 0x3080

4.5.8.2 LIST:CATALOG — OBJECT INDEX: 0X3081

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No of Sub Index
0x01	LIST:CATALOG?	RO	<STRING>	1	Returns all the list file names present in the selected regulation and programming type

Table 4-46. Object Index: 0x3081

4.5.8.3 LIST:COUNT — OBJECT INDEX: 0X3082

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No 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 4-47. Object Index: 0x3082

4.5.8.4 LIST:CURRENT — OBJECT INDEX: 0X3083

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No 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 4-48. Object Index: 0x3083

4.5.8.5 LIST:DEL — OBJECT INDEX: 0X3084

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No of Sub Index
0x01	LIST:DEL <STRING>	W	<STRING>	1	Deletes the provided list file name from the device
0x02	LIST:DEL:ALL	W		0	Deletes all the profiles present in the selected programming and output type

Table 4-49. Object Index: 0x3084

4.5.8.6 LIST:DWELL — OBJECT INDEX: 0X3085

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No 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 4-50. Object Index: 0x3085

4.5.8.7 LIST:LINK — OBJECT INDEX: 0X3086

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No 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 4-51. Object Index: 0x3086

4.5.8.8 LIST:POINTS — OBJECT INDEX: 0X3087

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No 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 4-52. Object Index: 0x3087

4.5.8.9 LIST:REPEAT — OBJECT INDEX: 0X3088

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No 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 4-53. Object Index: 0x3088

4.5.8.10 LIST:RESISTANCE — OBJECT INDEX: 0X3089

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No 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	<INT>	N	Returns the values of the series resistance points in the selected list file

Table 4-54. Object Index: 0x3089

4.5.8.11 LIST:SAVE — OBJECT INDEX: 0X308A

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No of Sub Index
0x01	LIST:SAVE	W		0	Saves the selected list file to device

Table 4-55. Object Index: 0x308A

4.5.8.12 LIST:SELECT — OBJECT INDEX: 0X308B

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No of Sub Index
0x01	LIST:SELECT <STRING>	RW	<STRING>	1	Selects the list file with provided file name | Returns the file name of the selected list file

Table 4-56. Object Index: 0x308B

4.5.8.13 LIST:STATE — OBJECT INDEX: 0X308C

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No 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 4-57. Object Index: 0x308C

4.5.8.14 LIST:STATUS — OBJECT INDEX: 0X308D

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No 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 4-58. Object Index: 0x308D

4.5.8.15 LIST:STEP — OBJECT INDEX: 0X308E

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No of Sub Index
0x01	LIST:STEP <0|1>	RW	<BYTE>	1	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

Table 4-59. Object Index: 0x308E

4.5.8.16 LIST:TRIGGER — OBJECT INDEX: 0X308F

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No 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 4-60. Object Index: 0x308F

4.5.8.17 LIST:TTLTRG — OBJECT INDEX: 0X3090

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No 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	<INT>	N	Returns the values of the output trigger of each data in the selected list file

Table 4-61. Object Index: 0x3090

4.5.8.18 LIST:VOLTAGE — OBJECT INDEX: 0X3091

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No of Sub Index
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 4-62. Object Index: 0x3091s

4.5.9 CALIBRATE:INITIAL COMMANDS

4.5.9.1 CALIBRATE:INITIAL:AC — OBJECT INDEX: 0X30A0

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No of Sub Index
0x01	CALIBRATE:INITIAL:AC:INPUT:CONFIGURE <0|1>	RW	<BYTE>	1	Changes the power-on AC input settings. Valid arguments are: 0 – High Line (380 – 480

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					V Nominal) 1 – Low Line (200 – 240 V Nominal). | Returns the AC input settings.

Table 4-63. Object Index: 0x30A0

4.5.9.2 CALIBRATE:INITIAL:CHASSIS — OBJECT INDEX: 0X30A1

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No 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 4-64. Object Index: 0x30A1

4.5.9.3 CALIBRATE:INITIAL:CURRENT — OBJECT INDEX: 0X30A2

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No 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

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					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.

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
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	<BYTE>	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

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					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	<BYTE>	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

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					analog current programming.
0x11	CALIBRATE:INITIAL:CURRENT:SLEW <NRF>,<NRF>	RW	<FLOAT><FLOAT>	2	Sets the power-on default slew rate for current. | Returns the power-on default slew rate for current.
0x12	CALIBRATE:INITIAL:CURRENT:SLEW:TYPE <0|1>	RW	<BYTE>	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.

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
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 overcurre

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					nt 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 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 4-65. Object Index: 0x30A2

4.5.9.4 CALIBRATE:INITIAL:MEAS — OBJECT INDEX: 0X30A3

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No 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 value of 1 to

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					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 4-66. Object Index: 0x30A3

4.5.9.5 CALIBRATE:INITIAL:OPERATING — OBJECT INDEX: 0X30A4

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No of Sub Index
0x01	CALIBRATE:INITIAL:OPERATING:MODE <SOUR|ELOAD|BIDIR|BATSIM|PVSIM|BATTEST>	RW	<UNKNOWN>	1	Changes the power-on default operating mode. | Returns the power-on default operating mode.

Table 4-67. Object Index: 0x30A5

4.5.9.6 CALIBRATE:INITIAL:OUTPUT — OBJECT INDEX: 0X30A5

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No of Sub Index
0x01	CALIBRATE:INITIAL:OUTPUT:ISOLATION <0|1>	RW	<BYTE>	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	<BYTE>	1	Changes the Output Programming type, valid arguments are: 0 – Voltage Programming type 1 – Current Programming type | Returns the Output Programming type
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	<INT>	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. |

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					Returns the power-on default method for sensing.

Table 4-68. Object Index: 0x30A5

4.5.9.7 CALIBRATE:INITIAL:PONS — OBJECT INDEX: 0X30A6

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No of Sub Index
0x01	CALIBRATE:INITIAL:PONS:DEFAULT	W		0	Sets all the values to factory default.

Table 4-69. Object Index: 0x30A6

4.5.9.8 CALIBRATE:INITIAL:POWER — OBJECT INDEX: 0X30A7

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No 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.

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
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.

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
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 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

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					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><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

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					argument). | Returns the slew rate set for the output power.
0x11	CALIBRATE:INITIAL:POWER:SLEW:TYPE <0|1>	RW	<BYTE>	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. For 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. For 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 4-70. Object Index: 0x30A7

4.5.9.9 CALIBRATE:INITIAL:REMOTE — OBJECT INDEX: 0X30A8

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No 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 -

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					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 4-71. Object Index: 0x30A8

4.5.9.10 CALIBRATE:INITIAL:SERIES — OBJECT INDEX: 0X30A9

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No 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 4-72. Object Index: 0x30A9

4.5.9.11 CALIBRATE:INITIAL:SINK — OBJECT INDEX: 0X30AA

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No of Sub Index
0x01	CALIBRATE:INITIAL:SINK:RESISTANCE <NRF>	RW	<FLOAT>	1	Sets the power-on default sink resistance value for

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					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 4-73. Object Index: 0x30AA

4.5.9.12 CALIBRATE:INITIAL:VOLTAGE — OBJECT INDEX: 0X30AB

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No of Sub Index
0x01	CALIBRATE:INITIAL:VOLTAGE <NRF>	RW	<FLOAT>	1	Sets the power-on default output voltage to be regulated. |

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					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. For 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. For Example: In CC/CV mode, the lower side voltage to be regulated once the output voltage reaches this value. | Returns the power-on

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					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 voltage, at which Rated Voltage will be

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					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. |

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					Returns the power-on default Full-scale Resistance, at which Rated Voltage will be programmed.
0x09	CALIBRATE:INITIAL:VOLTAGE:PROGRAM:SOUR <0|1>	RW	<BYTE>	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 programmi

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					ng EXT/1 - External analog Voltage programming. | Returns the power-on default setting of 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

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					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><FLOAT>	2	Sets the power-on default slew rate for the output voltage in V/ms (first argument)

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					or seconds (second argument). | Returns the power-on default slew rate for the output voltage.
0x0F	CALIBRATE:INITIAL:VOLTAGE:SLEW:TYPE <0|1>	RW	<BYTE>	1	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.
0x10	CALIBRATE:INITIAL:VOLTAGE:SOFT:LIMIT:HIGH <NRF>	RW	<FLOAT>	1	Sets the power-on default maximum soft limit for the output voltage. For 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

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					default minimum soft limit for the output voltage. For 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 4-74. Object Index: 0x30AB

4.5.10 CALIBRATE COMMANDS

4.5.10.1 CALIBRATE:CURRENT — OBJECT INDEX: 0X30C0

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No of Sub Index
0x01	CALIBRATE:CURRENT:CALCULATE	W		0	Calculates the value of gain and offset for the Current sense

Table 4-75. Object Index: 0x30C0

4.5.10.2 CALIBRATE:ISOLATION — OBJECT INDEX: 0X30C1

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No of Sub Index

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x01	CALIBRATE:ISOLATION:VOLTAGE:SENSE:CALCULATE	W		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

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					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 4-76. Object Index: 0x30C1

4.5.10.3 CALIBRATE:LOCK — OBJECT INDEX: 0X30C2

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No of Sub Index
0x01	CALIBRATE:LOCK	W		0	Disables access to the non-volatile memory. Prevents attempts to store calibration values. (Issue after CAL:UNLock and CAL:STORe commands).

Table 4-77. Object Index: 0x30C2

4.5.10.4 CALIBRATE:MODULE — OBJECT INDEX: 0X30C3

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No of Sub Index
0x01	CALIBRATE:MODULE:CONFIGURE <0|1>	RW	<BYTE>	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

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					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 the rated power limit of the modules.
0x07	CALIBRATE:MODULE:VOLTAGE:LIMIT <NRF>	RW	<FLOAT>	1	Sets the rated voltage limit of the modules. | Returns the rated voltage limit of the modules.
0x08	CALIBRATE:MODULE:CURRENT?	RO	<FLOAT>	1	Returns the maximum current of the module.
0x09	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.
0x0A	CALIBRATE:MODULE:VOLTAGE:PROTECTION?	RO	<FLOAT>	1	Returns the maximum rated voltage of the module.
0x0B	CALIBRATE:MODULE:VOLTAGE?	RO	<FLOAT>	1	Sets the maximum rated voltage

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					of the module.

Table 4-78. Object Index: 0x30C3

4.5.10.5 CALIBRATE:MOD — OBJECT INDEX: 0X30C4

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No of Sub Index
0x01	CALIBRATE:MOD:SNUM <STRING>	RW	<STRING>	1	Assigns the serial number of the module. | Returns the serial number of the module.

Table 4-79. Object Index: 0x30C4

4.5.10.6 CALIBRATE:OUTPUT — OBJECT INDEX: 0X30C5

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No 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 programm

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					ing 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 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 programm

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					ing 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.

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
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.
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

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					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.

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
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 external voltage source.
0x16	CALIBRATE:OUTPUT:OVERVOLTAGE:EXTV:GAIN?	RO	<FLOAT>	1	Returns the gain for

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					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 programm

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					ing 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.
0x1F	CALIBRATE:OUTPUT:VOLTAGE:FIVEPOINT2 <NRF>	W	<FLOAT>	1	Sets output voltage value for

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					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: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.
0x24	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.

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x25	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.
0x26	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 4-80. Object Index: 0x30C5

4.5.10.7 CALIBRATE:REMOTE — OBJECT INDEX: 0X30C6

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No of Sub Index
0x01	CALIBRATE:REMOTE:OUTPUT:VOLTAGE:GAIN <NRF>	RW	<FLOAT>	1	Sets the value of the gain for the output voltage at remote sense terminal. |

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					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 4-81. Object Index: 0x30C6

4.5.10.8 7.8 CALIBRATE:STORE — OBJECT INDEX: 0X30C7

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No of Sub Index
0x01	CALIBRATE:STORE	W		0	Stores the calibration constants in non-volatile memory.

Table 4-82. Object Index: 0x30C7

4.5.10.9 CALIBRATE:UNLOCK — OBJECT INDEX: 0X30C8

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No of Sub Index
0x01	CALIBRATE:UNLOCK <STRING>	W	<STRING>	1	Sets the non-volatile memory available to store

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					calibration constants. The access string is “6867”.

