

### PMBus™ Commands

This application note is applicable to the following members of the D1U54-D-1500-12-HxxC Series:

Model Number	MPS #	Address	Standby Output	Airflow
D1U54-D-1500-12-HC4C	M1900	ADDR_SEL (External resistor)	3.3Vdc	Back to Front
D1U54-D-1500-12-HA4C	M1897		5Vdc	
D1U54-D-1500-12-HB4C	M1903		12Vdc	Front to Back
D1U54-D-1500-12-HC3C	M1901		3.3Vdc	
D1U54-D-1500-12-HA3C	M1898		5Vdc	

### Standard PMBus™ Commands

All data communicated over the PMBus™ interface uses PEC (Packet Error Checking) as defined by the standard for PMBus™ Power Systems Management Protocol Part 1 – General Requirements Rev 1.1.

Linear data formatting is used for all passed parameters. It is strongly recommended to fully utilize the PEC byte to validate all transactions and to repeat if not validated. Block reads (where the loose byte received denotes the remaining byte to be clocked out) are not supported on this product series.

A minimum of 300µs delay between transactions (between the STOP of one command and the START of the next command) is recommended for robust communications.

Note: 100KHz I<sup>2</sup>C communications is supported for the PMBus™ interface.

Note: The PMBus™ slave controller does “clock stretch” on ACK or NAK.

### Device Details

Power Supply Controllers			
Vendor	MFG Part Number	Package	Description
Microchip Technology Inc.	PIC24FJ32GA002T-I/SS	SSOP28	(Primary) PIC24F 32kB 8kB 32MHz
Microchip Technology Inc.	PIC24FJ64GA306T-I/PT	TQFP64	(Secondary) PIC24F 64kB 8kB 32MHz

Power Supply External EEPROM			
Vendor	MFG Part Number	Package	Description
Microchip Technology Inc.	24AA024T-I/MS	MSOP8	IC Dig SMT EEPROM CMOS Serial I2C AT24CXX MSOP8 2kB

### Device Addressing Methods

(See D1U54P-12-CONC Interface Card; Application Note ACAN-64 for Additional Details):

There are two methods whereby the three lower order address bits of the seven bit address structure of the internal addressable devices can be assigned (for the secondary microcontroller and the EEPROM device A0, A1 & A2; see the PMBus™ standard). These are as follows:

1. Using the ADDR signal pin (Pin# A3) in digital mode by either:
  - a. Un-terminating (leaving open circuit); this will set a default setting of “111” for the last three addressable bits (A0, A1 & A2) of the seven bit address byte.
  - b. Terminating the pin to RTN/ground (Pin numbers A2/B2); this method will set a default address of “000” for the last three addressable bits (A0, A1 & A2) of the address byte.
2. Using the ADDR signal pin (Pin# A3) in analogue mode by connection of an external resistance to RTN/ground (pin numbers A2/B2).  
For the possible external resistance values this will result in the following address combinations:

HEX Address Combinations by Analogue Method; ADDR External Resistance Values		
ADDR External Resistance to RTN/Ground (KΩ; ±5% Tolerance)	Power Module Secondary Main Controller (Serial Slave Address)*	Power Module EEPROM (Serial Slave Address)*
0.82	0xB0	0xA0
2.7	0xB2	0xA2
5.6	0xB4	0xA4
8.2	0xB6	0xA6
15	0xB8	0xA8
27	0xBA	0xAA
56	0xBC	0xAC
180	0xBE	0xAE

\*The D1U54-D-1500-12-HxxC uses 7-bit left shifted™ device addressing; the EEPROM addressing follows a similar convention (commences at base address 0xA0); the lowest order bit of the address is the Read/Write bit. It is assumed that the Read Write bit is set to logic “0” (for addresses shown in the table above).

**PMBus™ Commands**

Command Code (Hex)	Command Name	Read / Write	Page	# of Bytes (Max)	Bit #	Bit Name	Definition	Supported?
00	PAGE	R/W	All	1			Command to provide ability to configure, control & monitor multiple outputs	<b>YES</b>
01	OPERATION See Table at rear of Document Link: <a href="#">Operation Data 01</a>	R/W	All	1	5:0		Set output margin high/low voltages	<b>NO</b>
					7:6		Turn the unit on/off in conjunction with digital input from PSON_H	<b>YES</b>
02	ON_OFF_CONFIG See table at rear of Document Link: <a href="#">ON_OFF Data 02</a>	R	All	1	0	ON_OFF_DELAY	Set when Turn off immediately (default) / 0 = Use delay @ turn-off	<b>YES</b>
					1	ON_OFF_POLARITY	Set when Power on processing is active high (default)	<b>YES</b>
					2	USE_CONTROL	Set when Use CONTROL pin for on/off power processing (default)	<b>YES</b>
					3	USE_OPERATION	Set when Use OPERATION command for on/off power processing (default)	<b>YES</b>
					4	USE_CNTL_AND_OP	Set when Use both CONTROL pin & OPERATION command (default)	<b>YES</b>
					5	RESERVED		<b>NO</b>
					6	RESERVED		<b>NO</b>
7	RESERVED		<b>NO</b>					
03	CLEAR_FAULTS	W	All	1			Write only command clears all faults that have been set in all the STATUS_XXXX registers simultaneously	<b>YES</b>
10	WRITE_PROTECT	R/W	All	1			Disable all writes except: WRITE_PROTECT	<b>YES</b>
							Disable all writes except: WRITE_PROTECT, OPERATION, PAGE	
							Disable all writes except: WRITE_PROTECT, OPERATION, PAGE, ON_OFF_CONFIG, VOUT_COMMAND	
							Enable all writes	
19	CAPABILITY	R	All	1	0:3	RESERVED		<b>NO</b>
					4	SMBALERT_L	Set when device has SMBALERT_L pin which supports the SMBus Alert Response protocol	<b>YES</b>
					6:5	MAX_BUS_SPEED	01 = Max supported bus speed = 400kHz; 00 Max supported bus speed = 100kHz	<b>YES</b>
					7	PEC	Set when packet error checking is supported	<b>YES</b>
20	VOUT_MODE	R	0	1			Single data byte sets the READ_VOUT sensor to linear mode data format and supplies N exponent for translation to volts	<b>YES</b>
							PMBus™Spec - Part II - Revision 1.1 - Sections 8.1-8.3	
21	VOUT_COMMAND	R/W	All	2			Manual override main output setpoint command - Voltage range setting 11.5V - 12.75V	<b>NO</b>
							Command speed formatted in Linear as per command 0x8B - VOUT_COMMAND	
25	VOUT_MARGIN_HIGH	R/W	0	2			Load the unit with the voltage to which the output is to be changed when the OPERATION command set to "Margin High"	<b>NO</b>
25	VSTBY_MARGIN_LOW	R/W	1	2			Load the unit with the voltage to which the output is to be changed when the OPERATION command set to "Margin High"	<b>NO</b>
26	VOUT_MARGIN_HIGH	R/W	0	2			Load the unit with the voltage to which the output is to be changed when the OPERATION command set to "Margin Low"	<b>NO</b>
26	VSTBY_MARGIN_LOW	R/W	1	2			Load the unit with the voltage to which the output is to be changed when the OPERATION command set to "Margin Low"	<b>NO</b>

Command Code (Hex)	Command Name	Read / Write	Page	# of Bytes (Max)	Bit #	Bit Name	Definition	Supported?
3A	FAN_CONFIG_1_2	R	All	1	0	FAN_2_TACH_PULSES	Fan 2 Tachometer pulses per revolution (lower bit)	NO
					1	FAN_2_TACH_PULSES	Fan 2 Tachometer pulses per revolution (upper bit)	NO
					2	FAN_2_SETTING_MODE	Set when fan is commanded in RPM (Clear when fan is commanded in Duty Cycle)	NO
					3	FAN_2_INSTALLATION	Set when fan is installed in position 2	NO
					4	FAN_1_TACH_PULSES	Fan 1 Tachometer pulses per revolution (lower bit)	YES
					5	FAN_1_TACH_PULSES	Fan 1 Tachometer pulses per revolution (upper bit)	YES
					6	FAN_1_SETTING_MODE	Set when fan is commanded in RPM (Clear when fan is commanded in Duty Cycle)	YES
3B	FAN_COMMAND_1	R/W	All	2		<a href="#">Link to Manual Fan Speed Notes</a>	Manual fan override command fan speed value in Duty Cycle Command speed formatted in Linear as per command 0x90 - READ_FAN_SPEED_1	YES
							Manual fan override command fan speed value in Duty Cycle Command speed formatted in Linear as per command 0x91 - READ_FAN_SPEED_2	NO
3C	FAN_COMMAND_2	R/W	All	2			Manual fan override command fan speed value in Duty Cycle Command speed formatted in Linear as per command 0x91 - READ_FAN_SPEED_2	NO
40	VOUT_OV_FAULT_LIMIT	R	0	2	Links to Returned Response: <a href="#">Returned Results HA4C HA3C</a> <a href="#">Returned Results HC4C HC3C</a> <a href="#">Returned Results HB4C</a>		Main Output Overvoltage Fault Limit	YES
40	VSTBY_OV_FAULT_LIMIT	R	1	2			Standby(Auxilliary) Output Overvoltage Fault Limit	YES
41	VOUT_OV_FAULT_RESPONSE	R	0	1			Main Output Overvoltage Fault Response Actions	YES
41	VSTBY_OV_FAULT_RESPONSE	R	1	1			Standby(Auxilliary) Output Overvoltage Fault Response Actions	YES
42	VOUT_OV_WARN_LIMIT	R	0	2			Main Output Overvoltage Warning Limit	YES
42	VSTBY_OV_WARN_LIMIT	R	1	2			Standby(Auxilliary) Output Overvoltage Warning Limit	YES
43	VOUT_UV_WARN_LIMIT	R	0	2			Main Output Undervoltage Warning Limit	YES
43	VSTBY_UV_WARN_LIMIT	R	1	2			Standby(Auxilliary) Output Undervoltage Warning Limit	YES
44	VOUT_UV_FAULT_LIMIT	R	0	2			Main Output Undervoltage Fault Limit	YES
44	VSTBY_UV_FAULT_LIMIT	R	1	2			Standby(Auxilliary) Output Undervoltage Fault Limit	YES
45	VOUT_UV_FAULT_RESPONSE	R	0	1			Main Output Undervoltage Fault Response Actions	YES
45	VSTBY_UV_FAULT_RESPONSE	R	1	1			Standby(Auxilliary) Output Undervoltage Fault Response Actions	YES
46	IOUT_OC_FAULT_LIMIT	R	0	2			Main Output Overcurrent Fault Limit	YES
46	ISTBY_OC_FAULT_LIMIT	R	2	2			Standby(Auxilliary) Output Overcurrent Fault Limit	YES
47	IOUT_OC_FAULT_RESPONSE	R	0	1			Main Output Overcurrent Fault Response Actions	YES
47	ISTBY_OC_FAULT_RESPONSE	R	2	1			Standby(Auxilliary) Output Overcurrent Fault Response Actions	YES
4A	IOUT_OC_WARN_LIMIT	R	0	2			Main Output Overcurrent Warning Limit	YES
4A	ISTBY_OC_WARN_LIMIT	R	2	2			Standby(Auxilliary) Output Overcurrent Warning Limit	YES
4F	AIRFLOW_1_OT_FAULT_LIMIT	R	0	2			Airflow 1 Overtemperature Fault Limit	YES
4F	HOTSPOT_1_OT_FAULT_LIMIT	R	1	2			Hotspot 1 Overtemperature Fault Limit	YES
4F	AIRFLOW_2_OT_FAULT_LIMIT	R	2	2			Airflow 2 Overtemperature Fault Limit	YES
4F	HOTSPOT_2_OT_FAULT_LIMIT	R	3	2			Hotspot 2 Overtemperature Fault Limit	YES
50	AIRFLOW_1_OT_FAULT_RESPONSE	R	0	1			Airflow 1 Overtemperature Fault Response Actions	YES
50	HOTSPOT_1_OT_FAULT_RESPONSE	R	1	1			Hotspot 1 Overtemperature Fault Response Actions	YES
50	AIRFLOW_2_OT_FAULT_RESPONSE	R	2	1			Airflow 2 Overtemperature Fault Response Actions	YES
50	HOTSPOT_2_OT_FAULT_RESPONSE	R	3	1			Hotspot 2 Overtemperature Fault Response Actions	YES
51	AIRFLOW_1_OT_WARN_LIMIT	R	0	2			Airflow 1 Overtemperature Warning Limit	YES
51	HOTSPOT_1_OT_WARN_LIMIT	R	1	2			Hotspot 1 Overtemperature Warning Limit	YES
51	AIRFLOW_2_OT_WARN_LIMIT	R	2	2			Airflow 2 Overtemperature Warning Limit	YES
51	HOTSPOT_2_OT_WARN_LIMIT	R	3	2			Hotspot 2 Overtemperature Warning Limit	YES
55	VIN_OV_FAULT_LIMIT	R	0	2		Input Overvoltage Fault Limit	YES	
56	VIN_OV_FAULT_RESPONSE	R	0	1		Input Overvoltage Fault Response Actions	YES	
57	VIN_OV_WARN_LIMIT	R	0	2		Input Overvoltage Warning Limit	YES	
58	VIN_UV_WARN_LIMIT	R	0	2		Input Undervoltage Warning Limit	YES	
59	VIN_UV_FAULT_LIMIT	R	0	2		Input Undervoltage Fault Limit	YES	
5A	VIN_UV_FAULT_RESPONSE	R	0	1		Input Undervoltage Fault Response Actions	YES	

