

PM-BUS Commands

RACM1200-SAV/ ENC/PMB

RECOM
AC/DC Converter

Description

PMB-Variants of RACM1200 PSUs support PMBus communication.

Maximum communication speed for RACM1200 PMBus PSUs is 100kHz.

Default address for RACM1200 PMBus PSUs is 55h.

Following pins of the RACM1200 PSU signal connector are used for PMBus communication:

- 15 : SDA (Data Line)
- 17 : SCL (Clock Line)
- 16 or 18 : Signal RTN (Ground)



For product datasheet refer to: [RACM1200-SAV/ENC_datasheet.pdf](#)

Signal Connector CON3 Pinning Information

Connector information CON3

Cvilux CI0120P1HD0.NH Type Pin Header

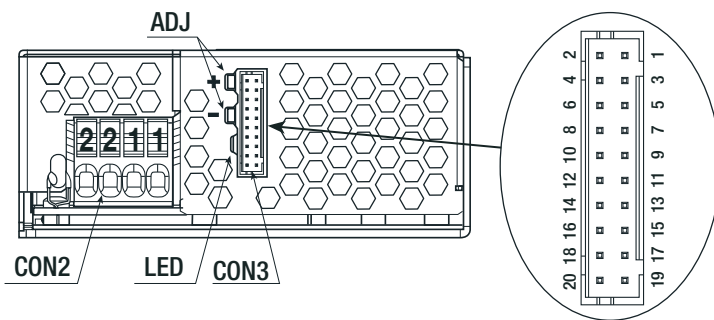
#	Function	#	Function
2	Reserved for factory config.	1	reserved for factory config.
4	Reserved for factory config.	3	NC
6	FAN ADJ	5	FAN+
8	NC	7	FAN RTN *
10	Remote Sense+	9	Remote Sense RTN
12	NC	11	NC
14	PSU_GOOD	13	AC_OK
16	Signal RTN *	15	SDA
18	Signal RTN	17	SCL
20	5VSB RTN	19	5VSB+

*Factory bridge from Pin7 (FAN RTN) to Pin16 (Signal RTN)

Mating connector CON3

Housing= Cvilux CI0120SD000

Contact= Cvilux CI01TD21PE0



RACM1200 PMBus devices use simplified DIRECT format for representing numeric values.

$$X = Y \cdot 10^{-R}$$

where

- X is the real world value
- Y is a two byte 2's complement integer sent over bus
- R is the exponent, a one byte 2's complement integer

R determines the number of decimal digits.

e.g.

With R = 3, the LSB size is 1mV with 32.7V range

With R = 2, the LSB size is 10mV with 327V range

- Voltage and Current: R=2 (two byte 2's complement integer with 2 decimal digits)
- Input Voltage: R=0 (two byte 2's complement integer with no decimal digits)
- Power: R=1 (two byte 2's complement integer with 1 decimal digit)
- Temperature: R=1 (two byte 2's complement integer with 1 decimal digit)