Table 4-83. Object Index: 0x30C8

4.5.10.10 CALIBRATE:VOLTAGE — OBJECT INDEX: 0X30C9

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No of Sub Index
0x01	CALIBRATE:VOLTAGE:CALCULATE	W		0	Calculates the gain and offset for the voltage sense

Table 4-84. Object Index: 0x30C8

4.5.11 STATUS COMMANDS

4.5.11.1 STATUS:FAULT — OBJECT INDEX: 0X30E0

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No 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 4-85. Object Index: 0x30E0

4.5.11.2 STATUS:MODULE — OBJECT INDEX: 0X30E1

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No of Sub Index
0x01	STATUS:MODULE<1|2|3>:FAULT?	RO	<STRING>	1	Returns the status of faults of the specified module
0x02	STATUS:MODULE<1|2|3>:TEMPERATURE:FAULT:STATUS?	RO	<STRING>	1	

Table 4-86. Object Index: 0x30E1

4.5.12 SASIMULATOR COMMANDS

4.5.12.1 SASIMULATOR:VM — OBJECT INDEX: 0X3100

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No of Sub Index
0x01	SASIMULATOR:VM <NRF>	RW	<FLOAT>	1	

Table 4-87. Object Index: 0x3100

4.5.12.2 SASIMULATOR:IM — OBJECT INDEX: 0X3101

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No of Sub Index
0x01	SASIMULATOR:IM <NRF>	RW	<FLOAT>	1	

Table 4-88. Object Index: 0x3101

4.5.12.3 SASIMULATOR:CURVE — OBJECT INDEX: 0X3102

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No 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 curve type in volts | Returns the 1024 Voltage points of Selected IV Curve in the User Defined curve type in volts

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
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		0	Deletes the selected IV Curve
0x07	SASIMULATOR:CURVE:EN50530:COEFFICIENTS:ALPHA <NRF>	RW	<FLOAT>	1	Sets the ALPHA value in the EN50530 Curve |

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					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
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

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					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
0x13	SASIMULATOR:CURVE:EN50530:COEFFICIENTS:CV <NRF>	RW	<FLOAT>	1	Sets the CV value in the EN50530 Curve | Returns the CV Value of the

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					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		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

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
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
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

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					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 | Returns the Voltage at maximum power point of EN50530

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					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

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x28	SASIMULATOR:CURVE:SAVE	W		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
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

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					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 0 - Fill Factor Value provided is not

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					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

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					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
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

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					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

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					Curve type that can be set in volts
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

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					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 type that can be set in volts
0x46	SASIMULATOR:CURVE:TYPE <SNL/0|EN50530/1|USERDEFINED VI POINTS/2>	RW	<UNKNOWN>	1	Sets the Operating Curve type of the PV Simulator | Returns

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					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 4-89. Object Index: 0x3102

4.5.12.4 SASIMULATOR:MPP — OBJECT INDEX: 0X3103

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No of Sub Index
0x01	SASIMULATOR:MPP?	RO	<FLOAT>	1	Returns the MPPT Tracking efficiency of the UUT

Table 4-90. Object Index: 0x3103

4.5.12.5 SASIMULATOR:OPERATING — OBJECT INDEX: 0X3104

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No 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

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					type 0 – Standard 1 – Array
0x02	SASIMULATOR:OPERATING:TYPE <STEADYSTATE/0|PROFILES/1>	RW	<STRING>	1	Sets the Operating type of the Selected Operating mode that PV Simulator operates | Returns the operating type of the Selected Operating mode

Table 4-91. Object Index: 0x3104

4.5.12.6 SASIMULATOR:PMP — OBJECT INDEX: 0X3105

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No 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 4-92. Object Index: 0x3105

4.5.12.7 SASIMULATOR:SOURCE — OBJECT INDEX: 0X3106

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No 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

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					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 0 – CSI Type 1 – Thin Film type
0x05	SASIMULATOR:SOURCE:EN50530:VOLTAGE<NRF>	RW	<FLOAT>	1	Sets the Rated Voltage Value of the EN50530 Curve in

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					volts | Returns the Rated Voltage value of the selected EN50530 Curve in volts
0x06	SASIMULATOR:SOURCE:EN50530:VOLTAGE:MAXIMUM?	RO	<FLOAT>	1	Returns the Maximum Rated Voltage Value that can be set in the EN50530 Curve in volts
0x07	SASIMULATOR:SOURCE:EN50530:VOLTAGE:MINIMUM?	RO	<FLOAT>	1	Returns the Minimum Rated Voltage Value that can be sets in the EN50530 Curve in volts
0x08	SASIMULATOR:SOURCE:IRRADIANCE <NRF>	RW	<FLOAT>	1	Sets the Irradiance of the Selected IV Curve | Returns the Irradiance value of the selected Curve
0x09	SASIMULATOR:SOURCE:IRRADIANCE:MAXIMUM?	RO	<FLOAT>	1	Returns the Maximum Irradiance Value that can be set

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					to the Curve
0x0A	SASIMULATOR:SOURCE:IRRADIANCE:MINIMUM?	RO	<FLOAT>	1	Returns the Minimum Irradiance Value that can be set to the curve
0x0B	SASIMULATOR:SOURCE:TEMPERATURE <NRF>	RW	<FLOAT>	1	Sets the Temperature of the Selected IV Curve | Returns the Temperature value of the selected Curve
0x0C	SASIMULATOR:SOURCE:TEMPERATURE:MAXIMUM?	RO	<FLOAT>	1	Returns the Maximum Temperature Value that can be set to the Curve
0x0D	SASIMULATOR:SOURCE:TEMPERATURE:MINIMUM?	RO	<FLOAT>	1	Returns the Minimum Temperature Value that can be set to the curve

Table 4-93. Object Index: 0x3106

4.5.12.8 SASIMULATOR — OBJECT INDEX: 0X3107

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No of Sub Index
0x01	SASIMULATOR<N>:SOURCE:EN50530:SIMTYPE:TESTTYPE <STATIC/0|DYNAMIC/1>	W	<UNKNOWN> <STRING>	2	Sets the Test Type of the EN50530 Curve
0x02	SASIMULATOR<N>:SOURCE:EN50530:SIMTYPE:TESTTYPE?	RO	<STRING>	1	Returns the Test type of the EN50530 Curve 0 – Static 1 – Dynamic

Table 4-94. Object Index: 0x3107

4.5.12.9 SASIMULATOR:STATUS — OBJECT INDEX: 0X3108

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No 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 4-95. Object Index: 0x3108

4.5.12.10 SASIMULATOR:LOAD — OBJECT INDEX: 0X3109

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No of Sub Index

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x01	SASIMULATOR:LOAD <0|1>	RW	<BYTE>	1	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 4-96. Object Index: 0x3109

4.5.12.11 SASIMULATOR:CLIPPED — OBJECT INDEX: 0X310A

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No 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 4-97. Object Index: 0x310A

4.5.13 BATTERY:SIMULATION COMMANDS

4.5.13.1 BATTERY:SIMULATION:CAPACITY — OBJECT INDEX: 0X3120

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No 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

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					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 4-98. Object Index: 0x3120

4.5.13.2 BATTERY:SIMULATION:CHARGE — OBJECT INDEX: 0X3121

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No of Sub Index
0x01	BATTERY:SIMULATION:CHARGE:CURRENT <NRF>	RW	<FLOAT>	1	Sets the charging current of the Selected battery configuratin g in Amps | Returns the charging current of the battery configuratio n in Amps
0x02	BATTERY:SIMULATION:CHARGE:CURRENT:MAXIMUM?	RO	<FLOAT>	1	Returns the maximum charging current of the battery configuratio n in Amps
0x03	BATTERY:SIMULATION:CHARGE:CURRENT:MINIMUM?	RO	<FLOAT>	1	Returns the minimum charging current of

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					the battery configuration in Amps

Table 4-99. Object Index: 0x3121

4.5.13.3 BATTERY:SIMULATION:CURRENT — OBJECT INDEX: 0X3122

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No 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 4-100. Object Index: 0x3122

4.5.13.4 BATTERY:SIMULATION:CUTOFF — OBJECT INDEX: 0X3123

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No of Sub Index
0x01	BATTERY:SIMULATION:CUTOFF:CAPACITY:HIGH <NRF>	RW	<FLOAT>	1	Sets Capacity High cut off condition value at

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					which battery turns off the output in Ah | 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

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					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

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					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 4-101. Object Index: 0x3123

4.5.13.5 BATTERY:SIMULATION:DISCHARGE — OBJECT INDEX: 0X3124

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No 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 4-102. Object Index: 0x3124

4.5.13.6 BATTERY:SIMULATION:EMPTYVOLT — OBJECT INDEX: 0X3125

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No 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 4-103. Object Index: 0x3125

4.5.13.7 BATTERY:SIMULATION:FULLVOLT — OBJECT INDEX: 0X3126

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No 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 4-104. Object Index: 0x3126

4.5.13.8 BATTERY:SIMULATION:INITIAL — OBJECT INDEX: 0X3127

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No 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 4-105. Object Index: 0x3127

4.5.13.9 BATTERY:SIMULATION:PARALLEL — OBJECT INDEX: 0X3128

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No 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 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 4-106. Object Index: 0x3128

4.5.13.10 BATTERY:SIMULATION:PROFILE — OBJECT INDEX: 0X3129

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No 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		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

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					Model 1 – Table Model
0x05	BATTERY:SIMULATION:PROFILE:CATALOG?	RO	<STRING>	1	Returns all the file names of battery profiles present in 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		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

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					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

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					the table mode configuration | Return the series resistance points in ohms of the selected battery 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 4-107. Object Index: 0x3129

4.5.13.11 BATTERY:SIMULATION:SERIES — OBJECT INDEX: 0X312A

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No 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

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					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 | 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

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					connected in series in the battery pack that can be set to battery simulator

Table 4-108. Object Index: 0x312A

4.5.13.12 BATTERY:SIMULATION:SOC — OBJECT INDEX: 0X312B

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No 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 4-109. Object Index: 0x312B

4.5.13.13 BATTERY:SIMULATION:STATE — OBJECT INDEX: 0X312C

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No of Sub Index
0x01	BATTERY:SIMULATION:STATE <ABORT/0|RUN/1|PAUSE/2|RESUME/3|TRIPPED/4|IDLE/5|INIT/6>	RW	<UNKNOWN>	1	Sets the operation state of the battery simulator | Returns

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					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)

Table 4-110. Object Index: 0x312C

4.5.13.14 BATTERY:SIMULATION:STATUS — OBJECT INDEX: 0X312D

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No of Sub Index
0x01	BATTERY:SIMULATION:STATUS?	RO	<STRING>	1	Returns the Status of the Battery simulator 0 – IDLE 1 – INITIALIZING 2 – INITIALIZED 3 –

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					RUNNING 5 – ABORTED 6 – PAUSED 7 – TRIPPED

Table 4-111. Object Index: 0x312D

4.5.13.15 BATTERY:SIMULATION:TIME — OBJECT INDEX: 0X312E

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No of Sub Index
0x01	BATTERY:SIMULATION:TIME:ELAPSED?	RO	<STRING>	1	Returns the time elapsed in the RUN state of battery simulator in seconds

Table 4-112. Object Index: 0x312E

4.5.13.16 BATTERY:SIMULATION:TOTAL — OBJECT INDEX: 0X312F

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No 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	<INT>	1	Returns the Total series resistance of

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					the battery pack in Ohms

Table 4-113. Object Index: 0x312F

4.5.13.17 BATTERY:SIMULATION:VOLTAGE — OBJECT INDEX: 0X3130

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No 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 voltage value that can be set in the battery simulator in volts

Table 4-114. Object Index: 0x3130

4.5.14 BATTERY:TEST COMMANDS

4.5.14.1 BATTERY:TEST:CHARGE — OBJECT INDEX: 0X3140

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No 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

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x02	BATTERY:TEST:CHARGE:TYPE <0|1>	RW	<BYTE>	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 | 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 4-115. Object Index: 0x3140

4.5.14.2 BATTERY:TEST:CONFIGURE — OBJECT INDEX: 0X3141

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No 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

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					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
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

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					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		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

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					the Maximum Voltage Value that can be set by the user in 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 4-116. Object Index: 0x3141

4.5.14.3 BATTERY:TEST:DISCHARGE — OBJECT INDEX: 0X3142

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No 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

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
					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 4-117. Object Index: 0x3142

4.5.14.4 BATTERY:TEST:INITIAL — OBJECT INDEX: 0X3143

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No 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 4-118. Object Index: 0x3143

4.5.14.5 BATTERY:TEST:MODE — OBJECT INDEX: 0X3144

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No of Sub Index
0x01	BATTERY:TEST:MODE <0|1>	RW	<BYTE>	1	Sets the Operation Mode of the battery tester | Returns the operation Mode of the battery tester 0 – Steady State 1 – Sequence

Table 4-119. Object Index: 0x3144

4.5.14.6 BATTERY:TEST:OPERATION — OBJECT INDEX: 0X3145

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No of Sub Index
0x01	BATTERY:TEST:OPERATION:TYPE <0|1>	RW	<BYTE>	1	Sets the Operation type of the battery tester | Returns the operation type of the battery tester 0 – Charging 1 – Discharging