Command Code (Hex)	Command Name	Read / Write	Page	# of Bytes (Max)	Bit #	Bit Name	Definition	Supported?
5B	IIN_OC_FAULT_LIMIT	R	0	2			Input Overcurrent Fault Limit	YES
5C	IIN_OC_FAULT_RESPONSE	R	0	1			Input Overcurrent Fault Response Actions	YES
5D	IIN_OC_WARN_LIMIT	R	0	2			Input Overcurrent Warning Limit	YES
5E	POWER_GOOD_ON	R	0	2			Power Good On Main Output Voltage Limit	YES
5F	POWER_GOOD_OFF	R	0	2			Power Good Off Main Output Voltage Limit	YES
68	POUT_OP_FAULT_LIMIT	R	0	2			Output Overpower Fault Limit	YES
69	POUT_OP_FAULT_RESPONSE	R	0	1			Output Overpower Fault Response Actions	YES
6A	POUT_OP_WARN_LIMIT	R	0	2			Output Overpower Warning Limit	YES
6B	PIN_OP_WARN_LIMIT	R	0	2			Input Overpower Warning Limit	YES
79	STATUS_BYTE	R	All	1	0	NONE_F_W	Set when a fault not listed in [7:1] occurred	NO
					1	CML_F	Set when a communications, memory, or logic fault has occurred	YES
					2	TEMPERATURE_F_W	Set when an overtemperature fault or warning has occurred	YES
					3	INPUT_UV_F	Set when an input undervoltage fault has occurred	YES
					4	OUTPUT_OC_F	Set when an output overcurrent fault has occurred	YES
					5	OUTPUT_OV_F	Set when an output overvoltage fault has occurred	YES
					6	UNIT_OFF	Set when unit not providing power to the output	YES
					7	BUSY_F	Asserted when device busy and unable to respond fault	YES
79	STATUS_WORD	R	All	2	0	NONE_F_W	Set when a fault not listed in [7:1] occurred	NO
					1	CML_F	Set when a communications, memory, or logic fault has occurred	YES
					2	TEMPERATURE_F_W	Set when an overtemperature fault or warning has occurred	YES
					3	INPUT_UV_F	Set when an input undervoltage fault has occurred	YES
					4	OUTPUT_OC_F	Set when an output overcurrent fault has occurred	YES
					5	OUTPUT_OV_F	Set when an output overvoltage fault has occurred	YES
					6	UNIT_OFF	Set when unit not providing power to the output	YES
					7	BUSY_F	Asserted when device busy and unable to respond fault	YES
					8	UNKNOWN_F_W	Set when a fault not listed in [15:1] has occurred	NO
					9	STATUS_OTHER_F_W	Set when a bit in command STATUS_OTHER set	NO
					10	FANS_F_W	Set when a fan fault or warning has occurred	YES
					11	POWER_GOOD_L	Set when the POWER_GOOD signal is negated	YES
					12	MFR_SPECIFIC_F_W	Manufacturer specific fault or warning has occurred	YES
					13	INPUT_F_W	Set when an Input voltage/current/power fault or warning has occurred	YES
					14	IOUT_POUT_F_W	Set when an output current / output power fault or warning has occurred	YES
					15	VOUT_F_W	Set when an output voltage fault or warning has occurred	YES
7A	STATUS_VOUT	R	0	1	0	VOUT_TRACKING_E	Set when an error in the output voltage during power-up/down has occurred	NO
					1	TON_MAX_W	Set when the output turn-on timing has exceeded the TON_MAX warning timing	NO
					2	TON_MAX_F	Set when the output turn-on timing has exceeded the TON_MAX fault timing	NO
					3	VOUT_MAX_F	Set when the output is set higher than the commanded VOUT_MAX limit	NO
					4	VOUT_UV_F	Set when an output undervoltage fault has occurred	YES
					5	VOUT_UV_W	Set when an output undervoltage warning has occurred	YES
					6	VOUT_OV_W	Set when an output overvoltage warning has occurred	YES
					7	VOUT_OV_F	Set when an output overvoltage fault has occurred	YES

Command Code (Hex)	Command Name	Read / Write	Page	# of Bytes (Max)	Bit #	Bit Name	Definition	Supported?
7A	STATUS_VSTBY	R	1	1	0	VOUT_TRACKING_E	Set when an error in the output voltage during power-up/down has occurred	NO
					1	TON_MAX_W	Set when the output turn-on timing has exceeded the TON_MAX warning timing	NO
					2	TON_MAX_F	Set when the output turn-on timing has exceeded the TON_MAX fault timing	NO
					3	VOUT_MAX_F	Set when the output is set higher than the commanded VOUT_MAX limit	NO
					4	VOUT_UV_F	Set when an output undervoltage fault has occurred	NO
					5	VOUT_UV_W	Set when an output undervoltage warning has occurred	YES
					6	VOUT_OV_W	Set when an output overvoltage warning has occurred	YES
					7	VOUT_OV_F	Set when an output overvoltage fault has occurred	YES
7B	STATUS_IOUT	R	0	1	0	POUT_OP_W	Set when an output overpower warning has occurred	YES
					1	POUT_OP_F	Set when an output overpower fault has occurred	YES
					2	POWER_LIMIT_MODE	Set when the unit has entered output power limiting mode	NO
					3	CURRENT_SHARE_F	Set when an output current share fault has occurred	NO
					4	IOUT_UC_W	Set when an output undercurrent fault has occurred	NO
					5	IOUT_OC_W	Set when an output overcurrent warning has occurred	YES
					6	IOUT_OC_SHUTDOWN	Set when an output overcurrent and low voltage shutdown fault has occurred	YES
					7	IOUT_OC_F	Set when an output overcurrent fault has occurred	YES
7B	STATUS_ISTBY	R	1	1	0	POUT_OP_W	Set when an output overpower warning has occurred	YES
					1	POUT_OP_F	Set when an output overpower fault has occurred	YES
					2	POWER_LIMIT_MODE	Set when the unit has entered output power limiting mode	NO
					3	CURRENT_SHARE_F	Set when an output current share fault has occurred	NO
					4	IOUT_UC_W	Set when an output undercurrent fault has occurred	NO
					5	IOUT_OC_W	Set when an output overcurrent warning has occurred	YES
					6	IOUT_OC_SHUTDOWN	Set when an output overcurrent and low voltage shutdown fault has occurred	YES
					7	IOUT_OC_F	Set when an output overcurrent fault has occurred	YES
7C	STATUS_INPUT	R	All	1	0	PIN_OP_W	Set when an input overpower warning has occurred	YES
					1	IIN_OC_W	Set when an input overcurrent warning has occurred	YES
					2	IIN_OC_F	Set when an input overcurrent fault has occurred	YES
					3	VIN_UV_OFF	Set when the Unit is OFF for insufficient input voltage	NO
					4	VIN_UV_F	Set when an input undervoltage fault has occurred	NO
					5	VIN_UV_W	Set when an input undervoltage warning has occurred	YES
					6	VIN_OV_W	Set when an input overvoltage warning has occurred	YES
					7	VIN_OV_F	Set when an input overvoltage fault has occurred	YES
7D	STATUS_TEMPERATURE	R	All	1	0	RESERVED	Reserved	NO
					1	RESERVED	Reserved	NO
					2	RESERVED	Reserved	NO
					3	RESERVED	Reserved	NO
					4	TEMPERATURE_UT_F	Set when an undertemperature fault has occurred	NO
					5	TEMPERATURE_UT_W	Set when an undertemperature warning has occurred	NO
					6	TEMPERATURE_OT_W	Set when an overtemperature warning has occurred	YES
					7	TEMPERATURE_OT_F	Set when an overtemperature fault has occurred	YES
7E	STATUS_CML	R	All	1	0	OTHER_MEMORY_F	Set when another memory or logic fault has occurred	NO
					1	OTHER_COMM_F	Set when a communication fault not listed in [7:3] has occurred (example: UART or SPI)	YES
					2	RESERVED	Reserved	NO
					3	PROCESSOR_F	Set when a processor fault is detected	NO
					4	MEMORY_F	Set when a memory fault is detected (example: Checksum errors during bootload)	NO
					5	PEC_ERROR_F	Set when a packet error checking (PEC) failed has occurred	YES
					6	DATA_ERROR_F	Set when invalid or unsupported data is received	YES
					7	COMMAND_ERROR_F	Set when an invalid or unsupported command is received	YES