PM-BUS Communication Map

Command Code	Command Name	Transaction Type *	Number of data bytes	Instruction
01h	OPERATION	R/W-Byte	1	Bit 7: device can be turned on and off
02h	ON_OFF_CONFIG	R/W-Byte storeable	1	On/Off Configuration see <i>"ON_OFF_CONFIG bitmap"</i>
03h	CLEAR_FAULTS	Send-Byte	0	Clear all faults
11h	STORE_DEFAULT_ALL	Send-Byte	0	Store all changed parameters to persistent storage space
12h	RESTORE_DEFAULT_ALL	Send-Byte	0	Restore all parameters from persistent storage space
13h	STORE_DEFAULT_CODE	W-Byte	1	Store a specific parameter to persistent storage space
14h	RESTORE_DEFAULT_CODE	W-Byte	1	Restore a specific parameter from persistent storage space
19h	CAPABILITY	R-Byte	1	PMBus functionalities see <i>"CAPABILITY bitmap"</i>
1Ah	QUERY	Block W-Block R Process Call	W: 1 R: 1	Information about specific command properties see <i>"QUERY bitmap"</i>
20h	VOUT_MODE	R-Byte	1	VOUT command parameter mode see <i>"VOUT_MODE bitmap"</i>
21h	VOUT_COMMAND	R/W-Word	2	Setup output voltage
24h	VOUT_MAX	R-Word	2	Maximum output voltage
2Bh	VOUT_MIN	R-Word	2	Minimum output voltage
31h	POUT_MAX	R/W-Word storeable	2	Maximum output power
3Ah	FAN_CONFIG_1_2	R/W-Byte	1	Fan 1 configuration see <i>"FAN_CONFIG_1_2 bitmap"</i>
3Bh	FAN_COMMAND_1	R/W-Word storeable	2	Fan is commanded in duty cycle, with 0 it is off and the output voltage follows a linear slope from 5V to 12V with the command of 1 to 100, When a higher Fan speed than the commanded is required, the command is overruled
40h	VOUT_OV_FAULT_LIMIT	R/W-Word storeable	2	Output over voltage limit, that causes a fault
42h	VOUT_OV_WARN_LIMIT	R/W-Word storeable	2	Output over voltage limit, that causes a warning
43h	VOUT_UV_WARN_LIMIT	R/W-Word storeable	2	Output under voltage limit, that causes a warning
44h	VOUT_UV_FAULT_LIMIT	R/W-Word storeable	2	Output under voltage limit, that causes a fault
46h	IOUT_OC_FAULT_LIMIT	R-Word	2	Output over current limit, that causes a fault
48h	IOUT_OC_LV_FAULT_LIMIT	R-Word	2	If POUT_MAX is above 700W and VOUT is below this value for more than 4s, an IOUT_OC_LV_FAULT is thrown
4Ah	IOUT_OC_WARN_LIMIT	R-Word	2	Output over current limit, that causes a warning

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PM-BUS Communication Map

Command Code	Command Name	Transaction Type *	Number of data bytes	Instruction
4Fh	OT_FAULT_LIMIT	R/W-Word storeable	2	Over temperature limit, that causes a fault
51h	OT_WARN_LIMIT	R/W-Word storeable	2	Over temperature limit, that causes a warning
6Ah	POUT_OP_WARN_LIMIT	R/W-Word storeable	2	Over power limit, that causes a warning
78h	STATUS_BYTE	R-Byte		PSU status information see " <i>STATUS_WORD bitmap</i> "
79h	STATUS_WORD	R-Word	2	PSU status information see " <i>STATUS_WORD bitmap</i> "
7Ah	STATUS_VOUT	R-Byte	1	Output Voltage warning and fault status see " <i>STATUS_VOUT bitmap</i> "
7Bh	STATUS_IOUT	R-Byte	1	Output current warning and fault status see " <i>STATUS_IOUT bitmap</i> "
7Ch	STATUS_INPUT	R-Byte	1	Input Voltage warning and fault status see " <i>STATUS_INPUT bitmap</i> "
7Dh	STATUS_TEMP	R-Byte	1	Temperature warning and fault status see " <i>STATUS_TEMP bitmap</i> "
7Eh	STATUS_CML	R-Byte	1	PMBus communication status see " <i>STATUS_CML bitmap</i> "
88h	READ_VIN	R-Word	2	Measured input voltage
8Bh	READ_VOUT	R-Word	2	Measured output voltage
8Ch	READ_IOUT	R-Word	2	Measured output current
8Dh	READ_TEMPERATURE_1	R-Word	2	Measured internal temperature
90h	READ_FAN_SPEED_1	R-Word	2	Actual fan speed
96h	READ_POUT	R-Word	2	Actual output power
98h	PMBUS_REVISION	R-Byte	1	PMBus Revision 1.1
9Ah	MFR_MODEL	Block R	12	Product model e.g. RACM1200-48V
9Bh	MFR_REVISION	Block R	8	FW Revision e.g. 01.04.03
9Eh	MFR_SERIAL	Block R	8	8 digit serial number
A0h	MFR_VIN_MIN	R-Word	2	Minimum input voltage
A1h	MFR_VIN_MAX	R-Word	2	Maximum input voltage
A2h	MFR_IIN_MAX	R-Word	2	Maximum input current
A3h	MFR_PIN_MAX	R-Word	2	Maximum input power
A4h	MFR_VOUT_MIN	R-Word	2	Minimum output voltage
A5h	MFR_VOUT_MAX	R-Word	2	Maximum output voltage
A6h	MFR_IOUT_MAX	R-Word	2	Maximum output current
A7h	MFR_POUT_MAX	R-Word	2	Maximum output power
A8h	MFR_TAMBIENT_MAX	R-Word	2	Maximum ambient operation temperature