Table 4-120. Object Index: 0x3145

4.5.14.7 BATTERY:TEST:STATE — OBJECT INDEX: 0X3146

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No of Sub Index
0x01	BATTERY:TEST:STATE <ABORT/0|RUN/1|PAUSE/2|RESUME/3|TRIPPED/4|IDLE/5>	RW	<UNKNOWN>	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 4-121. Object Index: 0x3146

4.5.14.8 BATTERY:TEST:STATUS — OBJECT INDEX: 0X3147

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No 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 4-122. Object Index: 0x3147

4.5.14.9 BATTERY:TEST:STOP — OBJECT INDEX: 0X3148

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No 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
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 4-123. Object Index: 0x3148

4.5.14.10 BATTERY:TEST:TERMINATION — OBJECT INDEX: 0X3149

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No 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 4-124. Object Index: 0x3149

4.5.14.11 BATTERY:TEST:TIME — OBJECT INDEX: 0X314A

Sub Index	SCPI Command	Access	Data Type	Param Count	Description
0x00	NA	RO	<BYTE>	1	No of Sub Index
0x01	BATTERY:TEST:TIME:ELAPSED?	RO	<STRING>	1	Returns the elapsed run time in seconds

Table 4-125. Object Index: 0x314As

5
CAN 2.0B

5.1 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 5-1. Configuration

5.2 System I/O and Protocol Configuration

From the front panel;

1. Navigate to **SYSTEM I/O**
2. Select **CAN**
3. Choose **Protocol = CAN2.0B**.

5.3 Identifier Layout

The **29-bit CAN Extended Identifier** is organized as follows (**bit 28 = MSB**):

BIT RANGE	FIELD	WIDTH (BITS)	DESCRIPTION
28 .. 26	Class	3	Defines the **message type and priority**. sLower numeric values have higher bus-arbitration priority.
25 .. 8	MsgID	18	Combined **message identifier** that encodes the functional command, group, or data channel. (Derived internally from Object Index + Sub-Index mapping.)
7 .. 0	NodeID	8	Logical address of the transmitting or target device (0–255). The NodeID field resides in the least-significant bits for human-readable identification, similar to CANopen.

Table 5-2. Identifier Layout

5.3.1 Class Field (3 bits)

CLASS	FUNCTION	ALLOWED DIRECTION
000	Emergency / Fault	Dev → Host or Host → Dev (E-Stop)
001	Single Response	Dev → Host
010	Single Request	Host → Dev
011	Data / Debug	Dev → Host
100	Multi Start	Dev → Host
101	Multi Start	Host → Dev
110	Multi Continue	Same as initiator
111	Multi End / Ack	Same as initiator

Table 5-3. Class Field

5.4 Frame Types

5.4.1 Cyclic Frames – periodic measurement/status updates

NAME	ADDRESS	DATA (HEX)	DEFINES
MEAS_VOLT_CURR	0x100	Measured Volt (4 byte), Measured Current (4 byte)	Provides real-time voltage and current measurement data.
POW_MPPT	0x200	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	0x300	System Status Code (4 byte) Fault Status Code (4 byte)	Contains the current system operating and fault status information. The *System Status Code* includes *Operating Mode*, *Program Type*, and *Regulation Setting* details (*Refer Annexture I*). The *Fault Status Code* corresponds to a 32-bit fault register (*Refer Annexture II*).
BAT_STATUS	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** or **Battery Test Mode**.

Table 5-4. Cyclic frames

5.4.2 Single Frames – DLC ≤ 6, for small commands/responses.

5.4.2.1 SOURCE COMMANDS

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
0x010001	1	SOURCE:ANALOG:REMOTE:OUTPUT <0|1>	RW	<BYTE>	Enables or disables the remote output ON/OFF. 0 – enable 1 - disable | Returns the setting of remote output ON/OFF.
0x010101	4	SOURCE:CURRENT <NRF>	RW	<FLOAT>	Sets the output current in amps. | Returns the output current in amps.
0x010102	4	SOURCE:CURRENT:MAXIMUM?	R	<FLOAT>	Returns the maximum current device limit.
0x010103	4	SOURCE:CURRENT:MINIMUM?	R	<FLOAT>	Returns the minimum current device limit.
0x010104	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)
0x010105	4	SOURCE:CURRENT:NEGATIVE:LIMIT <NRF>	RW	<FLOAT>	Sets the negative current limit in amps. For Example: in CV/CC mode,

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
					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.
0x010106	4	SOURCE:CURRENT:NEGATIVE:LIMIT:MAXIMUM?	R	<FLOAT>	Returns the maximum negative current limit the user can set in amps.
0x010107	4	SOURCE:CURRENT:NEGATIVE:LIMIT:MINIMUM?	R	<FLOAT>	Returns the minimum negative current limit the user can set, in amps.
0x010108	4	SOURCE:CURRENT:POSITIVE:LIMIT <NRF>	RW	<FLOAT>	Sets the positive current limit in amps. For 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.
0x010109	4	SOURCE:CURRENT:POSITIVE:LIMIT:MAXIMUM?	R	<FLOAT>	Returns the maximum positive current limit the user can set, in amps.
0x01010A	4	SOURCE:CURRENT:POSITIV	R	<FLOAT>	Returns the minimum positive current

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
		E:LIMIT:MINIMUM?			limit the user can set, in amps.
0x01010B	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.
0x01010C	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 10kOhm. | Returns the Full-scale Resistance, at which Rated Current will be programmed.
0x01010D	4	SOURCE:CURRENT:PROTECTION:NEGATIVE <NRF>	RW	<FLOAT>	Sets the negative overcurrent protection value. | Returns the negative overcurrent

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
					protection value.
0x01010E	4	SOURCE:CURRENT:PROTECTION:NEGATIVE:MAXIMUM?	R	<FLOAT>	Returns the maximum value of negative overcurrent protection that can be set.
0x01010F	4	SOURCE:CURRENT:PROTECTION:NEGATIVE:MINIMUM?	R	<FLOAT>	Returns the minimum value of negative overcurrent protection that can be set.
0x010110	4	SOURCE:CURRENT:PROTECTION:POSITIVE <NRF>	RW	<FLOAT>	Sets the positive overcurrent protection value. | Returns the set positive overcurrent protection value.
0x010111	4	SOURCE:CURRENT:SLEW:MAXIMUM?	R	<FLOAT>	Returns the maximum possible slew rate/time for the current.
0x010112	4	SOURCE:CURRENT:PROTECTION:POSITIVE:MAXIMUM?	R	<FLOAT>	Returns the maximum value of positive overcurrent protection that can be set.
0x010113	4	SOURCE:CURRENT:PROTECTION:POSITIVE:MINIMUM?	R	<FLOAT>	Returns the minimum value of positive overcurrent protection that can be set.
0x010115	0	SOURCE:CURRENT:RAMP:ABORT	W	<NONE>	Aborts ramping and clears trigger mode.
0x010118	4	SOURCE:CURRENT:SLEW:MINIMUM?	R	<FLOAT>	Returns the minimum possible slew rate for the current.
0x010119		SOURCE:CURRENT:SLEW:TYPE <RATE/0 | TIME/1>	RW	<UNKNOWN>	Changes the Current Slew Type Valid arguments are:

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
					RATE / 0 TIME / 1 | Returns the selected Current Slew Type
0x01011A	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.
0x01011B	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.
0x01011D	1	SOURCE:CURRENT:PROGRAM:SOURCE <0|1>	RW	<BYTE>	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.
0x010301	1	SOURCE:DIO:OUT1 <0|1>	RW	<BYTE>	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.
0x010302	1	SOURCE:DIO:OUT2 <0|1>	RW	<BYTE>	Sets the status of digital output 2 at the Remote Analog

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
					Programming connector. | Returns the status of digital output 2 at the Remote Analog Programming connector.
0x010401	1	SOURCE:EXTERNAL:CONTROL:REL1 <0|1>	RW	<BYTE>	Changes the position of the external relay 1 if isolation relay is enabled | Returns the position of the external relay 1
0x010402	1	SOURCE:EXTERNAL:CONTROL:REL2 <0|1>	RW	<BYTE>	Changes the position of the external relay 2 | Returns the position of the external relay 2
0x010501	4	SOURCE:POWER <NRF>	RW	<FLOAT>	Sets the maximum power limit. | Returns the power value set by the user.
0x010502	4	SOURCE:POWER:MAXIMUM?	R	<FLOAT>	Returns the Maximum power device limit.
0x010503	4	SOURCE:POWER:MINIMUM?	R	<FLOAT>	Returns the Minimum power device limit.
0x010504	4	SOURCE:POWER:NEGATIVE:LIMIT <NRF>	RW	<FLOAT>	Sets the negative power limit. For Example: In CC/CP mode, the maximum value that can be set for the output power to regulate. | Returns the negative power limit.
0x010505	4	SOURCE:POWER:NEGATIVE:	R	<FLOAT>	Returns the maximum value that the user

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
		LIMIT:MAXIMUM?			can set for negative power limit.
0x010506	4	SOURCE:POWER:NEGATIVE:LIMIT:MINIMUM?	R	<FLOAT>	Returns the minimum value that the user can set for negative power limit.
0x010507	4	SOURCE:POWER:POSITIVE:LIMIT <NRF>	RW	<FLOAT>	Sets the positive power limit. For Example: In CP/CC mode, the maximum value that can be set for the output power to regulate. | Returns the positive power limit.
0x010508	4	SOURCE:POWER:POSITIVE:LIMIT:MAXIMUM?	R	<FLOAT>	Returns the maximum value that the user can set for positive power limit.
0x010509	4	SOURCE:POWER:POSITIVE:LIMIT:MINIMUM?	R	<FLOAT>	Returns the minimum value that the user can set for positive power limit.
0x01050A	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.
0x01050B	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.

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
0x01050D	4	SOURCE:POWER:SLEW:MAXIMUM?	R	<FLOAT>	Returns the maximum possible slew rate for the Power.
0x01050E	4	SOURCE:POWER:SLEW:MINIMUM?	R	<FLOAT>	Returns the minimum possible slew rate for the Power.
0x01050F		SOURCE:POWER:SLEW:TYPE <RATE/0 | TIME/1>	RW	<UNKNOWN>	Changes the Power Slew Type Valid arguments are: RATE / 0 TIME / 1 | Returns the selected Power Slew Type
0x010601	4	SOURCE:SERIES:RESISTANCE <NRF>	RW	<FLOAT>	Sets the value for series resistance. | Returns the value for series resistance.
0x010602	4	SOURCE:SERIES:RESISTANCE:MAXIMUM?	R	<FLOAT>	Returns the maximum possible value for series resistance.
0x010603	4	SOURCE:SERIES:RESISTANCE:MINIMUM?	R	<FLOAT>	Returns the minimum possible value for series resistance.
0x010701	4	SOURCE:SINK:RESISTANCE <NRF>	RW	<FLOAT>	Sets the value for sink resistance. | Returns the value for sink resistance.
0x010702	4	SOURCE:SINK:RESISTANCE:MAXIMUM?	R	<FLOAT>	Returns the maximum possible value for sink resistance.
0x010703	4	SOURCE:SINK:RESISTANCE:MINIMUM?	R	<FLOAT>	Returns the minimum possible value for sink resistance.

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
0x010801	4	SOURCE:VOLTAGE <NRF>	RW	<FLOAT>	Sets the output voltage to be regulated. | Returns the set voltage value.
0x010802	4	SOURCE:VOLTAGE:HIGH:LIMIT <NRF>	RW	<FLOAT>	Sets the higher limit of voltage. For 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.
0x010803	4	SOURCE:VOLTAGE:HIGH:LIMIT:MAXIMUM?	R	<FLOAT>	Returns the maximum possible value for higher side of the output voltage.
0x010804	4	SOURCE:VOLTAGE:HIGH:LIMIT:MINIMUM?	R	<FLOAT>	Returns the minimum possible value for higher side of the output voltage.
0x010805	4	SOURCE:VOLTAGE:LOW:LIMIT <NRF>	RW	<FLOAT>	Sets the lower limit of voltage. For 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.
0x010806	4	SOURCE:VOLTAGE:MAXIMUM?	R	<FLOAT>	Returns the maximum

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
					voltage of the unit.
0x010807	4	SOURCE:VOLTAGE:MINIMUM?	R	<FLOAT>	Returns the minimum voltage of the unit.
0x010808	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)
0x010809	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.
0x01080A	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

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
					source. Valid Range is from 5 to 10kOhm. | Returns the Full-scale Resistance, at which Rated Voltage will be programmed.
0x01080B	1	SOURCE:VOLTAGE:PROGRAM <0|1>	RW	<BYTE>	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.
0x01080C	1	SOURCE:VOLTAGE:PROGRAM:SOURCE <0|1>	RW	<BYTE>	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.
0x01080D	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
0x01080E	4	SOURCE:VOLTAGE:PROTECTION:MAXIMUM?	R	<FLOAT>	Returns the maximum possible value for setting overvoltage protection limit.
0x01080F	4	SOURCE:VOLTAGE:PROTECTION:MINIMUM?	R	<FLOAT>	Returns the minimum possible value for setting overvoltage protection limit.
0x010811	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.
0x010813	0	SOURCE:VOLTAGE:RAMP:ABORT	W	<NONE>	Aborts ramping and clears trigger mode.
0x010816	4	SOURCE:VOLTAGE:SLEW:MAXIMUM?	R	<FLOAT>	Returns the maximum slew rate possible for output voltage.
0x010817	4	SOURCE:VOLTAGE:SLEW:MINIMUM?	R	<FLOAT>	Returns the minimum slew rate possible for output voltage.
0x010818		SOURCE:VOLTAGE:SLEW:TYPE <RATE/0 | TIME/1>	RW	<UNKNOWN>	Changes the Voltage Slew Type Valid arguments are: RATE / 0 TIME

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
					/ 1 | Returns the selected Voltage Slew Type
0x010819	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.
0x01081A	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.