Command Code (Hex)	Command Name	Read / Write	Page	# of Bytes (Max)	Bit #	Bit Name	Definition	Supported?
7F	STATUS_OTHER	R	All	1	0	RESERVED	Reserved	NO
					1	ORING_OUTPUT_F	Set when output ORing device fault occurs	NO
					2	ORING_INPUT_B_F	Set when input B ORing device fault occurs	NO
					3	ORING_INPUT_A_F	Set when input A ORing device fault occurs	NO
					4	FUSE_INPUT_B_F	Set when input B fuse/breaker fault occurs	NO
					5	FUSE_INPUT_A_F	Set when input A fuse/breaker fault occurs	NO
					6	RESERVED	Reserved	NO
					7	RESERVED	Reserved	NO
80	STATUS_MFR_SPECIFIC	R	All	1	0	RESERVED	Reserved	NO
					1	RESERVED	Reserved	NO
					2	VINT_RANGE_W	Set when an internal voltage (VCC2, VCC4, or VDD) out-of-range warning has occurred	NO
					3	VINT_RANGE_F	Set when an internal voltage (VCC2, VCC4, or VDD) out-of-range fault has occurred	YES
					4	VBUS_UV_F	Set when the primary boost output bus undervoltage fault has occurred	YES
					5	VBUS_UV_W	Set when the primary boost output bus undervoltage warning has occurred	YES
					6	VBUS_OV_W	Set when the primary boost output bus overvoltage warning has occurred	YES
					7	VBUS_OV_F	Set when the primary boost output bus overvoltage fault has occurred	YES
81	STATUS_FANS_1_2	R	All	1	0	FAN_AIRFLOW_W	Airflow warning	NO
					1	FAN_AIRFLOW_F	Airflow fault	NO
					2	FAN_2_OVERRIDE	Fan 2 speed overridden	NO
					3	FAN_1_OVERRIDE	Fan 1 speed overridden	YES
					4	FAN_2_W	Fan 2 warning	NO
					5	FAN_1_W	Fan 1 warning	YES
					6	FAN_2_F	Fan 2 fault	NO
					7	FAN_1_F	Fan 1 fault	YES
82	STATUS_FANS_3_4	R	All	1	0	FAN_AIRFLOW_W	Airflow warning	NO
					1	FAN_AIRFLOW_F	Airflow fault	NO
					2	FAN_4_OVERRIDE	Fan 4 speed overridden	NO
					3	FAN_3_OVERRIDE	Fan 3 speed overridden	NO
					4	FAN_4_W	Fan 4 warning	NO
					5	FAN_3_W	Fan 3 warning	NO
					6	FAN_4_F	Fan 4 fault	NO
					7	FAN_3_F	Fan 3 fault	NO
88	READ_VIN	R	All	2	Link to Sensor Data: <a href="#">Sensor Data_HA4C</a>  <a href="#">Sensor Data_HA3C</a>  <a href="#">Sensor Data_HC4C</a>  <a href="#">Sensor Data_HC3C</a>  <a href="#">Sensor Data_HB4C</a>	Input Voltage Sensor Reading	YES	
89	READ_IIN	R	All	2		Input Current Sensor Reading	YES	
8B	READ_VOUT	R	0	2		Main Output Voltage Sensor Reading	YES	
8B	READ_VSTBY	R	1	2		Standby(Auxilliary) Output Voltage Sensor Reading	YES	
8C	READ_IOUT	R	0	2		Main Output Current Sensor Reading	YES	
8C	READ_ISTBY	R	1	2		Standby(Auxilliary) Output Current Sensor Reading	YES	
8D	READ_TEMPERATURE_1	R	0	2		Airflow 1 Temperature Sensor Reading	YES	
8E	READ_TEMPERATURE_2	R	0	2		Airflow 2 Temperature Sensor Reading	YES	
8F	READ_TEMPERATURE_3	R	0	2		Hotspot 1 Temperature Sensor Reading	YES	
8F	READ_TEMPERATURE_3	R	1	2	Hotspot 2 Temperature Sensor Reading	YES		
8F	READ_TEMPERATURE_3	R	2	2	Hotspot 3 Temperature Sensor Reading	YES		

Command Code (Hex)	Command Name	Read / Write	Page	# of Bytes (Max)	Bit #	Bit Name	Definition	Supported?
90	READ_FAN_SPEED_1	R	0	2			Fan 1 Speed Sensor Reading	YES
91	READ_FAN_SPEED_2	R	0	2			Fan 2 Speed Sensor Reading	NO
96	READ_POUT	R	All	2			Output Power Sensor Reading	YES
97	READ_PIN	R	All	2			Input Power Sensor Reading	YES
98	PMBUS_REVISION	R	All	1			PMBus™ Specification Revision	YES
99	MFR_ID	R	All	10			Power Supply Company Name	YES
9A	MFR_MODEL	R/W	All	32			Power Supply Model Number	YES
9B	MFR_REVISION	R	0	17			Power Supply Firmware Revision	YES
9B	MFR_REVISION	R	1	17			Power Supply Firmware Revision	YES
9B	MFR_REVISION	R	2	17			Power Supply Firmware Revision	NO
9C	MFR_LOCATION	R/W	All	16			Power Supply Manufacture Location	YES
9D	MFR_DATE	R/W	All	16			Power Supply Manufacture Date	YES
9E	MFR_SERIAL	R/W	All	16			Power Supply Serial Number	YES
A0	MFR_VIN_MIN	R	All	2		Link to Returned Results: <a href="#">Returned Parametric</a>	Power Supply Input Voltage Minimum Specification	YES
A1	MFR_VIN_MAX	R	All	2			Power Supply Input Voltage Maximum Specification	YES
A2	MFR_IIN_MAX	R	All	2			Power Supply Input Current Maximum Specification	YES
A3	MFR_PIN_MAX	R	All	2			Power Supply Input Power Maximum Specification	YES
A4	MFR_VOUT_MIN	R	All	2			Power Supply Main Output Voltage Minimum Specification	YES
A5	MFR_VOUT_MAX	R	All	2			Power Supply Main Output Voltage Maximum Specification	YES
A6	MFR_IOUT_MAX	R	All	2			Power Supply Main Output Current Maximum Specification	YES
A7	MFR_POUT_MAX	R	All	2			Power Supply Output Power Maximum Specification	YES
A8	MFR_TAMBIENT_MAX	R	All	2			Power Supply Operating Ambient Temperature Maximum Specification	YES
A9	MFR_TAMBIENT_MIN	R	All	2			Power Supply Operating Ambient Temperature Minimum Specification	YES
AA	MFR_EFFICIENCY_LL	R	All	2			Power Supply Low-Line Input Voltage Specification	YES
				2			Power Supply Low-Line Low Power Specification	YES
				2			Power Supply Low-Line Low Power Efficiency Specification	YES
				2			Power Supply Low-Line Medium Power Specification	YES
				2			Power Supply Low-Line Medium Power Efficiency Specification	YES
				2			Power Supply Low-Line High Power Specification	YES
AB	MFR_EFFICIENCY_HL	R	All	2		Power Supply High-Line Input Voltage Specification	YES	
				2		Power Supply High-Line Low Power Specification	YES	
				2		Power Supply High-Line Low Power Efficiency Specification	YES	
				2		Power Supply High-Line Medium Power Specification	YES	
				2		Power Supply High-Line Medium Power Efficiency Specification	YES	
				2		Power Supply High-Line High Power Specification	YES	
				2		Power Supply High-Line High Power Efficiency Specification	YES	

Command Code (Hex)	Command Name	Read / Write	Page	# of Bytes (Max)	Bit #	Bit Name	Definition	Supported?
E0	PS_STATUS	R	All	2	0	CALIBRATION	Set when the unit is in Calibration mode	YES
					1	VSTBY_SELECT	Set when Vstby set to 5V; de-Set when Vstby set to 3.3V	NO
					2	PS_KILL	Set when the PS_KILL pin is defeated and the unit is properly seated in the chassis	YES
					3	VIN_OK	Set when the input voltage is within operating specification	YES
					4	VIN_RANGE	Set when input voltage range is high; de-Set when input voltage range is low	YES
					5	PFC_BUS	Set when the PFC BUS is within operating specification	YES
					6	PS_ON	Set when the PS_ON logic set to enable the main output	YES
					7	POWER_GOOD	Set when main output power delivered to unit is OK; mirrors the digital output signal	YES
					8	POWER_DOWN	Set when bootloader is taking control and the main output and PFC need to be shutdown	YES
					9	BOOTLOAD_COMPLETE_D	Set when the bootloader has completed and system reset needs to be Set	YES
					10	UNUSED		NO
					11	UNUSED		NO
					12	UNUSED		NO
					13	UNUSED		NO
					14	WARNING	Set when power supply warning has occurred; tracks 'WARNING' status LED	YES
					15	FAULT	Set when power supply fault has occurred; tracks 'FAULT' status LED	YES
E1	EEPROM_WP See Example Data: <a href="#">EEPROM_DATA_EXAMPLE</a>	R/W	All	1			Byte to enable (write 0x9A) or disable (write 0x56) writes to the external EEPROM	YES
E2	READ_HOURS_USED	R	All	3			Power Supply Accumulated Main Output Power-On Hours	YES
EE	PMBUS_CONFIG Link to: <a href="#">PMBUS_Configuration</a>	R	All	2	0	DATA_FORMAT	0 = Linear data format 1 = Direct data format	YES
					1	SMBALERT_L	0 = SMBALERT_L implemented & supported 1 = SMBALERT not implemented	NO
					2	MAX_BUS_SPEED	0 = 100kHz 1 = 400kHz	NO
					3	PEC	0 = PEC not supported 1 = PEC supported	YES
					4:7	RESERVED		NO
EF	LED_CONTROL Link to LED Data: <a href="#">LED_Control</a>	R	All	1	0:2	LED_MODE	LED mode change bits	YES
					3:6	RESERVED		NO
					7	LED_CONTROL	LED manual/auto control toggle bit	YES
F0	READ_RESETS	R	All	2		RCON register status flags for troubleshooting	YES	
				2		RCON2 register status flags for troubleshooting		
F8	BOOTLOAD_RESTART	R/W	All	1			Bootloader completion and application restart request command	YES
FA	BOOTLOAD_REQUEST	R/W	All	6			Bootloader request command	YES
FB	BOOTLOAD_STATUS	R	All	2	0	BOOTLOADING_PRI	Set when primary uC bootloading in process	YES
					1	BOOTLOADING_FLOAT	Set when floating uC bootloading in process	YES
					2	BOOTLOADING_SEC	Set when secondary uC bootloading in process	YES
					3	BOOTLOADED_PRI	Set when primary uC bootloading completed; reset required	YES
					4	BOOTLOADED_FLOAT	Set when floating uC bootloading completed; reset required	YES
					5	BOOTLOADED_SEC	Set when secondary uC bootloading completed; reset required	YES
					6	RESET_PRI	Set when primary uC reset	YES
					7	RESET_FLOAT	Set when floating uC reset	YES
					8	RESET_SEC	Set when secondary uC reset	YES
					9	RESERVED		NO
					10	RESERVED		NO
					11	RESERVED		NO
					12	RESERVED		NO
					13	RESERVED		NO
					14	RESERVED		NO
					15	RESERVED		NO

The following tables represents typical results / responses returned from respective command code entries and is provided as an illustration of what should be expected. Some Parameters related to the standby output and airflow direction will differ respective of the model selected. Parameters may include:

- All parameters related to the standby out protection limits and warnings, response
- All Parameters related to temperature such as hotspot and airflow limits and warnings, response
- manufacturer's vital product data such as model number

**RETURNED RESULTS: D1U54-D-1500-12-HA4C, D1U54-D-1500-12-HA3C**

[Link back to: Commands](#)