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PM-BUS Communication Map

Command Code	Command Name	Transaction Type *	Number of data bytes	Instruction
A9h	MFR_TAMBIENT_MIN	R-Word	2	Minimum ambient operation temperature
C0h	MFR_MAX_TEMP_1	R-Word	2	Maximum temperature READ_TEMPERATURE command can return
D0h	MFR_SETADDRESS	R/W-Byte storeable	1	Allows to set a different PMBus address. The default address is 55h. Addresses from 01h to 7Fh are accepted. Storage and power cycle required to activate new address.
D1h	MFR_SETFLAGS	R/W-Byte storeable	1	Manufacturer device setting flags see " <i>MFR_SETFLAGS bitmap</i> "
D2h	MFR_RESET_DEVICE	Send-Byte	0	Turns output off and resets device
D3h	MFR_POUT_MAX_LIMITED	R-Word	2	Internal limit for Pout
D4h	MFR_IOUT_MAX_LIMITED	R-Word	2	Internal limit for Iout
D5h	MFR_GOTO_BOOTLOADER	Send-Byte	0	Turns output off, resets device and enters the bootloader
D6h	MFR_REGULATOR_MODE	R-Byte	1	Returns the regulator mode that the PSU currently uses. 0 : None, 1 : CV, 2 : CCS, 3 : CCC, 4 : CP
D7h	MFR_EEPROM_REVISION	Block R	8	The MFR_EEPROM_REVISION command is used to read the manufacturer's persistent storage revision number.
D8h	MFR_HARDWARE_REVISION	Block R	8	The MFR_HW_REVISION command is used to read the manufacturer's hardware revision
D9h	MFR_VOUT_UP	Send-Byte	0	Same function as with the PSUs voltage up button, except that the voltage is not persistently stored
DAh	MFR_VOUT_DOWN	Send-Byte	0	Same function as with the PSUs voltage down button, except that the voltage is not persistently stored
DBh	MFR_READ_VIN_FREQ	R-Byte	1	Returns the measured input supply voltage frequency.
DBc	MFR_FACTORY_RESET	Send-Byte	0	Restores persistent storage default values for the installed firmware, turns output off and resets device.
DCh	MFR_FACTORY_RESET	Send-Byte	0	Restores persistent storage default values for the installed firmware, turns output off and resets device.
DDh	MFR_PARAMETER_RESET	Send-Byte	0	Same as MFR_FACTORY_RESET, but without resetting I2C-Address of the device
DEh	MFR_RANDOM_NUMBER	R-Word	2	Returns a pseudo random number between 0 and 32767 for testing purposes

*R= read / W= write / R/W= read/write

storeable: Value can be written to internal persistent storage space and is available after a power cycle or reset. Memory Endurance: Data EEPROM is rated to last for many thousands of erase/write cycles – up to 100K for EEPROM. Data retention without refresh is conservatively estimated to be greater than 40 years.

ON_OFF_CONFIG bitmap

Bit Number	Purpose	Bit Value	Meaning
[7:5]	Not used, hardcoded to 0	000	Reserved For Future Use
4	Sets the default to either operate any time power is present or for the on/off to be controlled by CONTROL pin and serial bus commands	0	Unit powers up any time power is present regardless of state of the CONTROL pin
		1	Unit does not power up until commanded by the CONTROL pin and OPERATION command (as programmed in bits [3:0]).
3	Controls how the unit responds to commands received via the serial bus	0	Unit ignores the on/off portion of the OPERATION command from serial bus
		1	To start, the unit requires that the on/off portion of the OPERATION command is instructing the unit to run. Depending on bit [2], the unit may also require the CONTROL pin to be asserted for the unit to start and energize the output.
2	Controls how the unit responds to the CONTROL pin No control pin available in PMBus variant - hardcoded to 0	0	Unit ignores the CONTROL pin (on/off controlled only the OPERATION command)
1	Polarity of the CONTROL pin No control pin available in PMBus variant - hardcoded to 0	0	Active low (Pull pin low to start the unit)
0	CONTROL pin action when commanding the unit to turn off not configurable, hardcoded to 1	1	Turn off the output and stop transferring energy to the output as fast as possible. The device's product literature shall specify whether or not the device sinks current to decrease the output voltage fall time.