Table 5-5. Source Commands

5.4.2.2 SASIMULATOR COMMANDS

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
0x020001	4	SASIMULATOR:VM <NRF>	RW	<FLOAT>	
0x020101	4	SASIMULATOR:IM <NRF>	RW	<FLOAT>	
0x020205	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
0x020206	0	SASIMULATOR:CURVE:DELETE	W	<NONE>	Deletes the selected IV Curve
0x020207	4	SASIMULATOR:CURVE:EN50530:COEFFICIENTS:ALPHA <NRF>	RW	<FLOAT>	Sets the ALPHA value in the EN50530 Curve | Returns the ALPHA Value of the

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
					EN50530 Curve
0x020208	4	SASIMULATOR:CURVE:EN50530:COEFFICIENTS:ALPHA:MAXIMUM?	R	<FLOAT>	Returns the maximum ALPHA value that can be set
0x020209	4	SASIMULATOR:CURVE:EN50530:COEFFICIENTS:ALPHA:MINIMUM?	R	<FLOAT>	Returns the minimum APLPA value that can be set
0x02020A	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
0x02020B	4	SASIMULATOR:CURVE:EN50530:COEFFICIENTS:BETA:MAXIMUM?	R	<FLOAT>	Returns the maximum BETA value that can be set
0x02020C	4	SASIMULATOR:CURVE:EN50530:COEFFICIENTS:BETA:MINIMUM?	R	<FLOAT>	Returns the minimum BETA value that can be set
0x02020D	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
0x02020E	4	SASIMULATOR:CURVE:EN50530:COEFFICIENTS:CG:MAXIMUM?	R	<FLOAT>	Returns the maximum CG value that can be set
0x02020F	4	SASIMULATOR:CURVE:EN50530:COEFFICIENTS:CG:MINIMUM?	R	<FLOAT>	Returns the minimum CG value that can be set
0x020210	4	SASIMULATOR:CURVE:EN50530:COEFFIC	RW	<FLOAT>	Sets the CR value in the EN50530 Curve | Returns

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
		IENTS:CR <NRF>			the CR Value of the EN50530 Curve
0x020211	4	SASIMULATOR:CURVE:EN50530:COEFFICIENTS:CR:MAXIMUM?	R	<FLOAT>	Returns the maximum CR value that can be set
0x020212	4	SASIMULATOR:CURVE:EN50530:COEFFICIENTS:CR:MINIMUM?	R	<FLOAT>	Returns the minimum CR value that can be set
0x020213	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
0x020214	4	SASIMULATOR:CURVE:EN50530:COEFFICIENTS:CV:MAXIMUM?	R	<FLOAT>	Returns the maximum CV value that can be set
0x020215	4	SASIMULATOR:CURVE:EN50530:COEFFICIENTS:CV:MINIMUM?	R	<FLOAT>	Returns the minimum CV value that can be set
0x020216	0	SASIMULATOR:CURVE:EN50530:COEFFICIENTS:DEFAULTS	W	<NONE>	Sets the default values to the coefficients with respect to the technology type in EN50530 Curve
0x020217	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
0x020218	4	SASIMULATOR:CURVE:EN50530:COEFFICIENTS:FFI:MAXIMUM?	R	<FLOAT>	Returns the maximum FFI value that can be set
0x020219	4	SASIMULATOR:CURVE:EN5	R	<FLOAT>	Returns the minimum FFI

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
		0530:COEFFICIENTS:FFI:MINIMUM?			value that can be set
0x02021A	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
0x02021B	4	SASIMULATOR:CURVE:EN50530:COEFFICIENTS:FFU:MAXIMUM?	R	<FLOAT>	Returns the maximum FFU value that can be set
0x02021C	4	SASIMULATOR:CURVE:EN50530:COEFFICIENTS:FFU:MINIMUM?	R	<FLOAT>	Returns the minimum FFU value that can be set
0x02021D	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
0x02021E	4	SASIMULATOR:CURVE:EN50530:COEFFICIENTS:VL2H:MAXIMUM?	R	<FLOAT>	Returns the maximum VL2H value that can be set
0x02021F	4	SASIMULATOR:CURVE:EN50530:COEFFICIENTS:VL2H:MINIMUM?	R	<FLOAT>	Returns the minimum VL2H value that can be set
0x020220	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
0x020221	4	SASIMULATOR:CURVE:EN50530:MPPPAR	R	<FLOAT>	Returns the maximum power value of maximum

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
		AMS:PMP:MAXIMUM?			power point that can be set in kW
0x020222	4	SASIMULATOR:CURVE:EN50530:MPPPARAMS:PMP:MINIMUM?	R	<FLOAT>	Returns the minimum power value of maximum power point that can be set in kW
0x020223	4	SASIMULATOR:CURVE:EN50530: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
0x020224	4	SASIMULATOR:CURVE:EN50530:MPPPARAMS:VMP:MAXIMUM?	R	<FLOAT>	Returns the maximum Voltage value of maximum power point that can be set in volts
0x020225	4	SASIMULATOR:CURVE:EN50530:MPPPARAMS:VMP:MINIMUM?	R	<FLOAT>	Returns the minimum Voltage value of maximum power point that can be set in volts
0x020228	0	SASIMULATOR:CURVE:SAVE	W	<NONE>	Saves the selected IV Curve
0x02022A	4	SASIMULATOR:CURVE:SNL:BETAPARAMS:P <NRF>	RW	<FLOAT>	Sets the BETA P Value to Selected SNL Curve | Returns the BETA P of the Selected SNL Curve
0x02022B	4	SASIMULATOR:CURVE:SNL:BETAPARAMS:P:MAXIMUM?	R	<FLOAT>	Returns the maximum BETA P Value that can be set
0x02022C	4	SASIMULATOR:CURVE:SNL:	R	<FLOAT>	Returns the minimum BETA

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
		BETAPARAMS :P:MINIMUM?			P Value that can be set
0x02022D	4	SASIMULATOR:CURVE:SNL:BETAPARAMS :V <NRF>	RW	<FLOAT>	Sets the BETA V Value to Selected SNL Curve | Returns the BETA V Value of the Selected SNL Curve
0x02022E	4	SASIMULATOR:CURVE:SNL:BETAPARAMS :V:MAXIMUM?	R	<FLOAT>	Returns the maximum BETA V Value that can be set
0x02022F	4	SASIMULATOR:CURVE:SNL:BETAPARAMS :V:MINIMUM?	R	<FLOAT>	Returns the minimum BETA V Value that can be set
0x020230	4	SASIMULATOR:CURVE:SNL:FILLFACTOR <NRF>	RW	<FLOAT>	Sets the Fill Factor Value to Selected SNL Curve | Returns the Fill Factor Value of the Selected SNL Curve
0x020231	4	SASIMULATOR:CURVE:SNL:FILLFACTOR:MAXIMUM?	R	<FLOAT>	Returns the maximum Fill Factor Value that can be set
0x020232	4	SASIMULATOR:CURVE:SNL:FILLFACTOR:MINIMUM?	R	<FLOAT>	Returns the minimum Fill Factor Value that can be set
0x020234	4	SASIMULATOR:CURVE:SNL:KFACTOR:IRRADIANCE <NRF>	RW	<FLOAT>	Sets the KFactor Irradiance Value to Selected SNL Curve | Returns the KFactor Irradiance Value of the Selected SNL Curve
0x020235	4	SASIMULATOR:CURVE:SNL:KFACTOR:IRRADIANCE:MAXIMUM?	R	<FLOAT>	Returns the maximum KFactor Irradiance Value that can be set

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
0x020236	4	SASIMULATOR:CURVE:SNL:KFACTOR:IRRADIANCE:MINIMUM?	R	<FLOAT>	Returns the minimum KFactor Irradiance Value that can be set
0x020237	4	SASIMULATOR:CURVE:SNL:KFACTOR:VOLTAGE <NRF>	RW	<FLOAT>	Sets the KFactor Voltage Value to Selected SNL Curve | Returns the KFactor Voltage Value of the Selected SNL Curve
0x020238	4	SASIMULATOR:CURVE:SNL:KFACTOR:VOLTAGE:MAXIMUM?	R	<FLOAT>	Returns the maximum KFactor Voltage Value that can be set in
0x020239	4	SASIMULATOR:CURVE:SNL:KFACTOR:VOLTAGE:MINIMUM?	R	<FLOAT>	Returns the minimum KFactor Voltage Value that can be set
0x02023A	4	SASIMULATOR:CURVE:SNL:MPPPARAMS:IMP <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
0x02023B	4	SASIMULATOR:CURVE:SNL:MPPPARAMS:IMP:MAXIMUM?	R	<FLOAT>	Returns the Maximum Current Value at maximum power point in the SNL Curve type that can be set in amps
0x02023C	4	SASIMULATOR:CURVE:SNL:MPPPARAMS:IMP:MINIMUM?	R	<FLOAT>	Returns the Minimum Current Value at maximum power point in the SNL Curve

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
					type that can be set in amps
0x02023D	4	SASIMULATOR:CURVE:SNL:MPPPARAMS:VMP <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
0x02023E	4	SASIMULATOR:CURVE:SNL:MPPPARAMS:VMP:MAXIMUM?	R	<FLOAT>	Returns the Maximum Voltage Value at maximum power point in the SNL Curve type that can be set in volts
0x02023F	4	SASIMULATOR:CURVE:SNL:MPPPARAMS:VMP:MINIMUM?	R	<FLOAT>	Returns the Minimum Voltage Value at maximum power point in the SNL Curve type that can be set in volts
0x020240	4	SASIMULATOR:CURVE:SNL:VIPARAMS: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
0x020241	4	SASIMULATOR:CURVE:SNL:VIPARAMS:ISC:MAXIMUM?	R	<FLOAT>	Returns the Maximum Short Circuit Current in the SNL Curve type that can be set in amps
0x020242	4	SASIMULATOR:CURVE:SNL:VIPARAMS:ISC:MINIMUM?	R	<FLOAT>	Returns the Minimum Short Circuit current in the SNL Curve type that

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
					can be set in amps
0x020243	4	SASIMULATOR:CURVE:SNL:VIPARAMS: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
0x020244	4	SASIMULATOR:CURVE:SNL:VIPARAMS:VOC:MAXIMUM?	R	<FLOAT>	Returns the Maximum Open Circuit Voltage in the SNL Curve type that can be set in volts
0x020245	4	SASIMULATOR:CURVE:SNL:VIPARAMS:VOC:MINIMUM?	R	<FLOAT>	Returns the Minimum Open Circuit voltage in the SNL Curve type that can be set in volts
0x020246		SASIMULATOR:CURVE:TYPE <SNL/0|EN50530/1|USERDEFINED VI POINTS/2>	RW	<UNKNOWN>	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
0x020301	4	SASIMULATOR:MPP?	R	<FLOAT>	Returns the MPPT Tracking efficiency of the UUT
0x020501	4	SASIMULATOR:PMP?	R	<FLOAT>	Returns the Calculated Maximum power at Maximum power point of Selected IV Curve in kW
0x020601	4	SASIMULATOR:SOURCE:EN	RW	<FLOAT>	Sets the Rated Power of