Command Code (Hex)	Command Name	Read / Write	Page	Format	# of Bytes	Units	Scaling Coefficients				Bit #	Reading	Comments
							N	m	R	b			
40	VOUT_OV_FAULT_LIMIT	R	0	Linear Data Format	2	Vdc	-6					13	
40	VSTBY_OV_FAULT_LIMIT	R	1	Linear Data Format	2	Vdc	-7					6	
41	VOUT_OV_FAULT_RESPONSE	R	0	Bit Flags	1						2:0	0	Delay Time - None
											5:3	0	Retry Setting - Unit does not attempt to restart & output remains disabled until fault clear
											7:6	3	Response - Output disabled while fault is present & remains disabled until fault cleared
41	VSTBY_OV_FAULT_RESPONSE	R	1	Bit Flags	1						2:0	0	Delay Time - None
											5:3	0	Retry Setting - Unit does not attempt to restart & output remains disabled until fault clear
											7:6	3	Response - Output disabled while fault is present & remains disabled until fault cleared
42	VOUT_OV_WARN_LIMIT	R	0	Linear Data Format	2	Vdc	-6					12.5	
42	VSTBY_OV_WARN_LIMIT	R	1	Linear Data Format	2	Vdc	-7					5.6	
43	VOUT_UV_WARN_LIMIT	R	0	Linear Data Format	2	Vdc	-6					11.5	
43	VSTBY_UV_WARN_LIMIT	R	1	Linear Data Format	2	Vdc	-7					4.5	
44	VOUT_UV_FAULT_LIMIT	R	0	Linear Data Format	2	Vdc	-6					10.9	
44	VSTBY_UV_FAULT_LIMIT	R	1	Linear Data Format	2	Vdc	-7					4.2	
45	VOUT_UV_FAULT_RESPONSE	R	0	Bit Flags	1						2:0	0	Delay Time - None
											5:3	0	Retry Setting - Unit does not attempt to restart & output remains disabled until fault clear
											7:6	3	Response - Output disabled while fault is present & remains disabled until fault cleared

Command Code (Hex)	Command Name	Read / Write	Page	Format	# of Bytes	Units	Scaling Coefficients				Bit #	Reading	Comments
							N	m	R	b			
45	VSTBY_UV_FAULT_RESPONSE	R	1	Bit Flags	1						2:0	0	Delay Time - None
											5:3	0	Retry Setting - Unit does not attempt to restart & output remains disabled until fault clear
											7:6	3	Response - Output disabled while fault is present & remains disabled until fault cleared
46	IOUT_OC_FAULT_LIMIT	R	0	Linear Data Format	2	Adc	-2					150	
46	ISTBY_OC_FAULT_LIMIT	R	2	Linear Data Format	2	Adc	-7					5.5	
47	IOUT_OC_FAULT_RESPONSE	R	0	Bit Flags	1						2:0	0	Delay Time - None
											5:3	7	Retry Setting - Unit does not attempt to restart & output remains disabled until fault clear
											7:6	3	Response - Continuous restart (self-recovery)
47	ISTBY_OC_FAULT_RESPONSE	R	2	Bit Flags	1						2:0	0	Delay Time - None
											5:3	7	Response - Continuous restart (self-recovery)
											7:6	3	Response - Output disabled while fault is present & remains disabled until fault cleared
4A	IOUT_OC_WARN_LIMIT	R	0	Linear Data Format	2	Adc	-2					140	
4A	ISTBY_OC_WARN_LIMIT	R	2	Linear Data Format	2	Adc	-7					5	
4F	AIRFLOW_1_OT_FAULT_LIMIT	R	0	Linear Data Format	2	°C	0					80	Inlet Airflow
4F	AIRFLOW_2_OT_FAULT_LIMIT	R	1	Linear Data Format	2	°C	0					110	Outlet Airflow
4F	HOTSPOT_1_OT_FAULT_LIMIT	R	2	Linear Data Format	2	°C	0					130	Secondary Hotspot - Sync FETs
4F	HOTSPOT_2_OT_FAULT_LIMIT	R	3	Linear Data Format	2	°C	0					125	Primary Hotspot - Bridge
4F	HOTSPOT_3_OT_FAULT_LIMIT	R	4	Linear Data Format	2	°C	0					125	Primary Hotspot - Boost
50	AIRFLOW_1_OT_FAULT_RESPONSE	R	0	Bit Flags	1						2:0	0	Delay Time - None
											5:3	0	Retry Setting - Unit does not attempt to restart & output remains disabled until fault clear
											7:6	3	Response - Output disabled while fault is present & remains disabled until fault cleared

Command Code (Hex)	Command Name	Read / Write	Page	Format	# of Bytes	Units	Scaling Coefficients				Bit #	Reading	Comments
							N	m	R	b			
50	HOTSPOT_1_OT_FAULT_RESPONSE	R	1	Bit Flags	1						2:0	0	Retry Setting - Unit does not attempt to restart & output remains disabled until fault clear
											5:3	3	Response - Output disabled while fault is present & remains disabled until fault cleared
											7:6	0	Delay Time - None
50	AIRFLOW_2_OT_FAULT_RESPONSE	R	2	Bit Flags	1						2:0	0	Retry Setting - Unit does not attempt to restart & output remains disabled until fault clear
											5:3	3	Response - Output disabled while fault is present & remains disabled until fault cleared
											7:6	0	Delay Time - None
50	HOTSPOT_2_OT_FAULT_RESPONSE	R	3	Bit Flags	1						2:0	0	Retry Setting - Unit does not attempt to restart & output remains disabled until fault clear
											5:3	3	Response - Output disabled while fault is present & remains disabled until fault cleared
											7:6	75	Inlet Airflow
4F	AIRFLOW_1_OT_WARN_LIMIT	R	0	Linear Data Format	2	°C	0				75	105	Inlet Airflow
4F	AIRFLOW_2_OT_WARN_LIMIT	R	1	Linear Data Format	2	°C	0				105	122	Outlet Airflow
4F	HOTSPOT_1_OT_WARN_LIMIT	R	2	Linear Data Format	2	°C	0				122	110	Secondary Hotspot - Sync FETs
4F	HOTSPOT_2_OT_WARN_LIMIT	R	3	Linear Data Format	2	°C	0				110	110	Primary Hotspot - Bridge
4F	HOTSPOT_3_OT_WARN_LIMIT	R	4	Linear Data Format	2	°C	0				110	76/100	Primary Hotspot - Boost
55	VIN_OV_FAULT_LIMIT	R	0	Linear Data Format	2	Vrms	-3				76/100	0	Recoverable/Latch
56	VIN_OV_FAULT_RESPONSE	R	0	Bit Flags	1						2:0	0	Delay Time - None
											5:3	3	Retry Setting - Unit does not attempt to restart & output remains disabled until fault clear
											7:6	74	Response - Output disabled while fault is present & remains disabled until fault cleared
57	VIN_OV_WARN_LIMIT	R	0	Linear Data Format	2	Vrms	-3					40	Recoverable
58	VIN_UV_WARN_LIMIT	R	0	Linear Data Format	2	Vrms	-3					36	Recoverable
59	VIN_UV_FAULT_LIMIT	R	0	Linear Data Format	2	Vrms	-3					0	Recoverable

Command Code (Hex)	Command Name	Read / Write	Page	Format	# of Bytes	Units	Scaling Coefficients				Bit #	Reading	Comments
							N	m	R	b			
5A	VIN_UV_FAULT_RESPONSE	R	0	Bit Flags	1						2:0	0	Delay Time - None
											5:3	0	Retry Setting - Unit does not attempt to restart & output remains disabled until fault clear
											7:6	3	Response - Output disabled while fault is present & remains disabled until fault cleared
5B	IIN_OC_FAULT_LIMIT	R	0	Linear Data Format	2	Arms	-4					54.8	
5C	IIN_OC_FAULT_RESPONSE	R	0	Bit Flags	1						2:0	0	Delay Time - None
											5:3	0	Retry Setting - Unit does not attempt to restart & output remains disabled until fault clear
											7:6	3	Response - Output disabled while fault is present & remains disabled until fault cleared
5D	IIN_OC_WARN_LIMIT	R	0	Linear Data Format	2	Arms	-4					49.6	
5E	POWER_GOOD_ON	R	0	Linear Data Format	2	Vdc	-6					10.9	
5F	POWER_GOOD_OFF	R	0	Linear Data Format	2	Vdc	-6					10.9	
68	POUT_OP_FAULT_LIMIT	R	0	Linear Data Format	2	Watts	0					1780	
69	POUT_OP_FAULT_RESPONSE	R	0	Bit Flags	1						2:0	0	Delay Time - None
											5:3	0	Retry Setting - Unit does not attempt to restart & output remains disabled until fault clear
											7:6	3	Response - Output disabled while fault is present & remains disabled until fault cleared
6A	POUT_OP_WARN_LIMIT	R	0	Linear Data Format	2	Watts	0					1710	
6B	PIN_OP_WARN_LIMIT	R	0	Linear Data Format	2	Watts	0					1990	POUT_OP_WARN_LIMIT / 0.84

RETURNED RESULTS: D1U54-D-1500-12-**HC4C**, D1U54-D-1500-12-**HC3C**
[Link back to: Commands](#)

Command Code (Hex)	Command Name	Read / Write	Page	Format	# of Bytes	Units	Scaling Coefficients				Bit #	Reading	Comments
							N	m	R	b			
40	VOUT_OV_FAULT_LIMIT	R	0	Linear Data Format	2	Vdc	-6				13		
40	VSTBY_OV_FAULT_LIMIT	R	1	Linear Data Format	2	Vdc	-8				3.8		
41	VOUT_OV_FAULT_RESPONSE	R	0	Bit Flags	1					2:0	0	Delay Time - None	
										5:3	0	Retry Setting - Unit does not attempt to restart & output remains disabled until fault clear	
										7:6	3	Response - Output disabled while fault is present & remains disabled until fault cleared	
41	VSTBY_OV_FAULT_RESPONSE	R	1	Bit Flags	1					2:0	0	Delay Time - None	
										5:3	0	Retry Setting - Unit does not attempt to restart & output remains disabled until fault clear	
										7:6	3	Response - Output disabled while fault is present & remains disabled until fault cleared	
42	VOUT_OV_WARN_LIMIT	R	0	Linear Data Format	2	Vdc	-6				12.5		
42	VSTBY_OV_WARN_LIMIT	R	1	Linear Data Format	2	Vdc	-8				3.7		
43	VOUT_UV_WARN_LIMIT	R	0	Linear Data Format	2	Vdc	-6				11.5		
43	VSTBY_UV_WARN_LIMIT	R	1	Linear Data Format	2	Vdc	-8				3		
44	VOUT_UV_FAULT_LIMIT	R	0	Linear Data Format	2	Vdc	-6				10.9		
44	VSTBY_UV_FAULT_LIMIT	R	1	Linear Data Format	2	Vdc	-8				2.8		
45	VOUT_UV_FAULT_RESPONSE	R	0	Bit Flags	1					2:0	0	Delay Time - None	
										5:3	0	Retry Setting - Unit does not attempt to restart & output remains disabled until fault clear	
										7:6	3	Response - Output disabled while fault is present & remains disabled until fault cleared	