CAPABILITY bitmap

Bits	Purpose	Value	Meaning
7	Packet Error Checking	1	Packet Error Checking is supported
6:5	Maximum Bus Speed	00	Maximum supported bus speed is 100 kHz
4	SMBALERT#	0	The device does not have a SMBALERT# pin and does not support the SMBus Alert Response protocol
3	Numeric Format	0	Numeric data is in LINEAR11, ULINEAR16, SLINEAR16, or DIRECT format
2	AVSBus Support	0	AVSBus Not Supported
1:0	Reserved	00	Reserved

QUERY bitmap

Bits	Value	Meaning
7	0	Command is not supported
	1	Command is supported
6	0	Command is not supported for write
	1	Command is supported for write. This value is returned if the devices supports writing to the command, regardless of whether a current WRITE_PROTECT setting allows or prevents writing to this command.
5	0	Command is not supported for read
	1	Command is supported for read
4:2	000	LINEAR11, ULINEAR16, or SLINEAR16 numeric format used LINEAR11, ULINEAR16, or SLINEAR16 numeric format used (as defined by the specification of the Command being queried)
	001	16 bit signed number
	010	IEEE Half Precision Floating Point Format used
	011	Direct Mode Format used
	100	8 bit unsigned number
	101	VID Mode Format used
	110	Manufacturer specific format used
	111	Command does not return numeric data. This is also used for commands that return blocks of data or the SEND BYTE protocol.
1:0	00	Reserved for future use

VOUT_MODE bitmap

Bits	Value	Meaning
7	0	Absolute Value mode
6:5	10	Direct Mode
4:0	00000	Always set to 00000 for Direct Mode

FAN_CONFIG_1_2 bitmap

Bits	Value	Meaning
7	1	A Fan Is Installed In Position 1
	2	No Fan Is Installed In Position 1
6	0	Fan 1 Is Commanded In Duty Cycle
5:4	00	1 pulse per revolution
3	0	No Fan Is Installed In Position 2 – 2nd Fan not supported
2	0	Fan 2 Is Commanded In Duty Cycle – 2nd Fan not supported
1:0	00	1 pulse per revolution – 2nd Fan not supported

MFR_SETFLAGS bitmap

Bits	Value	Meaning
7:4	000000	Reserved
1	0	Internal Vout Sensing (default)
	1	Remote Sense Activation
0	0	Reserved

STATUS_WORD bitmap

	Bits	Status Bit Name	Meaning
LOW	7	BUSY	A fault was declared because the device was busy and unable to respond.
	6	OFF	This bit is asserted if the unit is not providing power to the output, regardless of the reason, including simply not being enabled.
	5	VOUT_OV_AULT	An output overvoltage fault has occurred.
	4	IOUT_OC_FAULT	An output overcurrent fault has occurred.
	3	VIN_UV_FAULT	An input undervoltage fault has occurred.
	2	TEMPERATURE	A temperature fault or warning has occurred.
	1	CML	A communications, memory or logic fault has occurred.
	0	NONE_OF_THE_ABOVE	A fault or warning not listed in bits [7:1] of this byte has occurred.
HIGH	7	VOUT	An output voltage fault or warning has occurred.
	6	IOUT/POUT	An output current or output power fault or warning has occurred.
	5	INPUT	An input voltage, input current, or input power fault or warning has occurred.
	4	MFRSPECIFIC	A manufacturer specific fault or warning has occurred. n/a, hardcoded to 0,
	3	PG_STATUS#	The POWER_GOOD signal, if present, is negated.
	2	FANS	A fan or airflow fault or warning has occurred. n/a, hardcoded to 0
	1	OTHER	A bit in STATUS_OTHER is set n/a, hardcoded to 0
	0	UNKNOWN	A fault type not given in bits [15:1] of the STATUS_WORD has been detected n/a, hardcoded to 0

STATUS_VOUT bitmap

Bits	Meaning
7	VOUT_OV_FAULT Output Overvoltage Fault : VOUT is above the VOUT_OV_FAULT_LIMIT
6	VOUT_OV_WARNING Output Overvoltage Warning : VOUT is above VOUT_OV_WARN_LIMIT
5	VOUT_UV_WARNING Output Undervoltage Warning : VOUT is below VOUT_UV_WARN_LIMIT
4	VOUT_UV_FAULT Output Undervoltage Fault : VOUT is below VOUT_UV_FAULT_LIMIT
3	VOUT_MAX_MIN Warning An attempt has been made to set the output voltage to a value higher than allowed by the VOUT_MAX command or lower than the VOUT_MIN command
2	TON_MAX_FAULT n/a, hardcoded to 0
1	TOFF_MAX_WARNING n/a, hardcoded to 0
0	VOUT Tracking Error n/a, hardcoded to 0

Each status bit set in any status byte remains set until the CLEAR_FAULTS command is received. This command resets all status bytes.