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
		50530:POWER <NRF>			Selected EN50530 Curve in kW | Returns the Rated Power Value of the selected EN50530 Curve in kW
0x020602	4	SASIMULATOR:SOURCE:EN50530:POWER:MAXIMUM?	R	<FLOAT>	Returns the Maximum Rated power Value that can be set in the EN50530 Curve in kW
0x020603	4	SASIMULATOR:SOURCE:EN50530:POWER:MINIMUM?	R	<FLOAT>	Returns the Minimum Rated Power Value that can be sets in the EN50530 Curve in kW
0x020605	4	SASIMULATOR:SOURCE:EN50530: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
0x020606	4	SASIMULATOR:SOURCE:EN50530:VOLTAGE:MAXIMUM?	R	<FLOAT>	Returns the Maximum Rated Voltage Value that can be set in the EN50530 Curve in volts
0x020607	4	SASIMULATOR:SOURCE:EN50530:VOLTAGE:MINIMUM?	R	<FLOAT>	Returns the Minimum Rated Voltage Value that can be sets in the EN50530 Curve in volts
0x020608	4	SASIMULATOR:SOURCE:IRRADIANCE <NRF>	RW	<FLOAT>	Sets the Irradiance of the Selected IV Curve | Returns the Irradiance

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
					value of the selected Curve
0x020609	4	SASIMULATOR:SOURCE:IRRADIANCE:MAXIMUM?	R	<FLOAT>	Returns the Maximum Irradiance Value that can be set to the Curve
0x02060A	4	SASIMULATOR:SOURCE:IRRADIANCE:MINIMUM?	R	<FLOAT>	Returns the Minimum Irradiance Value that can be set to the curve
0x02060B	4	SASIMULATOR:SOURCE:TEMPERATURE <NRF>	RW	<FLOAT>	Sets the Temperature of the Selected IV Curve | Returns the Temperature value of the selected Curve
0x02060C	4	SASIMULATOR:SOURCE:TEMPERATURE:MAXIMUM?	R	<FLOAT>	Returns the Maximum Temperature Value that can be set to the Curve
0x02060D	4	SASIMULATOR:SOURCE:TEMPERATURE:MINIMUM?	R	<FLOAT>	Returns the Minimum Temperature Value that can be set to the curve
0x020901	1	SASIMULATOR:LOAD <0|1>	RW	<BYTE>	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
0x020247	4	SASIMULATOR:CURVE:EN50530:COEFFIC	R	<FLOAT>	Returns the maximum

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
		IENTS:VL2H:MAXIMUM??			VL2H value that can be set

Table 5-6. Simulator Commands

5.4.2.3 BATTERY:SIMULATION COMMANDS

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
0x022001	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
0x022002	4	BATTERY:SIMULATION:CAPACITY:MAXIMUM?	R	<FLOAT>	Returns the Maximum value of the capacity can be set for the Battery simulation in Ah
0x022003	4	BATTERY:SIMULATION:CAPACITY:MINIMUM?	R	<FLOAT>	Returns the Minimum value of the capacity can be set for the Battery simulation in Ah
0x022101	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
0x022102	4	BATTERY:SIMULATION:CHA	R	<FLOAT>	Returns the maximum

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
		RGE:CURREN T:MAXIMUM?			charging current of the battery configuration in Amps
0x022103	4	BATTERY:SIM ULATION:CHA RGE:CURREN T:MINIMUM?	R	<FLOAT>	Returns the minimum charging current of the battery configuration in Amps
0x022201	4	BATTERY:SIM ULATION:CUR RENT:MAXIMU M?	R	<FLOAT>	Returns the Maximum current that can be set to the battery simulator in Amps
0x022202	4	BATTERY:SIM ULATION:CUR RENT:MINIMU M?	R	<FLOAT>	Returns the Minimum Current that can be set to the battery simulator in Amps
0x022301	4	BATTERY:SIM ULATION:CUT OFF:CAPACIT Y: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
0x022302	4	BATTERY:SIM ULATION:CUT OFF:CAPACIT Y:HIGH:MAXIM UM?	R	<FLOAT>	Returns the Maximum capacity cutoff condition value of battery simulator in Ah
0x022303	4	BATTERY:SIM ULATION:CUT OFF:CAPACIT Y:HIGH:MINIM UM?	R	<FLOAT>	Returns the minimum capacity high cut off condition value of battery simulator in Ah
0x022304	4	BATTERY:SIM ULATION:CUT	RW	<INT>	Sets the Capacity Low

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
		OFF:CAPACITY:LOW <NR1>			cut off condition value of battery simulator in Ah | Returns the capacity Low Cut off value of the battery simulator in Ah
0x022305	4	BATTERY:SIMULATION:CUTOFF:CAPACITY:LOW:MAXIMUM?	R	<FLOAT>	Returns the maximum capacity low of the battery simulator in Ah
0x022306	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
0x022307	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
0x022308	4	BATTERY:SIMULATION:CUTOFF:SOC:HIGH:MAXIMUM?	R	<FLOAT>	Returns the maximum SOC High Cut off Value that can be set to Battery simulator
0x022309	4	BATTERY:SIMULATION:CUTOFF:SOC:HIGH:MINIMUM?	R	<FLOAT>	Returns the minimum SOC High Cut off Value that can be set to Battery simulator
0x02230A	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

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
					Battery simulator
0x02230B	4	BATTERY:SIMULATION:CUTOFF:SOC:LOW:MAXIMUM?	R	<FLOAT>	Returns the maximum SOC Low Cut off Value that can be set to Battery simulator
0x02230C	4	BATTERY:SIMULATION:CUTOFF:SOC:LOW:MINIMUM?	R	<FLOAT>	Returns the minimum SOC Low Cut off Value that can be set to Battery simulator
0x022401	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
0x022402	4	BATTERY:SIMULATION:DISCHARGE:CURRENT:MAXIMUM?	R	<FLOAT>	Returns the maximum Discharge current that can be set to battery simulator in Amps
0x022403	4	BATTERY:SIMULATION:DISCHARGE:CURRENT:MINIMUM?	R	<FLOAT>	Returns the minimum Discharge Current that can be set to the battery simulator in Amps
0x022501	4	BATTERY:SIMULATION:EMPTYVOLT <NRF>	RW	<FLOAT>	Sets the Empty Volt value to the selected battery configuration in Volts | Returns the Empty Volt

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
					Value of the selected battery configuration in Volts
0x022601	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
0x022701	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
0x022801	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
0x022802	4	BATTERY:SIMULATION:PARALLEL:MAXIMUM?	R	<FLOAT>	Returns the maximum Number of batteries connected in parallel in

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
					battery pack to the selected battery configuration
0x022803	4	BATTERY:SIMULATION:PARALLEL:MINIMUM?	R	<FLOAT>	Returns the minimum Number of batteries connected in parallel in battery pack of the selected battery configuration
0x022902	0	BATTERY:SIMULATION:PROFILE:SAVE	W	<NONE>	Saves the Selected battery profiles to device
0x022907	0	BATTERY:SIMULATION:PROFILE:DEL:ALL	W	<NONE>	Deletes all the profiles present in the selected battery configuration
0x02290A	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
0x022A01	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
0x022A02	4	BATTERY:SIMULATION:SERI	R	<FLOAT>	Returns the Maximum

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
		ES:RESISTANCE:MAXIMUM?			Series resistance of the battery that can be set in the Battery model type in ohms
0x022A03	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
0x022A04	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
0x022A05	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
0x022A06	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

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
0x022B01	4	BATTERY:SIMULATION:SOC:MAXIMUM?	R	<FLOAT>	Returns maximum state of charge of the battery that can be set
0x022B02	4	BATTERY:SIMULATION:SOC:MINIMUM?	R	<FLOAT>	Returns minimum state of charge of the battery that can be set
0x022C01		BATTERY:SIMULATION:STATE <ABORT/0|RUN/1|PAUSE/2|RESUME/3|TRIPPED/4|IDLE/5|INIT/6>	RW	<UNKNOWN>	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)
0x022F01	4	BATTERY:SIMULATION:TOTAL:CAPACITY?	R	<FLOAT>	Returns the Total Calculated capacity of the battery pack in Ah
0x022F02	4	BATTERY:SIMULATION:TOTAL:EMPTYVOLT?	R	<FLOAT>	Returns the Total Empty Voltage of the battery pack in volts
0x022F03	4	BATTERY:SIMULATION:TOTAL:FULLVOLT?	R	<FLOAT>	Returns the Total Full Voltage of battery pack in volts

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
0x022F04	4	BATTERY:SIMULATION:TOTAL:ESR?	R	<INT>	Returns the Total series resistance of the battery pack in Ohms
0x023001	4	BATTERY:SIMULATION:VOLTAGE:MAXIMUM?	R	<FLOAT>	Returns the maximum voltage value that can be set in the battery simulator in volts
0x023002	4	BATTERY:SIMULATION:VOLTAGE:MINIMUM?	R	<FLOAT>	Returns the minimum voltage value that can be set in the battery simulator in volts

Table 5-7. Simulation Commands

5.4.2.4 BATTERY:TEST COMMANDS

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
0x024001	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
0x024002	1	BATTERY:TEST:CHARGE:TYPE <0|1>	RW	<BYTE>	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
0x024003	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
0x024004	4	BATTERY:TEST:CHARGE:STOP: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
0x024005	4	BATTERY:TEST:CHARGE:VOLTAGE:LIMIT <NRF>	RW	<FLOAT>	Sets the Charging Voltage Limit value to the Selected Battery tester

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
					profile in volts | Returns the Charging Voltage Limit value of the selected battery tester profile in volts
0x024102	4	BATTERY:TEST:CONFIGURE:CAPACITY: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
0x024104	4	BATTERY:TEST:CONFIGURE:CAPACITY:MAXIMUM?	R	<FLOAT>	Returns the maximum capacity that can be set to the battery tester in Ah
0x024105	4	BATTERY:TEST:CONFIGURE:CAPACITY:MINIMUM?	R	<FLOAT>	Returns the minimum capacity that can be set to the battery tester in Ah
0x024106	4	BATTERY:TEST:CONFIGURE:CHARGE:CURRENT: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
0x024108	4	BATTERY:TEST:CONFIGURE:DISCHARGE:CURRENT:LIMIT <NRF>	RW	<FLOAT>	Sets the Discharging current limit to the selected battery tester profile in amps

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
					| Returns the Discharging Current limit value from the selected battery tester profile in amps
0x02410A	0	BATTERY:TEST:CONFIGURE:SAVE	W	<NONE>	Saves the Selected Battery tester profile
0x02410C	4	BATTERY:TEST:CONFIGURE:VOLTAGE:MAXIMUM <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
0x02410D	4	BATTERY:TEST:CONFIGURE:VOLTAGE:MINIMUM <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
0x024201	4	BATTERY:TEST:DISCHARGE:CURRENT <NRF>	RW	<FLOAT>	Sets the Discharging current Value to battery tester in amps | Returns the Discharging Current Value to battery tester in amps
0x024202	4	BATTERY:TEST:DISCHARGE:STOP:CAPACITY <NRF>	RW	<FLOAT>	Sets the Stop Capacity value in Ah at which the system stops the discharging by

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
					turning the system off | Returns the stop Capacity value of the discharging operation type in Ah
0x024203	4	BATTERY:TEST:DISCHARGE:STOP: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
0x024204	4	BATTERY:TEST:DISCHARGE:VOLTAGE: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
0x024301	4	BATTERY:TEST:INITIAL:CAPACITY <NRF>	RW	<FLOAT>	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
0x024401	1	BATTERY:TEST:MODE <0|1>	RW	<BYTE>	Sets the Operation Mode of the battery tester |

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
					Returns the operation Mode of the battery tester 0 – Steady State 1 – Sequence
0x024501	1	BATTERY:TEST:OPERATION:TYPE <0|1>	RW	<BYTE>	Sets the Operation type of the battery tester | Returns the operation type of the battery tester 0 – Charging 1 – Discharging
0x024601		BATTERY:TEST:STATE <ABORT/0|RUN/1|PAUSE/2|RESUME/3|TRIPPED/4|IDLE/5>	RW	<UNKNOWN>	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
0x024801	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
0x024802	4	BATTERY:TEST:STOP:TIME:MAXIMUM?	R	<FLOAT>	Returns the maximum stop time in seconds that can be set by the user
0x024803	4	BATTERY:TEST:STOP:TIME:MINIMUM?	R	<FLOAT>	Returns the minimum stop time in seconds that can be set by the user
0x024901	4	BATTERY:TEST:TERMINATION:CURRENT <NRF>	RW	<FLOAT>	Sets the termination current in amps to the battery tester profile. The Output of

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
					the system will turn off when the charging current reaches the termination current | Returns the termination current from the selected battery tester profile

Table 5-8. Test Commands

5.4.2.5 CALIBRATE:INITIAL COMMANDS

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
0x01A001	1	CALIBRATE:INITIAL:AC:INPUT:CONFIGURE <0|1>	RW	<BYTE>	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.
0x01A101	4	CALIBRATE:INITIAL:CHASSIS:ADDRESS <NR1>	RW	<INT>	Sets the power-on default chassis address. | Returns the power-on default chassis address.
0x01A201	4	CALIBRATE:INITIAL:CURRENT <NRF>	RW	<FLOAT>	Sets the power-on value of current. | Returns the value of power-on current.
0x01A202	4	CALIBRATE:INITIAL:CURRENT:MAXIMUM?	R	<FLOAT>	Returns the power-on value of maximum current that can be set.