Command Code (Hex)	Command Name	Read / Write	Page	Format	# of Bytes	Units	Scaling Coefficients				Bit #	Reading	Comments
							N	m	R	b			
45	VSTBY_UV_FAULT_RESPONSE	R	1	Bit Flags	1						2:0	0	Delay Time - None
											5:3	0	Retry Setting - Unit does not attempt to restart & output remains disabled until fault clear
											7:6	3	Response - Output disabled while fault is present & remains disabled until fault cleared
46	IOUT_OC_FAULT_LIMIT	R	0	Linear Data Format	2	Adc	-2					150	
46	ISTBY_OC_FAULT_LIMIT	R	2	Linear Data Format	2	Adc	-7					5.5	
47	IOUT_OC_FAULT_RESPONSE	R	0	Bit Flags	1						2:0	0	Delay Time - None
											5:3	7	Retry Setting - Unit does not attempt to restart & output remains disabled until fault clear
											7:6	3	Response - Continuous restart (self-recovery)
47	ISTBY_OC_FAULT_RESPONSE	R	2	Bit Flags	1						2:0	0	Delay Time - None
											5:3	7	Response - Continuous restart (self-recovery)
											7:6	3	Response - Output disabled while fault is present & remains disabled until fault cleared
4A	IOUT_OC_WARN_LIMIT	R	0	Linear Data Format	2	Adc	-2					140	
4A	ISTBY_OC_WARN_LIMIT	R	2	Linear Data Format	2	Adc	-7					5	
4F	AIRFLOW_1_OT_FAULT_LIMIT	R	0	Linear Data Format	2	°C	0					80	Inlet Airflow
4F	AIRFLOW_2_OT_FAULT_LIMIT	R	1	Linear Data Format	2	°C	0					110	Outlet Airflow
4F	HOTSPOT_1_OT_FAULT_LIMIT	R	2	Linear Data Format	2	°C	0					130	Secondary Hotspot - Sync FETs
4F	HOTSPOT_2_OT_FAULT_LIMIT	R	3	Linear Data Format	2	°C	0					125	Primary Hotspot - Bridge
4F	HOTSPOT_3_OT_FAULT_LIMIT	R	4	Linear Data Format	2	°C	0					125	Primary Hotspot - Boost
50	AIRFLOW_1_OT_FAULT_RESPONSE	R	0	Bit Flags	1						2:0	0	Delay Time - None
											5:3	0	Retry Setting - Unit does not attempt to restart & output remains disabled until fault clear
											7:6	3	Response - Output disabled while fault is present & remains disabled until fault cleared

Command Code (Hex)	Command Name	Read / Write	Page	Format	# of Bytes	Units	Scaling Coefficients				Bit #	Reading	Comments
							N	m	R	b			
50	HOTSPOT_1_OT_FAULT_RESPONSE	R	1	Bit Flags	1						2:0	0	Delay Time - None
											5:3	0	Retry Setting - Unit does not attempt to restart & output remains disabled until fault clear
											7:6	3	Response - Output disabled while fault is present & remains disabled until fault cleared
50	AIRFLOW_2_OT_FAULT_RESPONSE	R	2	Bit Flags	1						2:0	0	Delay Time - None
											5:3	0	Retry Setting - Unit does not attempt to restart & output remains disabled until fault clear
											7:6	3	Response - Output disabled while fault is present & remains disabled until fault cleared
50	HOTSPOT_2_OT_FAULT_RESPONSE	R	3	Bit Flags	1						2:0	0	Delay Time - None
											5:3	0	Retry Setting - Unit does not attempt to restart & output remains disabled until fault clear
											7:6	3	Response - Output disabled while fault is present & remains disabled until fault cleared
4F	AIRFLOW_1_OT_WARN_LIMIT	R	0	Linear Data Format	2	°C	0					75	Inlet Airflow
4F	AIRFLOW_2_OT_WARN_LIMIT	R	1	Linear Data Format	2	°C	0					105	Outlet Airflow
4F	HOTSPOT_1_OT_WARN_LIMIT	R	2	Linear Data Format	2	°C	0					122	Secondary Hotspot - Sync FETs
4F	HOTSPOT_2_OT_WARN_LIMIT	R	3	Linear Data Format	2	°C	0					110	Primary Hotspot - Bridge
4F	HOTSPOT_3_OT_WARN_LIMIT	R	4	Linear Data Format	2	°C	0					110	Primary Hotspot - Boost
55	VIN_OV_FAULT_LIMIT	R	0	Linear Data Format	2	Vrms	-3					76/100	Recoverable/Latch
56	VIN_OV_FAULT_RESPONSE	R	0	Bit Flags	1						2:0	0	Delay Time - None
											5:3	0	Retry Setting - Unit does not attempt to restart & output remains disabled until fault clear
											7:6	3	Response - Output disabled while fault is present & remains disabled until fault cleared
57	VIN_OV_WARN_LIMIT	R	0	Linear Data Format	2	Vrms	-3					74	Recoverable
58	VIN_UV_WARN_LIMIT	R	0	Linear Data Format	2	Vrms	-3					40	Recoverable

Command Code (Hex)	Command Name	Read / Write	Page	Format	# of Bytes	Units	Scaling Coefficients				Bit #	Reading	Comments
							N	m	R	b			
59	VIN_UV_FAULT_LIMIT	R	0	Linear Data Format	2	Vrms	-3					36	Recoverable
5A	VIN_UV_FAULT_RESPONSE	R	0	Bit Flags	1						2:0	0	Delay Time - None
											5:3	0	Retry Setting - Unit does not attempt to restart & output remains disabled until fault clear
											7:6	3	Response - Output disabled while fault is present & remains disabled until fault cleared
5B	IIN_OC_FAULT_LIMIT	R	0	Linear Data Format	2	Arms	-4					54.8	
5C	IIN_OC_FAULT_RESPONSE	R	0	Bit Flags	1						2:0	0	Delay Time - None
											5:3	0	Retry Setting - Unit does not attempt to restart & output remains disabled until fault clear
											7:6	3	Response - Output disabled while fault is present & remains disabled until fault cleared
5D	IIN_OC_WARN_LIMIT	R	0	Linear Data Format	2	Arms	-4					49.6	
5E	POWER_GOOD_ON	R	0	Linear Data Format	2	Vdc	-6					10.9	
5F	POWER_GOOD_OFF	R	0	Linear Data Format	2	Vdc	-6					10.9	
68	POUT_OP_FAULT_LIMIT	R	0	Linear Data Format	2	Watts	0					1780	
69	POUT_OP_FAULT_RESPONSE	R	0	Bit Flags	1						2:0	0	Delay Time - None
											5:3	0	Retry Setting - Unit does not attempt to restart & output remains disabled until fault clear
											7:6	3	Response - Output disabled while fault is present & remains disabled until fault cleared
6A	POUT_OP_WARN_LIMIT	R	0	Linear Data Format	2	Watts	0					1710	
6B	PIN_OP_WARN_LIMIT	R	0	Linear Data Format	2	Watts	0					1990	POUT_OP_WARN_LIMIT / 0.84

RETURNED RESULTS: D1U54-D-1500-12-HB4C

[Link back to: Commands](#)

Command Code (Hex)	Command Name	Read / Write	Page	Format	# of Bytes	Units	Scaling Coefficients				Bit #	Reading	Comments
							N	m	R	b			
40	VOUT_OV_FAULT_LIMIT	R	0	Linear Data Format	2	Vdc	-6					13	
40	VSTBY_OV_FAULT_LIMIT	R	1	Linear Data Format	2	Vdc	-6					14.7	
41	VOUT_OV_FAULT_RESPONSE	R	0	Bit Flags	1						2:0	0	Delay Time - None
											5:3	0	Retry Setting - Unit does not attempt to restart & output remains disabled until fault clear
											7:6	3	Response - Output disabled while fault is present & remains disabled until fault cleared
41	VSTBY_OV_FAULT_RESPONSE	R	1	Bit Flags	1						2:0	0	Delay Time - None
											5:3	0	Retry Setting - Unit does not attempt to restart & output remains disabled until fault clear
											7:6	3	Response - Output disabled while fault is present & remains disabled until fault cleared
42	VOUT_OV_WARN_LIMIT	R	0	Linear Data Format	2	Vdc	-6					12.5	
42	VSTBY_OV_WARN_LIMIT	R	1	Linear Data Format	2	Vdc	-6					13.5	
43	VOUT_UV_WARN_LIMIT	R	0	Linear Data Format	2	Vdc	-6					11.5	
43	VSTBY_UV_WARN_LIMIT	R	1	Linear Data Format	2	Vdc	-6					11.5	
44	VOUT_UV_FAULT_LIMIT	R	0	Linear Data Format	2	Vdc	-6					10.9	
44	VSTBY_UV_FAULT_LIMIT	R	1	Linear Data Format	2	Vdc	-6					10.9	
45	VOUT_UV_FAULT_RESPONSE	R	0	Bit Flags	1						2:0	0	Delay Time - None
											5:3	0	Retry Setting - Unit does not attempt to restart & output remains disabled until fault clear
											7:6	3	Response - Output disabled while fault is present & remains disabled until fault cleared
45	VSTBY_UV_FAULT_RESPONSE	R	1	Bit Flags	1						2:0	0	Delay Time - None
											5:3	0	Retry Setting - Unit does not attempt to restart & output remains disabled until fault clear
											7:6	3	Response - Output disabled while fault is present & remains disabled until fault cleared

Command Code (Hex)	Command Name	Read / Write	Page	Format	# of Bytes	Units	Scaling Coefficients				Bit #	Reading	Comments
							N	m	R	b			
46	IOUT_OC_FAULT_LIMIT	R	0	Linear Data Format	2	Adc	-2					150	
46	ISTBY_OC_FAULT_LIMIT	R	2	Linear Data Format	2	Adc	-8					3.1	
47	IOUT_OC_FAULT_RESPONSE	R	0	Bit Flags	1						2:0	0	Delay Time - None
											5:3	7	Retry Setting - Unit does not attempt to restart & output remains disabled until fault clear
											7:6	3	Response - Continuous restart (self-recovery)
47	ISTBY_OC_FAULT_RESPONSE	R	2	Bit Flags	1						2:0	0	Delay Time - None
											5:3	7	Response - Continuous restart (self-recovery)
											7:6	3	Response - Output disabled while fault is present & remains disabled until fault cleared
4A	IOUT_OC_WARN_LIMIT	R	0	Linear Data Format	2	Adc	-2					140	
4A	ISTBY_OC_WARN_LIMIT	R	2	Linear Data Format	2	Adc	-8					2.8	
4F	AIRFLOW_1_OT_FAULT_LIMIT	R	0	Linear Data Format	2	°C	0					80	Inlet Airflow
4F	AIRFLOW_2_OT_FAULT_LIMIT	R	1	Linear Data Format	2	°C	0					110	Outlet Airflow
4F	HOTSPOT_1_OT_FAULT_LIMIT	R	2	Linear Data Format	2	°C	0					130	Secondary Hotspot - Sync FETs
4F	HOTSPOT_2_OT_FAULT_LIMIT	R	3	Linear Data Format	2	°C	0					125	Primary Hotspot - Bridge
4F	HOTSPOT_3_OT_FAULT_LIMIT	R	4	Linear Data Format	2	°C	0					125	Primary Hotspot - Boost
50	AIRFLOW_1_OT_FAULT_RESPONSE	R	0	Bit Flags	1						2:0	0	Delay Time - None
											5:3	0	Retry Setting - Unit does not attempt to restart & output remains disabled until fault clear
											7:6	3	Response - Output disabled while fault is present & remains disabled until fault cleared