STATUS_INPUT bitmap

Bits	Meaning
7	VIN_OV_FAULT Input Overvoltage Fault, n/a, hardcoded to 0
6	VIN_OV_WARNING Input Overvoltage Warning, n/a, hardcoded to 0
5	VIN_UV_WARNING Input Undervoltage Warning, n/a, hardcoded to 0
4	VIN_UV_FAULT Input Undervoltage Fault, triggered by internal hardware ACOK flag
3	Unit Off For Insufficient Input Voltage Triggered by internal hardware ACOK flag
2	IIN_OC_FAULT Input Overcurrent Fault, n/a, hardcoded to 0
1	IIN_OC_WARNING Input Overcurrent Warning, n/a, hardcoded to 0
0	PIN_OP_WARNING Input Overpower Warning, n/a, hardcoded to 0

Each status bit set in any status byte remains set until the CLEAR_FAULTS command is received. This command resets all status bytes. Except Bit 3 (Unit Off For Insufficient Input Voltage) which is updated in real time.

STATUS_IOUT bitmap

Bits	Meaning
7	IOUT_OC_FAULT Output Overcurrent Fault : IOUT is above IOUT_OC_FAULT_LIMIT
6	IOUT_OC_LV_FAULT IOUT is longer than 4s in critical constant current mode (below IOUT_OC_LV_LIMIT at power levels above 700W)
5	IOUT_OC_WARNING Output Overcurrent Warning : IOUT is above IOUT_OC_WARN_LIMIT
4	IOUT_UC_FAULT Output Undercurrent Fault, n/a, hardcoded to 0
3	Current Share Fault n/a, hardcoded to 0
2	In Power Limiting Mode 1 if in current or power limiting mode, otherwise 0
1	POUT_OP_FAULT Output Overpower Fault, n/a, hardcoded to 0
0	POUT_OP_WARNING Output Overpower Warning : POUT is above POUT_OP_WARN_LIMIT

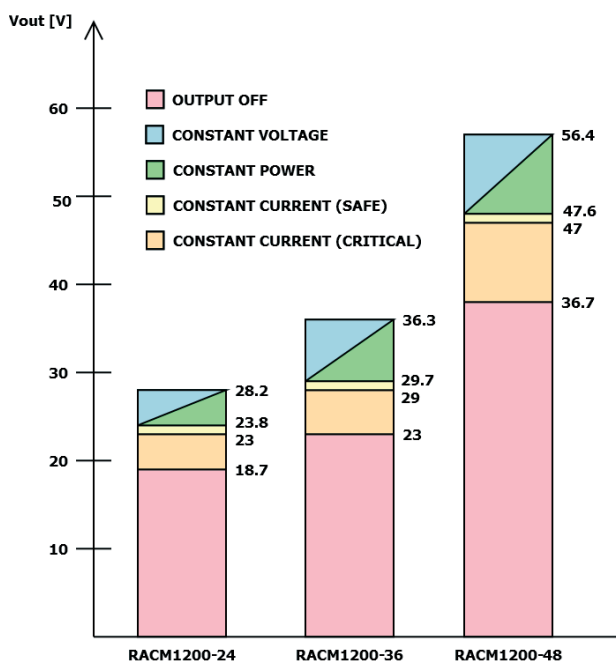
IOUT_OC_FAULT_LIMIT and IOUT_OC_WARN_LIMIT are computed internally as given below:

$IOUT_OC_FAULT_LIMIT = 108\% \cdot (MFR_POUT_MAX_LIMITED / VOUT_MIN)$

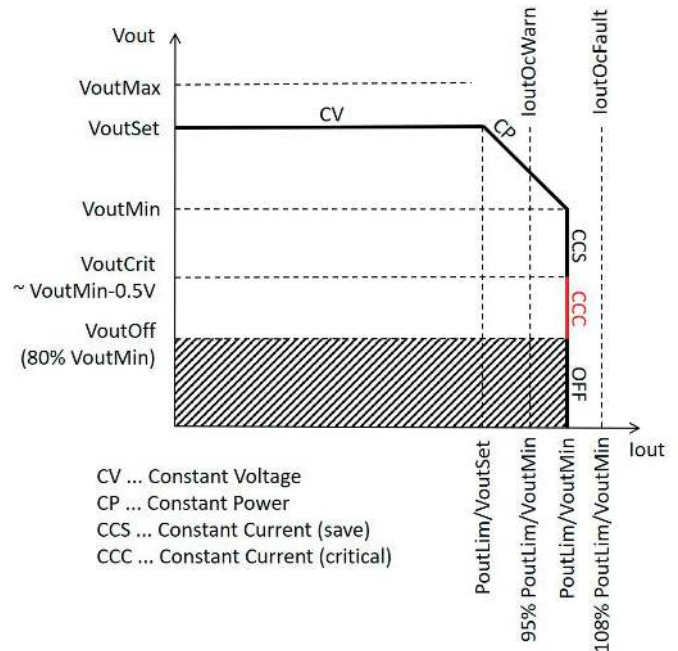
$IOUT_OC_WARN_LIMIT = 95\% \cdot (MFR_POUT_MAX_LIMITED / VOUT_MIN)$

IOUT_OC_LV_FAULT_LIMIT is hardcoded to around VoutMin-0.5V (depends on voltage variant)

Each status bit set in any status byte remains set until the CLEAR_FAULTS command is received. This command resets all status bytes. Except Bit 2 (In Power Limiting Mode) which is updated in real time



Voltage vs. Regulator Mode (CCC only above 700W Power Limit)



Output Voltage vs. Output Current (CCC only above 700W Power Limit)

STATUS_TEMP bitmap

Bits	Meaning
7	OT_FAULT (Overtemperature Fault) Temperature is above OT_FAULT_LIMIT
6	OT_WARNING (Overtemperature Warning) Temperature is above OT_WARN_LIMIT
5	UT_WARNING (Undertemperature Warning) n/a, hardcoded to 0
4	UT_FAULT (Undertemperature Fault) n/a, hardcoded to 0
3	Reserved n/a, hardcoded to 0
2	Reserved n/a, hardcoded to 0
1	Reserved n/a, hardcoded to 0
0	Reserved n/a, hardcoded to 0 As in "STATUS_VOUT bitmap"

Each status bit set in any status byte remains set until the CLEAR_FAULTS command is received. This command resets all status bytes.

STATUS_CML bitmap

Bits	Meaning
7	Invalid Or Unsupported Command Received
6	Invalid Or Unsupported Data Received Host sends too many bytes
5	Packet Error Check Failed
4	Memory Fault Detected n/a, hardcoded to 0
3	Processor Fault Detected n/a, hardcoded to 0
2	Reserved n/a, hardcoded to 0
1	A communication fault other than the ones listed in this table has occurred
0	Other Memory Or Logic Fault has occurred. Buffer overflow detected (but prevented by software) As in "STATUS_VOUT bitmap"

Each status bit set in any status byte remains set until the CLEAR_FAULTS command is received. This command resets all status bytes.

VOUT_COMMAND Limits

VOUT_COMMAND	RACM1200-24V	RACM1200-36V	RACM1200-48V
Minimum (VOUT_MIN)	23.8 V	29.7 V	47.6 V
Maximum (VOUT_MAX)	28.2 V	36.3 V	56.4 V
Default	24 V	36 V	48 V

VOUT_LIMITS Limits

VOUT_LIMITS	RACM1200-24V	RACM1200-36V	RACM1200-48V
Minimum (All)	18.7 V	23 V	36.7 V
Maximum (All)	30 V	38.75V	59 V
VOUT_UV_FAULT_LIMIT (Default)	18.7 V	23 V	36.7 V
VOUT_UV_WARN_LIMIT (Default)	23.5 V	29.25 V	47 V
VOUT_OV_WARN_LIMIT (Default)	28.5 V	36.75 V	57 V
VOUT_OV_FAULT_LIMIT (Default)	30 V	38.75 V	59 V