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
0x01A203	4	CALIBRATE:INITIAL:CURRENT:MINIMUM?	R	<FLOAT>	Returns the power-on value of minimum current that can be set.
0x01A204	4	CALIBRATE:INITIAL:CURRENT:MONITOR <NRF>	W	<FLOAT>	Initializes the current monitor (IMON) signal calibration.
0x01A205	4	CALIBRATE:INITIAL: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.
0x01A206	4	CALIBRATE:INITIAL:CURRENT:NEGATIVE:LIMIT <NRF>	RW	<FLOAT>	Sets the power-on default value for negative current limit. | Returns the power-on default value for negative current limit.
0x01A207	4	CALIBRATE:INITIAL:CURRENT:NEGATIVE:LIMIT:MAXIMUM?	R	<FLOAT>	Returns the power-on default value for maximum level of negative current limit.
0x01A208	4	CALIBRATE:INITIAL:CURRENT:NEGATIVE:LIMIT:MINIMUM?	R	<FLOAT>	Returns the power-on default value for minimum level of negative current limit.
0x01A209	4	CALIBRATE:INITIAL:CURRENT:POSITIVVE:LIMIT <NRF>	W	<FLOAT>	Sets the power-on default value for positive current limit.
0x01A20A	4	CALIBRATE:INITIAL:CURREN	R	<FLOAT>	Returns the power-on

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
		T:POSITIVE:LIMIT?			default value for positive current limit.
0x01A20B	4	CALIBRATE:INITIAL:CURRENT:POSITIVE:LIMIT:MAXIMUM?	R	<FLOAT>	Returns the power-on default value for maximum level of positive current limit.
0x01A20C	4	CALIBRATE:INITIAL:CURRENT:POSITIVE:LIMIT:MINIMUM?	R	<FLOAT>	Returns the power-on default value for minimum level of positive current limit.
0x01A20D	1	CALIBRATE:INITIAL:CURRENT:PROGRAM <0|1>	RW	<BYTE>	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.
0x01A20E	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.
0x01A20F	4	CALIBRATE:INITIAL:CURRENT:PROGRAM:FSCR <NRF>	RW	<FLOAT>	Sets the power-on default full-scale resistance value for rated

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
					current from external analog programming. | Returns the power-on default full scale resistance value for rated current from external analog programming.
0x01A210	1	CALIBRATE:INITIAL:CURRENT:PROGRAM:SOUR <0|1>	RW	<BYTE>	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.
0x01A212	1	CALIBRATE:INITIAL:CURRENT:SLEW:TYPE <0|1>	RW	<BYTE>	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.
0x01A213	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

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
					default value for maximum soft-limit of current.
0x01A214	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.
0x01A215	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.
0x01A216	4	CALIBRATE:INITIAL:CURRENT:PROTECTION:NEGATIVE:MAXIMUM?	R	<FLOAT>	Returns the power-on default maximum value of negative overcurrent protection that can be set.
0x01A217	4	CALIBRATE:INITIAL:CURRENT:PROTECTION:NEGATIVE:MINIMUM?	R	<FLOAT>	Returns the power-on default minimum value of negative overcurrent protection that can be set.
0x01A218	4	CALIBRATE:INITIAL:CURRENT:PROTECTION:POSITIVE <NRF>	RW	<FLOAT>	Sets the power-on default positive overcurrent protection value. | Returns the power-on default power-

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
					on default positive overcurrent protection value.
0x01A219	4	CALIBRATE:INITIAL:CURRENT:PROTECTION:POSITIVE:MAXIMUM?	R	<FLOAT>	Returns the power-on default maximum value of positive overcurrent protection that can be set.
0x01A21A	4	CALIBRATE:INITIAL:CURRENT:PROTECTION:POSITIVE:MINIMUM?	R	<FLOAT>	Returns the power-on default minimum value of positive overcurrent protection that can be set.
0x01A301	4	CALIBRATE:INITIAL:MEAS:CURRENT:AVERAGE <NR1>	RW	<INT>	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

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
					taking a current reading.
0x01A302	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.
0x01A401		CALIBRATE:INITIAL:OPERATING:MODE <SOUR|ELOAD|BIDIR|BATSIM|PVSIM|BATTEST>	RW	<UNKNOWN>	Changes the power-on default operating mode. | Returns the power-on default operating mode.
0x01A501	1	CALIBRATE:INITIAL:OUTPUT:ISOLATION <0|1>	RW	<BYTE>	Changes the power-on default state for output isolation relays. | Returns the power-on default state for

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
					output isolation relays.
0x01A502	1	CALIBRATE:INITIAL:OUTPUT:PROGRAM:TYPE <0|1>	RW	<BYTE>	Changes the Output Programming type, valid arguments are: 0 – Voltage Programming type 1 – Current Programming type | Returns the Output Programming type
0x01A503	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.
0x01A504	4	CALIBRATE:INITIAL:OUTPUT:PROTECTION:FOLD <NR1>	RW	<INT>	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.
0x01A601	0	CALIBRATE:INITIAL:PONS:DEFAULT	W	<NONE>	Sets all the values to factory default.
0x01A701	4	CALIBRATE:INITIAL:POWER <NRF>	RW	<FLOAT>	Sets the power-on default value of Power | Returns the power-on default power set to regulate.
0x01A702	4	CALIBRATE:INITIAL:POWER:MAXIMUM?	R	<FLOAT>	Returns the power-on default Maximum

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
					power that can be programmed with given Input voltage conditions.
0x01A703	4	CALIBRATE:INITIAL:POWER:MINIMUM?	R	<FLOAT>	Returns the power-on default Minimum power that can be programmed with given Input voltage conditions.
0x01A704	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.
0x01A705	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.
0x01A706	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.
0x01A707	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.
0x01A708	4	CALIBRATE:INITIAL:POWER:POSITIVE:LIMIT:MAXIMUM?	R	<FLOAT>	Returns the power-on default maximum value that the user

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
					can set for positive power limit.
0x01A709	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.
0x01A70A	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.
0x01A70B	4	CALIBRATE:INITIAL:POWER:PROTECTION:NEGATIVE:MAXIMUM?	R	<FLOAT>	Returns the power-on default maximum possible value for the negative overpower protection limit.
0x01A70C	4	CALIBRATE:INITIAL:POWER:PROTECTION:NEGATIVE:MINIMUM?	R	<FLOAT>	Returns the power-on default minimum possible value for the negative overpower protection limit.
0x01A70D	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.
0x01A70E	4	CALIBRATE:INITIAL:POWER:PROTECTION:	R	<FLOAT>	Returns the power-on default maximum

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
		POSITIVE:MAXIMUM?			possible value for the positive overpower protection limit.
0x01A70F	4	CALIBRATE:INITIAL:POWER:PROTECTION:POSITIVE:MINIMUM?	R	<FLOAT>	Returns the power-on default minimum possible value for the positive overpower protection limit.
0x01A711	1	CALIBRATE:INITIAL:POWER:SLEW:TYPE <0|1>	RW	<BYTE>	Sets the power-on default slew type for power. | Returns the power-on default slew type for power.
0x01A712	4	CALIBRATE:INITIAL:POWER:SOFT:LIMIT:HIGH <NRF>	RW	<FLOAT>	Sets the power-on default higher power limit. For 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.
0x01A713	4	CALIBRATE:INITIAL:POWER:SOFT:LIMIT:LOW <NRF>	RW	<FLOAT>	Sets the power-on default soft limit for lower power. For 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.

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
0x01A901	4	CALIBRATE:INITIAL:SERIES:RESISTANCE <NRF>	RW	<FLOAT>	Sets the power-on default series resistance. | Returns the power-on default value for series resistance.
0x01A902	4	CALIBRATE:INITIAL:SERIES:RESISTANCE:MAXIMUM?	R	<FLOAT>	Returns the power-on default maximum possible value for series resistance.
0x01A903	4	CALIBRATE:INITIAL:SERIES:RESISTANCE:MINIMUM?	R	<FLOAT>	Returns the power-on default minimum possible value for series resistance.
0x01AA01	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). | Returns the power-on default sink resistance value.
0x01AA02	4	CALIBRATE:INITIAL:SINK:RESISTANCE:MAXIMUM?	R	<FLOAT>	Returns the power-on default value of maximum sink resistance possible.
0x01AA03	4	CALIBRATE:INITIAL:SINK:RESISTANCE:MINIMUM?	R	<FLOAT>	Returns the power-on default value of minimum sink resistance possible.

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
0x01AB01	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.
0x01AB02	4	CALIBRATE:INITIAL:VOLTAGE:HIGH:LIMIT <NRF>	RW	<FLOAT>	Sets the power-on default higher limit of voltage. For 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
0x01AB03	4	CALIBRATE:INITIAL:VOLTAGE:LOW:LIMIT <NRF>	RW	<FLOAT>	Sets the power-on default lower limit of voltage. For 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.
0x01AB04	4	CALIBRATE:INITIAL:VOLTAGE:MAXIMUM?	R	<FLOAT>	Returns the power-on default maximum voltage of the unit.
0x01AB05	4	CALIBRATE:INITIAL:VOLTAGE:MINIMUM?	R	<FLOAT>	Returns the power-on default

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
					minimum voltage of the unit.
0x01AB06	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)
0x01AB07	4	CALIBRATE:INITIAL:VOLTAGE:PROGRAM:FSC <NRF>	RW	<FLOAT>	Sets the power-on default 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 10 V. | Returns the power-on default Full-scale Voltage, at which Rated Voltage will be programmed.
0x01AB08	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

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
					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.
0x01AB09	1	CALIBRATE:INITIAL:VOLTAGE:PROGRAM:SOUR <0|1>	RW	<BYTE>	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.
0x01AB0B	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.
0x01AB0C	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

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
					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.
0x01AB0F	1	CALIBRATE:INITIAL:VOLTAGE:SLEW:TYPE <0|1>	RW	<BYTE>	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.
0x01AB10	4	CALIBRATE:INITIAL:VOLTAGE:SOFT:LIMIT:HIGH <NRF>	RW	<FLOAT>	Sets the power-on default maximum soft limit for the output voltage. For Example: In CV mode, the maximum possible voltage that can be set. | Returns the power-on default maximum soft limit for the output voltage.
0x01AB11	4	CALIBRATE:INITIAL:VOLTAGE:SOFT:LIMIT:LOW <NRF>	RW	<FLOAT>	Sets the power-on default minimum soft limit for the output voltage.

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
					For 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 5-9. Calibrate Initial Commands

5.4.2.6 CALIBRATE COMMANDS

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
0x01C001	0	CALIBRATE:CURRENT:CALCULATE	W	<NONE>	Calculates the value of gain and offset for the Current sense
0x01C101	0	CALIBRATE:ISOLATION:VOLTAGE:SENSE:CALCULATE	W	<NONE>	Calculates the value of the gain and offset for isolated voltage sense.
0x01C103	4	CALIBRATE:ISOLATION:VOLTAGE:SENSE:FIVEPOINT1 <NRF>	W	<FLOAT>	Sets isolated voltage value for calibration point 1
0x01C104	4	CALIBRATE:ISOLATION:VOLTAGE:SENSE:FIVEPOINT2 <NRF>	W	<FLOAT>	Sets isolated voltage value for calibration point 2
0x01C105	4	CALIBRATE:ISOLATION:VOLTAGE:SENSE:FIVEPOINT3 <NRF>	W	<FLOAT>	Sets isolated voltage value for calibration point 3
0x01C106	4	CALIBRATE:ISOLATION:VOLTAGE:SENSE:FIVEPOINT4 <NRF>	W	<FLOAT>	Sets isolated voltage value for calibration point 4
0x01C107	4	CALIBRATE:ISOLATION:VOL	W	<FLOAT>	Sets isolated voltage value

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
		TAGE:SENSE:FIVEPOINT5 <NRF>			for calibration point 5
0x01C108	4	CALIBRATE:ISOLATION:VOLTAGE:SENSE:GAIN <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
0x01C109	4	CALIBRATE:ISOLATION:VOLTAGE:SENSE:OFFSET <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.
0x01C201	0	CALIBRATE:LOCK	W	<NONE>	Disables access to the non-volatile memory. Prevents attempts to store calibration values. (Issue after CAL:UNLock and CAL:STORe commands).
0x01C301	1	CALIBRATE:MODULE:CONFIGURE <0|1>	RW	<BYTE>	Configures the modules inside the chassis as parallel or series. Valid arguments are: 0 - Parallel 1 - Series. | Returns the module configuration.
0x01C302	4	CALIBRATE:MODULE:COUNT:CONFIGURE <NR1>	RW	<INT>	Sets the number of modules present in the chassis (Maximum of