Command Code (Hex)	Command Name	Read / Write	Page	Format	# of Bytes	Units	Scaling Coefficients				Bit #	Reading	Comments
							N	m	R	b			
50	HOTSPOT_1_OT_FAULT_RESPONSE	R	1	Bit Flags	1						2:0	0	Delay Time - None
											5:3	0	Retry Setting - Unit does not attempt to restart & output remains disabled until fault clear
											7:6	3	Response - Output disabled while fault is present & remains disabled until fault cleared
50	AIRFLOW_2_OT_FAULT_RESPONSE	R	2	Bit Flags	1						2:0	0	Delay Time - None
											5:3	0	Retry Setting - Unit does not attempt to restart & output remains disabled until fault clear
											7:6	3	Response - Output disabled while fault is present & remains disabled until fault cleared
50	HOTSPOT_2_OT_FAULT_RESPONSE	R	3	Bit Flags	1						2:0	0	Delay Time - None
											5:3	0	Retry Setting - Unit does not attempt to restart & output remains disabled until fault clear
											7:6	3	Response - Output disabled while fault is present & remains disabled until fault cleared
4F	AIRFLOW_1_OT_WARN_LIMIT	R	0	Linear Data Format	2	°C	0					75	Inlet Airflow
4F	AIRFLOW_2_OT_WARN_LIMIT	R	1	Linear Data Format	2	°C	0					105	Outlet Airflow
4F	HOTSPOT_1_OT_WARN_LIMIT	R	2	Linear Data Format	2	°C	0					122	Secondary Hotspot - Sync FETs
4F	HOTSPOT_2_OT_WARN_LIMIT	R	3	Linear Data Format	2	°C	0					110	Primary Hotspot - Bridge
4F	HOTSPOT_3_OT_WARN_LIMIT	R	4	Linear Data Format	2	°C	0					110	Primary Hotspot - Boost
55	VIN_OV_FAULT_LIMIT	R	0	Linear Data Format	2	Vrms	-3					76/100	Recoverable/Latch
56	VIN_OV_FAULT_RESPONSE	R	0	Bit Flags	1						2:0	0	Delay Time - None
											5:3	0	Retry Setting - Unit does not attempt to restart & output remains disabled until fault clear
											7:6	3	Response - Output disabled while fault is present & remains disabled until fault cleared

Command Code (Hex)	Command Name	Read / Write	Page	Format	# of Bytes	Units	Scaling Coefficients				Bit #	Reading	Comments
							N	m	R	b			
57	VIN_OV_WARN_LIMIT	R	0	Linear Data Format	2	Vrms	-3				74	Recoverable	
58	VIN_UV_WARN_LIMIT	R	0	Linear Data Format	2	Vrms	-3				40	Recoverable	
59	VIN_UV_FAULT_LIMIT	R	0	Linear Data Format	2	Vrms	-3				36	Recoverable	
5A	VIN_UV_FAULT_RESPONSE	R	0	Bit Flags	1						2:0	0	Delay Time - None
											5:3	0	Retry Setting - Unit does not attempt to restart & output remains disabled until fault clear
											7:6	3	Response - Output disabled while fault is present & remains disabled until fault cleared
5B	IIN_OC_FAULT_LIMIT	R	0	Linear Data Format	2	Arms	-4				54.8		
5C	IIN_OC_FAULT_RESPONSE	R	0	Bit Flags	1						2:0	0	Delay Time - None
											5:3	0	Retry Setting - Unit does not attempt to restart & output remains disabled until fault clear
											7:6	3	Response - Output disabled while fault is present & remains disabled until fault cleared
5D	IIN_OC_WARN_LIMIT	R	0	Linear Data Format	2	Arms	-4				49.6		
5E	POWER_GOOD_ON	R	0	Linear Data Format	2	Vdc	-6				10.9		
5F	POWER_GOOD_OFF	R	0	Linear Data Format	2	Vdc	-6				10.9		
68	POUT_OP_FAULT_LIMIT	R	0	Linear Data Format	2	Watts	0				1780		
69	POUT_OP_FAULT_RESPONSE	R	0	Bit Flags	1						2:0	0	Delay Time - None
											5:3	0	Retry Setting - Unit does not attempt to restart & output remains disabled until fault clear
											7:6	3	Response - Output disabled while fault is present & remains disabled until fault cleared
6A	POUT_OP_WARN_LIMIT	R	0	Linear Data Format	2	Watts	0				1710		
6B	PIN_OP_WARN_LIMIT	R	0	Linear Data Format	2	Watts	0				1990	POUT_OP_WARN_LIMIT / 0.84	

**SENSOR DATA AND RESOLUTION D1U54-D-1500-12-HA4C**
[Link Back to: Command 88](#)

Command Code (Hex)	Command Name	Description	Page	Format	Units	Scaling Coefficients				Raw Sensor		PMBus™Reporting Sensor		
						N	m	R	b	Full-scale / Range	Resolution	Full-scale / Range	Resolution	Accuracy
88	READ_VIN	Input Voltage Sensor Reading	All	Linear Data Format	Vdc	-3				106.7	0.1043	127.875	0.125	+ / - 2% of Reporting Full-Scale
89	READ_IIN	Input Current Sensor Reading	All	Linear Data Format	Adc	-4				66	0.0645	63.94	0.0625	+ / - 5% of Reporting Full-Scale
8A	READ_VCAP	Boost Output Voltage Sensor Reading	All	Linear Data Format	Vdc	-3				109.96	0.1075	127.88	0.1250	+ / - 5% of Reporting Full-Scale
8B	READ_VOUT	Main Output Voltage Sensor Reading	0	Linear Data Format	Vdc	-6				15.28	0.0149	15.98	0.0156	+ / - 2% of Reporting Full-Scale
8B	READ_VSTBY	Standby(Auxilliary) Output Voltage Sensor Reading	1	Linear Data Format	Vdc	-7				6	0.0059	7.992	0.00781	+ / - 2% of Reporting Full-Scale
8C	READ_IOUT	Main Output Current Sensor Reading	0	Linear Data Format	Adc	-2				162.9	0.1592	255.75	0.250	+ / - 2% of Reporting Full-Scale
8C	READ_ISTBY	Standby(Auxilliary) Output Current Sensor Reading	1	Linear Data Format	Adc	-7				7.76	0.0076	7.992	0.00781	+ / - 2% of Reporting Full-Scale
8D	READ_TEMPERATURE_1	Temperature Sensor Reading - Inlet (Secondary Side)	0	Linear Data Format	°C	0				-40 to 150		-40 to 150	1	+ / - 5°C
8E	READ_TEMPERATURE_2	Temperature Sensor Reading - Outlet (Primary Side)	0	Linear Data Format	°C	0				-40 to 150		-40 to 150	1	+ / - 5°C
8F	READ_TEMPERATURE_3	Temperature Sensor Reading - Main Output Hotspot (Secondary Side)	0	Linear Data Format	°C	0				-40 to 150		-40 to 150	1	+ / - 5°C
8F	READ_TEMPERATURE_3	Temperature Sensor Reading - Bridge Hotspot (Primary Side)	1	Linear Data Format	°C	0				-40 to 150		-40 to 150	1	+ / - 5°C
8F	READ_TEMPERATURE_3	Temperature Sensor Reading - Boost Hotspot (Primary Side)	2	Linear Data Format	°C	0				-40 to 150		-40 to 150	1	+ / - 5°C
90	READ_FAN_SPEED_1	Fan 1 Speed Sensor Reading	All	Linear Data Format	RPM	5				24,000		32736	32	+ / - 5% of Reporting Full-Scale
96	READ_POUT	Output Power Sensor Reading	All	Linear Data Format	Watts	0						1023	1	+ / - 5% of Reporting Full-Scale
97	READ_PIN	Input Power Sensor Reading	All	Linear Data Format	Watts	0						1023	1	+ / - 5% of Reporting Full-Scale
E2	READ_POWER_ON_HOURS	Accumulated Main Output Power-On Hours	All	Linear Data Format	Hours	0				~1,900 (Years)		~1,900 (Years)	1	+ / - 3%

**SENSOR DATA AND RESOLUTION D1U54-D-1500-12-HA3C**
[Link Back to: Command 88](#)

Command Code (Hex)	Command Name	Description	Page	Format	Units	Scaling Coefficients				Raw Sensor		PMBus™ Reporting Sensor		
						N	m	R	b	Full-scale / Range	Resolution	Full-scale / Range	Resolution	Accuracy
88	READ_VIN	Input Voltage Sensor Reading	All	Linear Data Format	Vdc	-3				106.7	0.1043	127.875	0.125	+ / - 2% of Reporting Full-Scale
89	READ_IIN	Input Current Sensor Reading	All	Linear Data Format	Adc	-4				66	0.0645	63.94	0.0625	+ / - 5% of Reporting Full-Scale
8A	READ_VCAP	Boost Output Voltage Sensor Reading	All	Linear Data Format	Vdc	-3				109.96	0.1075	127.88	0.1250	+ / - 5% of Reporting Full-Scale
8B	READ_VOUT	Main Output Voltage Sensor Reading	0	Linear Data Format	Vdc	-6				15.28	0.0149	15.98	0.0156	+ / - 2% of Reporting Full-Scale
8B	READ_VSTBY	Standby(Auxilliary) Output Voltage Sensor Reading	1	Linear Data Format	Vdc	-7				6	0.0059	7.992	0.00781	+ / - 2% of Reporting Full-Scale
8C	READ_IOUT	Main Output Current Sensor Reading	0	Linear Data Format	Adc	-2				162.9	0.1592	255.75	0.250	+ / - 2% of Reporting Full-Scale
8C	READ_ISTBY	Standby(Auxilliary) Output Current Sensor Reading	1	Linear Data Format	Adc	-7				7.76	0.0076	7.992	0.00781	+ / - 2% of Reporting Full-Scale
8D	READ_TEMPERATURE_1	Temperature Sensor Reading - Inlet (Primary Side)	0	Linear Data Format	°C	0				-40 to 150		-40 to 150	1	+ / - 5°C
8E	READ_TEMPERATURE_2	Temperature Sensor Reading - Outlet (Secondary Side)	0	Linear Data Format	°C	0				-40 to 150		-40 to 150	1	+ / - 5°C
8F	READ_TEMPERATURE_3	Temperature Sensor Reading - Main Output Hotspot (Secondary Side)	0	Linear Data Format	°C	0				-40 to 150		-40 to 150	1	+ / - 5°C
8F	READ_TEMPERATURE_3	Temperature Sensor Reading - Bridge Hotspot (Primary Side)	1	Linear Data Format	°C	0				-40 to 150		-40 to 150	1	+ / - 5°C
8F	READ_TEMPERATURE_3	Temperature Sensor Reading - Boost Hotspot (Primary Side)	2	Linear Data Format	°C	0				-40 to 150		-40 to 150	1	+ / - 5°C
90	READ_FAN_SPEED_1	Fan 1 Speed Sensor Reading	All	Linear Data Format	RPM	5				24,000		32736	32	+ / - 5% of Reporting Full-Scale
96	READ_POUT	Output Power Sensor Reading	All	Linear Data Format	Watts	0						1023	1	+ / - 5% of Reporting Full-Scale
97	READ_PIN	Input Power Sensor Reading	All	Linear Data Format	Watts	0						1023	1	+ / - 5% of Reporting Full-Scale
E2	READ_POWER_ON_HOURS	Accumulated Main Output Power-On Hours	All	Linear Data Format	Hours	0				~1,900 (Years)		~1,900 (Years)	1	+ / - 3%