Miscellaneous Limits

Parameter	Minimum	Maximum	Default
POUT_MAX	250 W	1270 W	1270 W
POUT_OP_WARN_LIMIT	250 W	1270 W	1270 W
OT_WARN_LIMIT	-40 °C	115 °C	105 °C
OT_FAULT_LIMIT	-40 °C	115 °C	115 °C
MFR_SETADDRESS	01h	7Fh	55h
FAN_COMMAND_1	0	100	100

Measurement Tolerance

Parameter	Tolerance (typical, product lifetime)	Comment
READ_VIN	+/- 15 %	Above 50 W Output Power Consumption considering sine wave input supply voltage.
READ_VOUT	+/- 2 %	At ambient temperature of 25 °C
READ_IOUT	+/- 4%	At ambient temperature of 25 °C
READ_TEMPERATURE_1	+/- 10%	For internally measured temperatures above 30°C
READ_POUT	+/- 6%	At ambient temperature of 25 °C

Constants

Parameter	Value	Comment
VOUT_MAX	RACM1200-24V : 28.2 V RACM1200-36V : 36.3 V RACM1200-48V : 56.4 V	The VOUT_MAX command sets an upper limit on the output voltage the unit can command regardless of any other commands or combinations.
VOUT_MIN	RACM1200-24V : 23.8 V RACM1200-36V : 29.7 V RACM1200-48V : 47.6 V	The VOUT_MIN command sets a lower limit on the output voltage the unit can command regardless of any other commands or combinations.
IOUT_OC_FAULT_LIMIT	$108\% \times \frac{\text{MFR_POUT_MAX_LIMITED}}{\text{VOUT_MIN}}$	The IOUT_OC_FAULT_LIMIT command sets the value of the output current, in Amperes, that causes the overcurrent detector to indicate an overcurrent fault condition.
IOUT_OC_WARN_LIMIT	$95\% \times \frac{\text{MFR_POUT_MAX_LIMITED}}{\text{VOUT_MIN}}$	The IOUT_OV_WARN_LIMIT command sets the value of the output current that causes an output overcurrent warning.
IOUT_OC_LV_FAULT_LIMIT	RACM1200-24V : 23 V RACM1200-36V : 28 V RACM1200-48V : 47 V	If POUT_MAX is above 700W and VOUT is below this value for more than 4s, an IOUT_OC_LV_FAULT is thrown
MFR_VIN_MIN	80 V AC RMS	The MFR_VIN_MIN command retrieves the minimum rated value, in Volts, of the input voltage.
MFR_VIN_MAX	264 V AC RMS	The MFR_VIN_MAX command retrieves the maximum rated value, in Volts, of the input voltage.
MFR_IIN_MAX	14 A AC RMS	The MFR_IIN_MIN command sets or retrieves the maximum rated value, in Amperes, of the input current.
MFR_PIN_MAX	1400 W AC RMS	The MFR_PIN_MIN command sets or retrieves the maximum rated value, in watts, of the input power.
MFR_VOUT_MIN	VOUT_MIN	The MFR_VOUT_MIN command sets or retrieves the minimum rated value, in Volts, to which the output voltage may be set.
MFR_VOUT_MAX	VOUT_MAX	The MFR_VOUT_MAX command sets or retrieves the maximum rated value, in Volts, to which the output voltage may be set.
MFR_IOUT_MAX	RACM1200-24V : 53.36A RACM1200-36V : 42.76A RACM1200-48V : 26.68A	The MFR_IOUT_MAX command retrieves the maximum rated value, in Amperes, to which the output may be loaded.
MFR_POUT_MAX	1270 W	The MFR_POUT_MAX command retrieves the maximum rated output power, in watts, that the unit is rated to supply.
MFR_TAMBIENT_MAX	85 °C	The MFR_TAMBIENT_MAX command retrieves the maximum rated ambient temperature, in degrees Celsius, in which the unit may be operated.
MFR_TAMBIENT_MIN	-40 °C	The MFR_TAMBIENT_MIN command or retrieves the minimum rated ambient temperature, in degrees Celsius, in which the unit may be operated.
MFR_MAX_TEMP1	125 °C	Maximum Temperature the Measurement Sensor can return via READ_TEMPERATURE1 command.