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
					3). | Returns the number of modules present in the chassis.
0x01C303	4	CALIBRATE:MODULE:CURRENT:LIMIT <NRF>	RW	<FLOAT>	Sets the rated current limit of the modules. | Returns the rated current limit of the modules.
0x01C305	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.
0x01C306	4	CALIBRATE:MODULE:POWER:LIMIT <NRF>	RW	<FLOAT>	Sets the rated power limit of the modules. | Returns the rated power limit of the modules.
0x01C307	4	CALIBRATE:MODULE:VOLTAGE:LIMIT <NRF>	RW	<FLOAT>	Sets the rated voltage limit of the modules. | Returns the rated voltage limit of the modules.
0x01C308	4	CALIBRATE:MODULE:CURRENT?	R	<FLOAT>	Returns the maximum current of the module.
0x01C30A	4	CALIBRATE:MODULE:VOLTAGE:PROTECTION?	R	<FLOAT>	Returns the maximum rated voltage of the module.
0x01C30B	4	CALIBRATE:MODULE:VOLTAGE?	R	<FLOAT>	Sets the maximum rated voltage of the module.
0x01C501	4	CALIBRATE:OUTPUT:CURR	RW	<FLOAT>	Sets the calibration full-scale point for

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
		ENT:EXTI:GAIN <NRF>			current programming from external resistance source. | Returns the calibration full-scale point for current programming from external resistance source.
0x01C502	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.
0x01C503	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.
0x01C504	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

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
					programming from external voltage source.
0x01C505	4	CALIBRATE:OUTPUT:CURRENT:EXTV:POINT1 <NRF>	W	<FLOAT>	Sets the external voltage value-1 for current calibration.
0x01C506	4	CALIBRATE:OUTPUT:CURRENT:EXTV:POINT2 <NRF>	W	<FLOAT>	Sets the external voltage value-2 for current calibration.
0x01C508	4	CALIBRATE:OUTPUT:CURRENT:FIVEPOINT1 <NRF>	W	<FLOAT>	Sets output current value for calibration point 1.
0x01C509	4	CALIBRATE:OUTPUT:CURRENT:FIVEPOINT2 <NRF>	W	<FLOAT>	Sets output current value for calibration point 2.
0x01C50A	4	CALIBRATE:OUTPUT:CURRENT:FIVEPOINT3 <NRF>	W	<FLOAT>	Sets output current value for calibration point 3.
0x01C50B	4	CALIBRATE:OUTPUT:CURRENT:FIVEPOINT4 <NRF>	W	<FLOAT>	Sets output current value for calibration point 4.
0x01C50C	4	CALIBRATE:OUTPUT:CURRENT:FIVEPOINT5 <NRF>	W	<FLOAT>	Sets output current value for calibration point 5.
0x01C50E	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.
0x01C50F	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.

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
0x01C510	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.
0x01C511	4	CALIBRATE:OUTPUT:CURRENT:OFFSET <NRF>	RW	<FLOAT>	Sets the calibration Offset point for output current. | Returns the calibration Offset point for output current.
0x01C512	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.
0x01C513	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.
0x01C514	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

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
					during calibration.
0x01C515	4	CALIBRATE:OUTPUT:OVERVOLTAGE:EXTV:FSC <NRF>	W	<FLOAT>	Sets the calibration full-scale point for overvoltage programming from external voltage source.
0x01C516	4	CALIBRATE:OUTPUT:OVERVOLTAGE:EXTV:GAIN?	R	<FLOAT>	Returns the gain for overvoltage programming from external voltage source.
0x01C517	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.
0x01C518	4	CALIBRATE:OUTPUT:VOLTAGE:EXTI:FSC <NRF>	W	<FLOAT>	Sets the calibration full-scale point for voltage programming from external resistance source.
0x01C519	4	CALIBRATE:OUTPUT:VOLTAGE:EXTI:GAIN?	R	<FLOAT>	Returns the gain for voltage programming from external resistance source.
0x01C51A	4	CALIBRATE:OUTPUT:VOLTAGE:EXTI:OFFSET <NRF>	W	<FLOAT>	Sets the calibration full-scale point for voltage programming from external resistance source.
0x01C51B	4	CALIBRATE:OUTPUT:VOLTAGE:EXTV:FSC <NRF>	W	<FLOAT>	Sets the calibration full-scale point for voltage

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
					programming from external voltage source.
0x01C51C	4	CALIBRATE:OUTPUT:VOLTAGE:EXTV:GAIN?	R	<FLOAT>	Returns the gain for voltage programming from external voltage source.
0x01C51D	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.
0x01C51E	4	CALIBRATE:OUTPUT:VOLTAGE:FIVEPOINT1 <NRF>	W	<FLOAT>	Sets output voltage value for calibration point 1.
0x01C51F	4	CALIBRATE:OUTPUT:VOLTAGE:FIVEPOINT2 <NRF>	W	<FLOAT>	Sets output voltage value for calibration point 2.
0x01C520	4	CALIBRATE:OUTPUT:VOLTAGE:FIVEPOINT3 <NRF>	W	<FLOAT>	Sets output voltage value for calibration point 3.
0x01C521	4	CALIBRATE:OUTPUT:VOLTAGE:FIVEPOINT4 <NRF>	W	<FLOAT>	Sets output voltage value for calibration point 4.
0x01C522	4	CALIBRATE:OUTPUT:VOLTAGE:FIVEPOINT5 <NRF>	W	<FLOAT>	Sets output voltage value for calibration point 5.
0x01C523	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.
0x01C524	4	CALIBRATE:OUTPUT:VOLTA	RW	<FLOAT>	Sets the calibration full-scale point for

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
		GE:MONITOR:FSC <NRF>			voltage monitor signal. | Returns the calibration full-scale point for voltage monitor signal.
0x01C525	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.
0x01C526	4	CALIBRATE:OUTPUT:VOLTAGE:OFFSET <NRF>	RW	<FLOAT>	Sets the calibration Offset point for output voltage. | Returns the calibration Offset point for output voltage.
0x01C601	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.
0x01C602	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.
0x01C701	0	CALIBRATE:STORE	W	<NONE>	Stores the calibration constants in

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
					non-volatile memory.
0x01C901	0	CALIBRATE:VOLTAGE:CALCULATE	W	<NONE>	Calculates the gain and offset for the voltage sense

Table 5-10. Calibrate Commands

5.4.2.7 LIST COMMANDS

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
0x018201	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
0x018402	0	LIST:DEL:ALL	W	<NONE>	Deletes all the profiles present in the selected programming and output type
0x018701	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
0x018A01	0	LIST:SAVE	W	<NONE>	Saves the selected list file to device
0x018E01	1	LIST:STEP <0|1>	RW	<BYTE>	Sets the value to List step in the selected list file 0 – Auto

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
					Trigger 1 – Once Trigger | Returns the value of the list step in the selected list file
0x018F01	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

Table 5-11. List Commands

5.4.2.8 MEASURE COMMANDS

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
0x012001	4	MEASURE:AH O?	R	<FLOAT>	Returns the floating value of Capacity in Ah
0x012101	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
0x012201	4	MEASURE:CU RRENT:AVER AGE <NR1>	RW	<INT>	Sets the number of readings to average together when returning the current value with the MEASure:CUR Rent?

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
					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.
0x012202	4	MEASURE:CURRENT:PROGRAM?	R	<FLOAT>	Returns the programmed output current from external Analog current programming feature.
0x012203	4	MEASURE:CURRENT:TOTAL?	R	<FLOAT>	Returns the sum of all currents when multiple chassis are connected in parallel in amps
0x012301	4	MEASURE:POWER:PROGRAM?	R	<FLOAT>	Returns the programmed output power from external Analog current programming feature.
0x012302	4	MEASURE:POWER:TOTAL?	R	<FLOAT>	Returns the sum of power from individual chassis when multiple chassis are connected in parallel in amps

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
0x012204	4	MEASURE:CURRENT?	R	<FLOAT>	Returns the floating-point value of the DC output current in amps.
0x012303	4	MEASURE:POWER?	R	<FLOAT>	Returns the floating-point value of the measured output power in kilowatts.
0x012401	4	MEASURE:SOC?	R	<FLOAT>	Returns the floating-point value of state of charge of the battery
0x012501	4	MEASURE:VOLTAGE:AVERAGE <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.
0x012502	4	MEASURE:VOLTAGE:PROGRAM?	R	<FLOAT>	Returns the programmed output voltage from external

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
					Analog current programming feature.
0x012503	4	MEASURE:VOLTAGE:PROTECTION:PROGRAM?	R	<FLOAT>	Returns the programmed Over voltage trip point from external Analog over voltage programming feature.
0x012504	4	MEASURE:VOLTAGE?	R	<FLOAT>	Returns the floating-point value of the DC output voltage in volts.
0x012601	4	MEASURE:WHO?	R	<FLOAT>	Returns the floating-point value of the energy in watt-hour

Table 5-12. Measure Commands

5.4.2.9 OUTPUT COMMANDS

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
0x014101		OUTPUT:POLARITY<NORM/0/OFF|INV/1/ON>	RW	<UNKNOWN>	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>
0x014301	0	OUTPUT:PROTECTION:CLEAR	W	<NONE>	Clears the faults occurred due to protection settings
0x014302	4	OUTPUT:PROTECTION:DELAY <NRF>	RW	<FLOAT>	Sets the programmable time delay executed by the supply before

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
					reporting output protection conditions after a new output voltage or current is specified. | Returns the time delay to be executed by the supply..
0x014303	4	OUTPUT:PROTECTION:FOLD <NR1>	RW	<INT>	Sets the Foldback setting of the supply, valid arguments are 0 to 12 | Returns the Foldback setting of the supply
0x014401	1	OUTPUT:REMOTE:INHIBIT:INPUT:STATE <0|1>	RW	<BYTE>	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>
0x014402	1	OUTPUT:REMOTE:INHIBIT:INPUT:TYPE <0|1>	RW	<BYTE>	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>

Table 5-13.Output Commands

5.4.2.10 TRIGGER COMMANDS

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
	0	TRIGGER:SOFT	W	<NONE>	Sets the Software trigger for RAMP and LIST functions.
	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.
	0	TRIGGER:RAMP	W	<NONE>	
	0	TRIGGER:RAMP:INIT	W	<NONE>	

Table 5-14. Trigger Commands

5.4.2.11 SYSTEM COMMANDS

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
0x016101s	4	SYSTEM:ENUM:COUNT?	R	<INT>	Returns number of chassis connected in parallel
0x016301	4	SYSTEM:MODULE:COUNT?	R	<INT>	Returns the number of modules present inside the chassis
0x016501		SYSTEM:OPERATING:MODE <SOUR|ELOAD|BIDIR|BATSIM|PVSIM|BATTEST>	RW	<UNKNOWN>	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>
0x016A0C	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.
0x016A0D	4	SYSTEM:NET:TERM <NRF>	RW	<FLOAT>	Sets the incoming string termination character to be

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
					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 5-15. System Commands

5.4.3 MULTI-PACKET FRAMES – FOR LARGE PAYLOADS, REASSEMBLED BY RECEIVER

5.4.3.1 SOURCE COMMANDS

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
0x010201	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
0x010114	13	SOURCE:CURRENT:RAMP <NRF>,<NRF>,<NRF>,<0|1>	RW	<FLOAT><FLOAT><FLOAT><BYTE>	Sets the current ramp parameters <From Current>, <To

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
					Current>, <Duration>, <HW/SW Trigger> 0 - SW Trigger 1 - HW Trigger | Returns the current ramp parameters. <From Current>, <To Current>, <Duration>, <HW/SW Trigger>
0x010116	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
0x010117	8	SOURCE:CURRENT:SLEW <NRF>,<NRF>	RW	<FLOAT><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>.
0x01011C	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

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
					programming) EXT/1 (External analog Current programming). | Returns the Current programming mode of the supply.
0x01050C	8	SOURCE:POWER:SLEW <NRF>,<NRF>	RW	<FLOAT><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>.
0x010810	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.
0x010812	13	SOURCE:VOLTAGE:RAMP <NRF>,<NRF>,<NRF>,<0|1>	RW	<FLOAT><FLOAT><FLOAT><BYTE>	Sets the voltage ramp parameters <From Voltage>, <To Voltage>, <Duration>, <HW/SW Trigger> 0 - SW Trigger 1 - HW Trigger |

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
					Returns voltage ramp configuration parameters: <From Voltage>, <To Voltage>, <Duration>, <HW/SW Trigger>
0x010814	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
0x010815	8	SOURCE:VOLTAGE:SLEW <NRF>,<NRF>	RW	<FLOAT><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.