**SENSOR DATA AND RESOLUTION D1U54-D-1500-12-HC4C**
[Link Back to: Command 88](#)

Command Code (Hex)	Command Name	Description	Page	Format	Units	Scaling Coefficients				Raw Sensor		PMBus™ Reporting Sensor		
						N	m	R	b	Full-scale / Range	Resolution	Full-scale / Range	Resolution	Accuracy
88	READ_VIN	Input Voltage Sensor Reading	All	Linear Data Format	Vdc	-3				106.7	0.1043	127.875	0.125	+ / - 2% of Reporting Full-Scale
89	READ_IIN	Input Current Sensor Reading	All	Linear Data Format	Adc	-4				66	0.0645	63.94	0.0625	+ / - 5% of Reporting Full-Scale
8A	READ_VCAP	Boost Output Voltage Sensor Reading	All	Linear Data Format	Vdc	-3				109.96	0.1075	127.88	0.1250	+ / - 5% of Reporting Full-Scale
8B	READ_VOUT	Main Output Voltage Sensor Reading	0	Linear Data Format	Vdc	-6				15.28	0.0149	15.98	0.0156	+ / - 2% of Reporting Full-Scale
8B	READ_VSTBY	Standby(Auxilliary) Output Voltage Sensor Reading	1	Linear Data Format	Vdc	-8				6	0.0059	3.996	0.00391	+ / - 2% of Reporting Full-Scale
8C	READ_IOUT	Main Output Current Sensor Reading	0	Linear Data Format	Adc	-2				162.9	0.1592	255.75	0.250	+ / - 2% of Reporting Full-Scale
8C	READ_ISTBY	Standby(Auxilliary) Output Current Sensor Reading	1	Linear Data Format	Adc	-7				7.76	0.0076	7.992	0.00781	+ / - 2% of Reporting Full-Scale
8D	READ_TEMPERATURE_1	Temperature Sensor Reading - Inlet (Secondary Side)	0	Linear Data Format	°C	0				-40 to 150		-40 to 150	1	+ / - 5°C
8E	READ_TEMPERATURE_2	Temperature Sensor Reading - Outlet (Primary Side)	0	Linear Data Format	°C	0				-40 to 150		-40 to 150	1	+ / - 5°C
8F	READ_TEMPERATURE_3	Temperature Sensor Reading - Main Output Hotspot (Secondary Side)	0	Linear Data Format	°C	0				-40 to 150		-40 to 150	1	+ / - 5°C
8F	READ_TEMPERATURE_3	Temperature Sensor Reading - Bridge Hotspot (Primary Side)	1	Linear Data Format	°C	0				-40 to 150		-40 to 150	1	+ / - 5°C
8F	READ_TEMPERATURE_3	Temperature Sensor Reading - Boost Hotspot (Primary Side)	2	Linear Data Format	°C	0				-40 to 150		-40 to 150	1	+ / - 5°C
90	READ_FAN_SPEED_1	Fan 1 Speed Sensor Reading	All	Linear Data Format	RPM	5				24,000		32736	32	+ / - 5% of Reporting Full-Scale
96	READ_POUT	Output Power Sensor Reading	All	Linear Data Format	Watts	0						1023	1	+ / - 5% of Reporting Full-Scale
97	READ_PIN	Input Power Sensor Reading	All	Linear Data Format	Watts	0						1023	1	+ / - 5% of Reporting Full-Scale
E2	READ_POWER_ON_HOURS	Accumulated Main Output Power-On Hours	All	Linear Data Format	Hours	0				~1,900 (Years)		~1,900 (Years)	1	+ / - 3%

**SENSOR DATA AND RESOLUTION D1U54-D-1500-12-HC3C**
[Link Back to: Command 88](#)

Command Code (Hex)	Command Name	Description	Page	Format	Units	Scaling Coefficients				Raw Sensor		PMBus™ Reporting Sensor		
						N	m	R	b	Full-scale / Range	Resolution	Full-scale / Range	Resolution	Accuracy
88	READ_VIN	Input Voltage Sensor Reading	All	Linear Data Format	Vdc	-3				106.7	0.1043	127.875	0.125	+ / - 2% of Reporting Full-Scale
89	READ_IIN	Input Current Sensor Reading	All	Linear Data Format	Adc	-4				66	0.0645	63.94	0.0625	+ / - 5% of Reporting Full-Scale
8A	READ_VCAP	Boost Output Voltage Sensor Reading	All	Linear Data Format	Vdc	-3				109.96	0.1075	127.88	0.1250	+ / - 5% of Reporting Full-Scale
8B	READ_VOUT	Main Output Voltage Sensor Reading	0	Linear Data Format	Vdc	-6				15.28	0.0149	15.98	0.0156	+ / - 2% of Reporting Full-Scale
8B	READ_VSTBY	Standby(Auxilliary) Output Voltage Sensor Reading	1	Linear Data Format	Vdc	-8				6	0.0059	3.996	0.00391	+ / - 2% of Reporting Full-Scale
8C	READ_IOUT	Main Output Current Sensor Reading	0	Linear Data Format	Adc	-2				162.9	0.1592	255.75	0.250	+ / - 2% of Reporting Full-Scale
8C	READ_ISTBY	Standby(Auxilliary) Output Current Sensor Reading	1	Linear Data Format	Adc	-7				7.76	0.0076	7.992	0.00781	+ / - 2% of Reporting Full-Scale
8D	READ_TEMPERATURE_1	Temperature Sensor Reading - Inlet (Primary Side)	0	Linear Data Format	°C	0				-40 to 150		-40 to 150	1	+ / - 5°C
8E	READ_TEMPERATURE_2	Temperature Sensor Reading - Outlet (Secondary Side)	0	Linear Data Format	°C	0				-40 to 150		-40 to 150	1	+ / - 5°C
8F	READ_TEMPERATURE_3	Temperature Sensor Reading - Main Output Hotspot (Secondary Side)	0	Linear Data Format	°C	0				-40 to 150		-40 to 150	1	+ / - 5°C
8F	READ_TEMPERATURE_3	Temperature Sensor Reading - Bridge Hotspot (Primary Side)	1	Linear Data Format	°C	0				-40 to 150		-40 to 150	1	+ / - 5°C
8F	READ_TEMPERATURE_3	Temperature Sensor Reading - Boost Hotspot (Primary Side)	2	Linear Data Format	°C	0				-40 to 150		-40 to 150	1	+ / - 5°C
90	READ_FAN_SPEED_1	Fan 1 Speed Sensor Reading	All	Linear Data Format	RPM	5				24,000		32736	32	+ / - 5% of Reporting Full-Scale
96	READ_POUT	Output Power Sensor Reading	All	Linear Data Format	Watts	0						1023	1	+ / - 5% of Reporting Full-Scale
97	READ_PIN	Input Power Sensor Reading	All	Linear Data Format	Watts	0						1023	1	+ / - 5% of Reporting Full-Scale
E2	READ_POWER_ON_HOURS	Accumulated Main Output Power-On Hours	All	Linear Data Format	Hours	0				~1,900 (Years)		~1,900 (Years)	1	+ / - 3%

**SENSOR DATA AND RESOLUTION D1U54-D-1500-12-HB4C**
[Link Back to: Command 88](#)

Command Code (Hex)	Command Name	Description	Page	Format	Units	Scaling Coefficients				Raw Sensor		PMBus™Reporting Sensor		
						N	m	R	b	Full-scale / Range	Resolution	Full-scale / Range	Resolution	Accuracy
88	READ_VIN	Input Voltage Sensor Reading	All	Linear Data Format	Vdc	-3				106.7	0.1043	127.875	0.125	+ / - 2% of Reporting Full-Scale
89	READ_IIN	Input Current Sensor Reading	All	Linear Data Format	Adc	-4				66	0.0645	63.94	0.0625	+ / - 5% of Reporting Full-Scale
8A	READ_VCAP	Boost Output Voltage Sensor Reading	All	Linear Data Format	Vdc	-3				109.96	0.1075	127.88	0.1250	+ / - 5% of Reporting Full-Scale
8B	READ_VOUT	Main Output Voltage Sensor Reading	0	Linear Data Format	Vdc	-6				15.28	0.0149	15.98	0.0156	+ / - 2% of Reporting Full-Scale
8B	READ_VSTBY	Standby(Auxilliary) Output Voltage Sensor Reading	1	Linear Data Format	Vdc	-6				15.28	0.0149	15.984	0.01563	+ / - 2% of Reporting Full-Scale
8C	READ_IOUT	Main Output Current Sensor Reading	0	Linear Data Format	Adc	-2				162.9	0.1592	255.75	0.250	+ / - 2% of Reporting Full-Scale
8C	READ_ISTBY	Standby(Auxilliary) Output Current Sensor Reading	1	Linear Data Format	Adc	-8				3.26	0.0032	3.996	0.00391	+ / - 2% of Reporting Full-Scale
8D	READ_TEMPERATURE_1	Temperature Sensor Reading - Inlet (Secondary Side)	0	Linear Data Format	°C	0				-40 to 150		-40 to 150	1	+ / - 5°C
8E	READ_TEMPERATURE_2	Temperature Sensor Reading - Outlet (Primary Side)	0	Linear Data Format	°C	0				-40 to 150		-40 to 150	1	+ / - 5°C
8F	READ_TEMPERATURE_3	Temperature Sensor Reading - Main Output Hotspot (Secondary Side)	0	Linear Data Format	°C	0				-40 to 150		-40 to 150	1	+ / - 5°C
8F	READ_TEMPERATURE_3	Temperature Sensor Reading - Bridge Hotspot (Primary Side)	1	Linear Data Format	°C	0				-40 to 150		-40 to 150	1	+ / - 5°C
8F	READ_TEMPERATURE_3	Temperature Sensor Reading - Boost Hotspot (Primary Side)	2	Linear Data Format	°C	0				-40 to 150		-40 to 150	1	+ / - 5°C
90	READ_FAN_SPEED_1	Fan 1 Speed Sensor Reading	All	Linear Data Format	RPM	5				24,000		32736	32	+ / - 5% of Reporting Full-Scale
96	READ_POUT	Output Power Sensor Reading	All	Linear Data Format	Watts	0						1023	1	+ / - 5% of Reporting Full-Scale
97	READ_PIN	Input Power Sensor Reading	All	Linear Data Format	Watts	0						1023	1	+ / - 5% of Reporting Full-Scale
E2	READ_POWER_ON_HOURS	Accumulated Main Output Power-On Hours	All	Linear Data Format	Hours	0				~1,900 (Years)		~1,900 (Years)	1	+ / - 3%

**MANUFACTURER'S GENERAL PARAMETRIC DATA**

 Link back to: [Command A0](#)