Storeables

Parameter	Comment
VOUT_COMMAND	Setup output voltage
ON_OFF_CONFIG	The ON_OFF_CONFIG command configures the combination of CONTROL pin input and serial bus commands needed to turn the unit on and off. This includes how the unit responds when power is applied.
POUT_MAX	The POUT_MAX commands set the output power, in watts, at which the unit starts regulating in constant power mode instead of constant voltage. This command is typically used in systems that charge batteries.
VOUT_OV_FAULT_LIMIT	The VOUT_OV_FAULT_LIMIT command sets the value of the output voltage measured at the sense or output pins that causes an output overvoltage fault.
VOUT_OV_WARN_LIMIT	The VOUT_OV_WARN_LIMIT command sets the value of the output voltage at the sense or output pins that causes an output voltage high warning. This value is typically less than the output overvoltage threshold.
VOUT_UV_WARN_LIMIT	The VOUT_UV_WARN_LIMIT command sets the value of the output voltage at the sense or output pins that causes an output voltage low warning. This value is typically greater than the output undervoltage fault threshold.
VOUT_UV_FAULT_LIMIT	The VOUT_UV_FAULT_LIMIT command sets the value of the output voltage at the sense or output pins that causes an output undervoltage fault.
OT_FAULT_LIMIT	The OT_FAULT_LIMIT command sets the temperature of the unit, in degrees Celsius, at which it should indicate an Overtemperature Fault.
OT_WARN_LIMIT	The OT_WARN_LIMIT command sets the temperature of the unit, in degrees Celsius, at which it should indicate an Overtemperature Warning alarm.
POUT_OP_WARN_LIMIT	The POUT_OP_WARN_LIMIT command sets the value of the output power, in watts, that causes a warning that the output power is high.
MFR_SETADDRESS	Allows to set a different PMBus address. Storage and power cycle required to activate new address.
MFR_SETFLAGS	Manufacturer specific configuration flags.
FAN_CONFIG_1_2	The FAN_CONFIG_1_2 is used to configure up to two fans associated with one PMBus device.
FAN_COMMAND_1	The FAN_COMMAND_1 commands are used to adjust the operation of Fan 1.

Storeables can be written to internal persistent storage space and are available after a power cycle or reset. Memory Endurance: Data EEPROM is rated to last for many thousands of erase/write cycles – up to 100K for EEPROM. Data retention without refresh is conservatively estimated to be greater than 40 years.

Reserved Device Addresses

Addresses described as reserved in the SMBus specification or the I2C Specification may not be used. These are:

Address	Protocol	Description
00h	I2C	General call address, START byte
01h	I2C	CBUS address
02h	I2C	reserved for different bus format
03h	I2C	reserved for future purposes
04h	I2C	Hs-mode master code
05h	I2C	Hs-mode master code

continued on next page

Reserved Device Addresses

Address	Protocol	Description
06h	I2C	Hs-mode master code
07h	I2C	Hs-mode master code
08h	SMBus	SMBus Host
09h	SMBus	Smart Battery Charger
0Ah	SMBus	Smart Battery Selector, Smart Battery System Manager
0Bh	SMBus	Smart Battery
0Ch	SMBus	SMBus Alert Response Address
28h	PMBus	PMBus ZONE READ
2Ch	SMBus	Reserved by previous versions of the SMBus specification for LCD Contrast Controller. This address may be reassigned in future versions of the SMBus specification.
2Dh	SMBus	Reserved by previous versions of the SMBus specification for CCFL Backlight Driver. This address may be reassigned in future versions of the SMBus specification.
37h	PMBus	PMBus ZONE WRITE
40h	SMBus	Reserved by previous versions of the SMBus specification for PCMCIA Socket Controllers (4 addresses). These addresses may be reassigned in future versions of the SMBus specification.
41h		
42h		
43h		
44h	SMBus	Reserved by previous versions of the SMBus specification for (VGA) Graphics Controller. This address may be reassigned in future versions of the SMBus specification.
48h	SMBus	Prototype Addresses
49h		
4Ah		
4Bh		
61h	SMBus	SMBus Device Default Address
78h	I2C	10-bit slave addressing
79h		
7Ah		
7Bh		
7Ch	I2C	Reserved for future use
7Dh		
7Eh		
7Fh		

Assignment of addresses within a local system is up to the system architect who must take into account the devices being used on the bus and any future interaction with other conventional I²C-buses. For example, a device with seven user-assignable address pins allows all 128 addresses to be assigned. If it is known that the reserved address is never going to be used for its intended purpose, a reserved address can be used for a slave address.