Table 5-16. Source Commands

5.4.3.2 SASIMULATOR COMMANDS

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
0x020201	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
0x020202	N	SASIMULATOR:CURVE:CATALOG?	R	<STRING>	Returns the curves present in selected

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
					SAS configuration
0x020203	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
0x020204	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
0x020226	N	SASIMULATOR:CURVE:EN50530:SIMTYPE:TECHNOLOGY <CSI/0|THINFLIM/1>	RW	<STRING>	Sets the Technology type of the EN50530 curve | Returns the technology type of the EN50530 Curve 0 – CSI 1 – Thin Film
0x020227	N	SASIMULATOR:CURVE:EN50530:SIMTYPE:TESTTYPE <STATIC/0|DYNAMIC/1>	RW	<STRING>	Sets the test type of the EN50530 Curve | Returns the Test type of the EN50530 Curve 0 – Static 1 – Dynamic
0x020229	N	SASIMULATOR:CURVE:SELECT <STRING>	RW	<STRING>	Selects the curve with provided file name. |

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
					Returns the File name of the selected IV Curve
0x020233	N	SASIMULATOR:CURVE:SNL:FILLFACTOR:STATE <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>
0x020401	N	SASIMULATOR:OPERATING:MODE <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
0x020402	N	SASIMULATOR:OPERATING:TYPE <STEADYSTATE/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
0x020604	N	SASIMULATOR:SOURCE:EN50530:SIMTYPE:TECHNOLOGY <CSI/0|THINFLIM/1>	RW	<STRING>	Sets the Technology of the Selected EN50530 Curve | Returns the Technology type of the EN50530 curve 0 – CSI Type 1

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
					– Thin Film type
0x020701	N	SASIMULATOR<N>:SOURCE:EN50530:SIMTYPE:TESTTYPE <STATIC/0|DYNAMIC/1>	W	<UNKNOWN> <STRING>	Sets the Test Type of the EN50530 Curve
0x020702	N	SASIMULATOR<N>:SOURCE:EN50530:SIMTYPE:TESTTYPE?	R	<STRING>	Returns the Test type of the EN50530 Curve 0 – Static 1 – Dynamic
0x020801	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
0x020A01	N	SASIMULATOR:CLIPPED?	R	<STRING>	Return IV Curve status as CLIPPED – Curve is clipped, NOT CLIPPED – Curve is Not Clipped

Table 5-17. Sasimulator Commands

5.4.3.3 BATTERY:SIMULATION COMMANDS

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
0x022901	N	BATTERY:SIMULATION:PROFILE:ADD <STRING>	W	<STRING>	Creates the profile with file name in selected battery configuration
0x022903	N	BATTERY:SIMULATION:PROFILE:SELECT <STRING>	RW	<STRING>	Sets the battery profile file name to be selected | Returns the battery profile selected in the

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
					battery type configuration
0x022904	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
0x022905	N	BATTERY:SIMULATION:PROFILE:CATALOG?	R	<STRING>	Returns all the file names of battery profiles present in the selected battery configuration
0x022906	N	BATTERY:SIMULATION:PROFILE:DEL <STRING>	W	<STRING>	Deletes the provided battery profile file in the selected battery configuration
0x022908	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
0x022909	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

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
					size | Returns the opens circuit voltage points of the selected battery profile in Volts
0x02290B	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
0x02290C	N	BATTERY:SIMULATION:PROFILE:TABLE:DEF:SOC:POINTS <NRF>,<NRF>,...,<NRF>	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”. | Returns the State of Charge points of the selected battery profile
0x022D01	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

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
0x022E01	N	BATTERY:SIMULATION:TIME:ELAPSED?	R	<STRING>	Returns the time elapsed in the RUN state of battery simulator in seconds

Table 5-18. Simulation Commands

5.4.3.4 BATTERY:TEST COMMANDS

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
0x024101	N	BATTERY:TEST:CONFIGURE:ADD <STRING>	W	<STRING>	Creates the Battery tester profile with provided file name
0x024103	N	BATTERY:TEST:CONFIGURE:CATALOG?	R	<STRING>	Returns all profile file names present in the selected Battery tester operating type
0x024107	N	BATTERY:TEST:CONFIGURE:DELETE <STRING>	W	<STRING>	Deletes the profile with the provided file name from the Selected battery tester operation type
0x024109	N	BATTERY:TEST:CONFIGURE:LOAD <UNLOAD/0|LOAD/1>	RW	<STRING>	Loads the selected battery profile | Returns the load status of the battery tester 0 – UNLOADED 1 – LOADED
0x02410B	N	BATTERY:TEST:CONFIGURE:SELECT <STRING>	RW	<STRING>	Selects the battery tester profile with the provided file name | Returns the Selected battery tester profile
0x024701	N	BATTERY:TEST:STATUS?	R	<STRING>	Returns the status of the battery tester 0 – IDLE 1 – INITIALIZING 2

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
					– INITIALIZED 3 – RUNNING 5 - ABORTED 6 – PAUSED 7 – TRIPPED
0x024A01	N	BATTERY:TEST:TIME:ELAPSED?	R	<STRING>	Returns the elapsed run time in seconds

Table 5-19. Battery test Commands

5.4.3.5 CALIBRATE:INITIAL COMMANDS

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
0x01A211	8	CALIBRATE:INITIAL:CURRENT:SLEW <NRF>,<NRF>	RW	<FLOAT><FLOAT>	Sets the power-on default slew rate for current. | Returns the power-on default slew rate for current.
0x01A505	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.
0x01A710	8	CALIBRATE:INITIAL:POWER:SLEW <NRF>,<NRF>	RW	<FLOAT><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.
0x01A801	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:

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
					0 - OFF 1 - ON. | Returns the power-on default state for remote inhibit.
0x01A802	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.
0x01A803	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.
0x01AB0A	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.

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
0x01AB0D	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.
0x01AB0E	8	CALIBRATE:INITIAL:VOLTAGE:SLEW <NRF>,<NRF>	RW	<FLOAT><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.

Table 5-20. Calibrate Initial Commands

5.4.3.6 CALIBRATE COMMANDS

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
0x01C102	4	CALIBRATE:ISOLATION:VOLTAGE:SENSE:FIVEPOINT?	R	<FLOAT>	Returns the entered values for 5-point calibration for isolated voltage sense.
0x01C304	N	CALIBRATE:MODULE:LASTCALDATE <MM DD YYYY>	RW	<STRING>	Assigns the last calibration date; format: MM DD YYYY (space after

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
					MM and DD required) | Returns the last calibration date.
0x01C401	N	CALIBRATE:MOD:SNUM <STRING>	RW	<STRING>	Assigns the serial number of the module. | Returns the serial number of the module.
0x01C309	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.
0x01C507	4	CALIBRATE:OUTPUT:CURRENT:EXTV:POINTS?	R	<FLOAT>	Returns the external voltage value-1 for current calibration.
0x01C50D	4	CALIBRATE:OUTPUT:CURRENT:FIVEPOINT?	R	<FLOAT>	Returns the entered values for 5-point calibration for current sense.
0x01C801	N	CALIBRATE:UNLOCK <STRING>	W	<STRING>	Sets the non-volatile memory available to store calibration constants. The access string is “6867”.

Table 5-21. Calibrate Commands

5.4.3.7 LIST COMMANDS

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
0x018001	N	LIST:ADD <STRING>	W	<STRING>	Creates the list with provided file name, file name can be alphanumeric

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
					up to 29 characters
0x018101	N	LIST:CATALOG?	R	<STRING>	Returns all the list file names present in the selected regulation and programming type
0x018301	N	LIST:CURRENT <NRF>,<NRF>,..,<NRF>	W	<FLOAT>	Sets the values to the List Current points in amps
0x018302	N	LIST:CURRENT:POINTS?	R	<FLOAT>	Returns the values of list current points in amps
0x018401	N	LIST:DEL <STRING>	W	<STRING>	Deletes the provided list file name from the device
0x018501	N	LIST:DWELL <NRF>,<NRF>,..,<NRF>	W	<FLOAT>	Sets the values to dwell points of the list in seconds
0x018502	N	LIST:DWELL:POINTS?	R	<FLOAT>	Returns the dwell points of the selected list file in seconds
0x018601	N	LIST:LINK <NR1>,<NR1>,..,<NR1>	W	<INT>	Sets the values to link points of the list in the selected list file
0x018602	N	LIST:LINK:POINTS?	R	<INT>	Returns the link points of the selected list file
0x018801	N	LIST:REPEAT <NR1>,<NR1>,..,<NR1>	W	<INT>	Sets the values to the repeat count of each point
0x018802	N	LIST:REPEAT:POINTS?	R	<INT>	Returns the values of the repeat count point of the selected list file
0x018901	N	LIST:RESISTANCE <NR1>,<NR1>,..,<NR1>	W	<INT>	Sets the values to series resistance points in the selected list file

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
0x018902	N	LIST: RESISTANCE: POINTS?	R	<INT>	Returns the values of the series resistance points in the selected list file
0x018B01	N	LIST:SELECT <STRING>	RW	<STRING>	Selects the list file with provided file name | Returns the file name of the selected list file
0x018C01	N	LIST:STATE <IDLE/0|LOAD/ 1|RUN/3|ABOR T/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
0x018D01	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
0x019001	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 1 – Trigger Out enabled for the data point
0x019002	N	LIST:TTLTRG: POINTS?	R	<INT>	Returns the values of the output trigger of each data in the selected list file

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
0x019101	N	LIST:VOLTAGE <NRF>,<NRF>,..,<NRF>	W	<FLOAT>	Sets the value to the voltage points of selected list file in volts
0x019102	N	LIST:VOLTAGE:POINTS?	R	<FLOAT>	Returns the Values of the voltage points in the selected list file in volts

Table 5-22. List Commands

5.4.3.8 OUTPUT COMMANDS

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
0x014001	N	OUTPUT:ISOLATION <OPEN/0|CLOSED/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
0x014201	N	OUTPUT:PROGRAM: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>
0x014403	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.
0x014501	N	OUTPUT:SENSE	RW	<STRING>	Sets the output voltage sense

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
		<REMOTE/0|LOCAL/1>			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.
0x014601	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
0x014701	N	OUTPUT:TRIP?	R	<STRING>	Returns the integer value 1 - TRIPPED or 0 - UNTRIPPED state of the output.

Table 5-23.Output Commands

5.4.3.9 STATUS COMMANDS

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
0x01E001	N	STATUS:FAULT:CHASSIS?	R	<STRING>	Returns the fault status of all chassis connected in parallel, each

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
					bit represents the fault status of each individual chassis
0x01E002	N	STATUS:FAULT:STATUS?	R	<STRING>	Returns the System faults
0x01E101	N	STATUS:MODULE<1|2|3>:FAULT?	R	<STRING>	Returns the status of faults of the specified module
0x01E102	N	STATUS:MODULE<1|2|3>:TEMPERATURE:FAULT:STATUS?	R	<STRING>	

Table 5-24.Status Commands

5.4.3.10 SYSTEM COMMANDS

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
0x016001	N	SYSTEM:CHASSIS:ADDRESS?	R	<STRING>	Returns the chassis address
0x016201	N	SYSTEM:FAULT:STATUS?	R	<STRING>	Returns the system fault status
0x016401	N	SYSTEM<N>:MODULE<1|2|3>:TEMPERATURE:FAULT:STATUS?	R	<STRING>	Returns the temperature fault status of specified module
0x016601	N	SYSTEM:OUTPUT:REGULATION:FAULT?	R	<STRING>	Returns the foldback faults of the system
0x016701	N	SYSTEM:REVISION?	R	<STRING>	Returns the firmware revision number of the all the controller
0x016801	N	SYSTEM:ERROR?	R	<STRING>	Queries Error Queue for next error/event entry (first in, first out). Entries contain an error

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
					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.
0x016901	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.
0x016A01	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

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
					configuration. Returns 0 if AutoIP is disabled in the Primary configuration.
0x016A02	N	SYSTEM:NET: DESC <STRING>	RW	<STRING>	Set the network Description, a 36-character alphanumeric string | Returns the network Description.
0x016A03	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.
0x016A04	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. | Returns the network DNS address for the device.

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
0x016A05	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.
0x016A06	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
0x016A07	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

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
					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).
0x016A08	N	SYSTEM:NET:LANLED:BLINK <STRING>	W	<STRING>	ON changes front panel screen to device identify. OFF changes to dashboard screen.
0x016A09	N	SYSTEM:NET:MAC?	R	<STRING>	Returns the network MAC address. xx:xx:xx:xx:xx:xx (Hexadecimal digit pairs)
0x016A0A	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.
0x016A0B	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

CAN2B_ID	DLC	SCPI Command	Access	Data Type	Description
					the power to effect the change. The access string is “6867.”

Table 5-25.System Commands

This page intentionally left blank