Command Code (Hex)	Command Name	Value	Units	N	Value (dec)
A0	MFR_VIN_MIN	40	V	-3	320
A1	MFR_VIN_MAX	72	V	-3	576
A2	MFR_IIN_MAX	51	A	-4	816
A3	MFR_PIN_MAX	1750	W	1	875
A4	MFR_VOUT_MIN	11.4	V	-6	730
A5	MFR_VOUT_MAX	12.6	V	-6	806
A6	MFR_IOUT_MAX	125	A	-2	500
A7	MFR_POUT_MAX	1500	W	1	750
A8	MFR_TAMBIENT_MAX	45	C	0	45
A9	MFR_TAMBIENT_MIN	0	C	0	0
AA	MFR_EFFICIENCY_LL_VIN	40	V	-3	320
	MFR_EFFICIENCY_LL_POUT1	300	W	1	150
	MFR_EFFICIENCY_LL_EFF1	0.92		-10	942
	MFR_EFFICIENCY_LL_POUT2	750	W	1	375
	MFR_EFFICIENCY_LL_EFF2	0.93		-10	952
	MFR_EFFICIENCY_LL_POUT3	1500	W	1	750
	MFR_EFFICIENCY_LL_EFF3	0.89		-10	911
AB	MFR_EFFICIENCY_HL_VIN	72	V	-3	576
	MFR_EFFICIENCY_HL_POUT1	300	W	1	150
	MFR_EFFICIENCY_HL_EFF1	0.93		-10	952
	MFR_EFFICIENCY_HL_POUT2	750	W	1	375
	MFR_EFFICIENCY_HL_EFF2	0.94		-10	963
	MFR_EFFICIENCY_HL_POUT3	1500	W	1	750
	MFR_EFFICIENCY_HL_EFF3	0.92		-10	942

**OPERATION COMMAND CODE 01 HEX**

 Link Back to Commands: [back to command 01](#)

Bit # / Bit Description								Valid Values		Power Supply On/Off Mode
7	6	5	4	3	2	1	0	Dec	Hex	
On/off 1	On/off 0	Margin on/off/high/low 1	Margin on/off/high/low 0	Margin fault control 1	Margin fault control 0	not used	not used			
0	0	x	x	x	x	x	x	0 - 63	0 - 3F	Disable power supply when OPERATION command supported
1	0	x	x	x	x	x	x	128 - 191	80 - BF	Enable power supply when OPERATION command supported (Default)

**ON/OFF COMMAND CODE 02 HEX**

 Link Back to Commands: [back to command 02](#)

Bit # / Bit Description								Valid Values		Power Supply On/Off Mode
7	6	5	4	3	2	1	0	Dec	Hex	
reserved	reserved	reserved	CONTROL pin / OPERATION command PS on/off	OPERATION command on/off	CONTROL pin on/off	CONTROL pin polarity	CONTROL pin action			
0	0	0	1	0	1	0	1	21	15	Control pin only ; active low polarity
0	0	0	1	0	1	1	1	23	17	Control pin only ; active high polarity
0	0	0	1	1	0	x	1	25 or 27	19 or 1B	Operation command only
0	0	0	1	1	1	0	1	29	1D	Operation command and control pin; active low polarity (Default)
0	0	0	1	1	1	1	1	31	1F	Operation command and control pin; active high polarity

**EEPROM DATA: Example, based on D1U54-D-1500-12-HC4C. Actual results dependent upon model**

 Link back to: [Command E1](#)

Address (HEX)	Data Length	Register Contents (Hexadecimal Format) Order = Low Address -> High Address Dynamic Data Byte = "xx"	Register Name	Static or Dynamic Register? (S/D)	Data Type	Description
00 - 0A	11	01 00 00 00 01 00 00 FE 01 08 19	Header	S	HEX	
0B - 14	10	C9 4D 75 72 61 74 61 2D 50 53	Manufacturer Bytes	S	TEXT	Reads as "Murata-PS"
15 - 1A	6	C5 4D 31 39 30 30	Product Name	S	TEXT	Reads as "M1900"
1B - 2F	21	D4 44 31 55 35 34 2D 44 2D 31 35 30 30 2D 31 32 2D 48 43 34 43	Part Number	S	TEXT	Reads as "D1U54-D-1500-12-HC4C"
30	1	C0	Product Version Length	S	HEX	Product version, length =0
31 - 3D	13	CC pp pp yy yy ww ww rr rr XX XX XX XX	Product Serial Number	D	TEXT	CC = HEX 0xCC length identifier pp = Product Code yy = Serial Number Year ww = Serial Number Week rr = Serial Number Revision Level XX = Serial Number
3E - 43	6	C0 C0 C0 C0 C0 C0	Custom data	S	HEX	Asset tag, Custom data, FRU ID
44	1	C1	END	S	HEX	Signifies end of information
45 - 46	2	00 00	UNUSED EEPROM	S	HEX	Fill all unused memory locations with 0x00
47	1	XX	Checksum	D	HEX	XX = 2's complement checksum from 0x08 - 0x46
48 - FF	184	00 00 00 ... 00 00 00	UNUSED EEPROM	S	HEX	Fill all unused memory locations with 0x00

**PMBUS™ Configuration Bits**

 Link back to: [Command EE](#)

Parameter	Bit#	Bit	Function	
Data Format	Bit 0	1	Direct Data Format	
		0	Linear Data Format	Default
SMBALERT	Bit 1	1	PS does not have SMBALERT pin or does not support SMBus alert protocol	
		0	PS does have SMBALERT pin and supports SMBus alert protocol	Default
Bus Speed	Bit 2	1	Maximum supported bus speed = 400kHz	Default
		0	Maximum supported bus speed = 100kHz	
PEC support	Bit 3	1	Packed error checking supported	Default
		0	Packed error checking not supported	

**LED CONTROL; ALL VARIANTS**

 Link back to commands: [Command EF](#)

Bit # / Bit Description								Valid Values		Read / Write	LED Status & Control
7	6	5	4	3	2	1	0	Dec	Hex		
CONTROL Bit	reserved	reserved	reserved	reserved	LED Mode Bit 2	LED Mode Bit 1	LED Mode Bit 0				
<b>Page 0 - INPUT LED</b>											
0	0	0	0	0	0	0	0	0	0	Read	Auto - LED off
0	0	0	0	0	0	0	1	1	1	Read	Auto - LED solid green
0	0	0	0	0	0	1	0	2	2	Read	Auto - LED blinking green
0	X	X	X	X	X	X	X	0 - 127	0 - 7F	Write	Set to Auto LED control
1	0	0	0	0	0	0	0	128	80	Read / Write	Set to Manual - LED off
1	0	0	0	0	0	0	1	129	81	Read / Write	Set to Manual - LED solid green
1	0	0	0	0	0	1	0	130	82	Read / Write	Set to Manual - LED blinking green
<b>Page 1 - OUTPUT LED</b>											
0	0	0	0	0	0	0	0	0	0	Read	Auto - LED off
0	0	0	0	0	0	0	1	1	1	Read	Auto - LED solid green
0	0	0	0	0	0	1	0	2	2	Read	Auto - LED blinking green
0	0	0	0	0	0	1	1	3	3	Read	Auto - LED solid red
0	0	0	0	0	1	0	0	4	4	Read	Auto - LED blinking red
0	0	0	0	0	1	0	1	5	5	Read	Auto - LED solid yellow
0	0	0	0	0	1	1	0	6	6	Read	Auto - LED blinking yellow
0	X	X	X	X	X	X	X	0 - 127	0 - 7F	Write	Set to Auto LED control
1	0	0	0	0	0	0	0	128	80	Read / Write	Set to Manual - LED off
1	0	0	0	0	0	0	1	129	81	Read / Write	Set to Manual - LED solid green
1	0	0	0	0	0	1	0	130	82	Read / Write	Set to Manual - LED blinking green
1	0	0	0	0	0	1	1	131	83	Read / Write	Set to Manual - LED solid red
1	0	0	0	0	1	0	0	132	84	Read / Write	Set to Manual - LED blinking red
1	0	0	0	0	1	0	1	133	85	Read / Write	Set to Manual - LED solid yellow
1	0	0	0	0	1	1	0	134	86	Read / Write	Set to Manual - LED blinking yellow

= Default, x=don't care

**Manual Fan Speed Control Notes**

 Command Code 3Bh (FAN\_COMMAND\_1); Link Back to Commands List: [CMD\\_3B](#)

Manual fan speed control via PMBus™ is a linear data mode two byte command, speed expressed as fan duty cycle. This table below contains the manual fan speed command data in 1% increments, for illustration purposes.

The power supply automatically cancels manual fan speed control and enters automatic fan speed control by any of the following conditions or methods:

- 1) Writing the command "03h"(CLEAR\_FAULTS).
- 2) Any overtemperature fault or warning (manual fan speed control mode can be resumed after the faults and warnings have ended)
- 3) Recycling of AC input voltage
- 4) Toggling PS\_ON signal
- 5) Issuing a fan command that is outside the normal maximum limits, i.e., writing a fan speed of 110% duty cycle.

CMD 3B(h)	"Fan_COMMAND_1" (2 bytes)			CMD 3B(h)	"Fan_COMMAND_1" (2 bytes)			CMD 3B(h)	"Fan_COMMAND_1" (2 bytes)			CMD 3B(h)	"Fan_COMMAND_1" (2 bytes)		
	% Duty Cycle	MSB(h)	LSB(h)		n(d)	% Duty Cycle	MSB(h)		LSB(h)	n(d)	% Duty Cycle		MSB(h)	LSB(h)	n(d)
0	B0	0	-10	26	B1	A	-10	51	B2	A	-10	76	B2	9	-10
1	B0	A	-10	27	B1	14	-10	52	B2	14	-10	77	B2	14	-10
2	B0	14	-10	28	B1	E1	-10	53	B2	1E	-10	78	B2	1E	-10
3	B0	1F	-10	29	B1	29	-10	54	B2	28	-10	79	B2	28	-10
4	B0	29	-10	30	B1	33	-10	55	B2	33	-10	80	B3	32	-10
5	B0	33	-10	31	B1	3D	-10	56	B2	3D	-10	81	B3	3D	-10
6	B0	3D	-10	32	B1	47	-10	57	B2	47	-10	82	B3	47	-10
7	B0	48	-10	33	B1	52	-10	58	B2	51	-10	83	B3	51	-10
8	B0	52	-10	34	B1	5C	-10	59	B2	5C	-10	84	B3	5B	-10
9	B0	5C	-10	35	B1	66	-10	60	B2	66	-10	85	B3	66	-10
10	B0	66	-10	36	B1	70	-10	61	B2	70	-10	86	B3	70	-10
11	B0	71	-10	37	B1	7B	-10	62	B2	7A	-10	87	B3	7A	-10
12	B0	7B	-10	38	B1	85	-10	63	B2	84	-10	88	B3	84	-10
13	B0	85	-10	39	B1	8F	-10	64	B2	8F	-10	89	B3	8E	-10
14	B0	8F	-10	40	B1	99	-10	65	B2	99	-10	90	B3	99	-10
15	B0	99	-10	41	B1	A3	-10	66	B2	A3	-10	91	B3	A3	-10
16	B0	A4	-10	42	B1	AE	-10	67	B2	AD	-10	92	B3	AD	-10
17	B0	AE	-10	43	B1	B8	-10	68	B2	B8	-10	93	B3	B7	-10
18	B0	B8	-10	44	B1	C2	-10	9	B2	C2	-10	94	B3	C2	-10
19	B0	C2	-10	45	B1	CC	-10	70	B2	CC	-10	95	B3	CC	-10
20	B0	CD	-10	46	B1	D7	-10	71	B2	D6	-10	96	B3	D6	-10
21	B0	D7	-10	47	B1	E1	-10	72	B2	E1	-10	97	B3	E0	-10
22	B0	E1	-10	48	B1	EB	-10	73	B2	EB	-10	98	B3	EB	-10
23	B0	EB	-10	49	B1	F5	-10	74	B2	F5	-10	99	B3	F5	-10
24	B0	F6	-10	50	B2	0	-10	75	B2	FF	-10	100	B3	FF	-10
25	B1	0	-10												

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