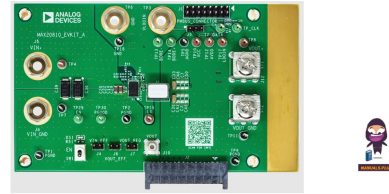**Manuals+** — User Manuals Simplified.

ANALOG DEVICES MAX20810 Integrated Step Down Switching Regulator

ANALOG DEVICES MAX20810 Integrated Step Down Switching Regulator User Guide

Contents

ANALOG DEVICES

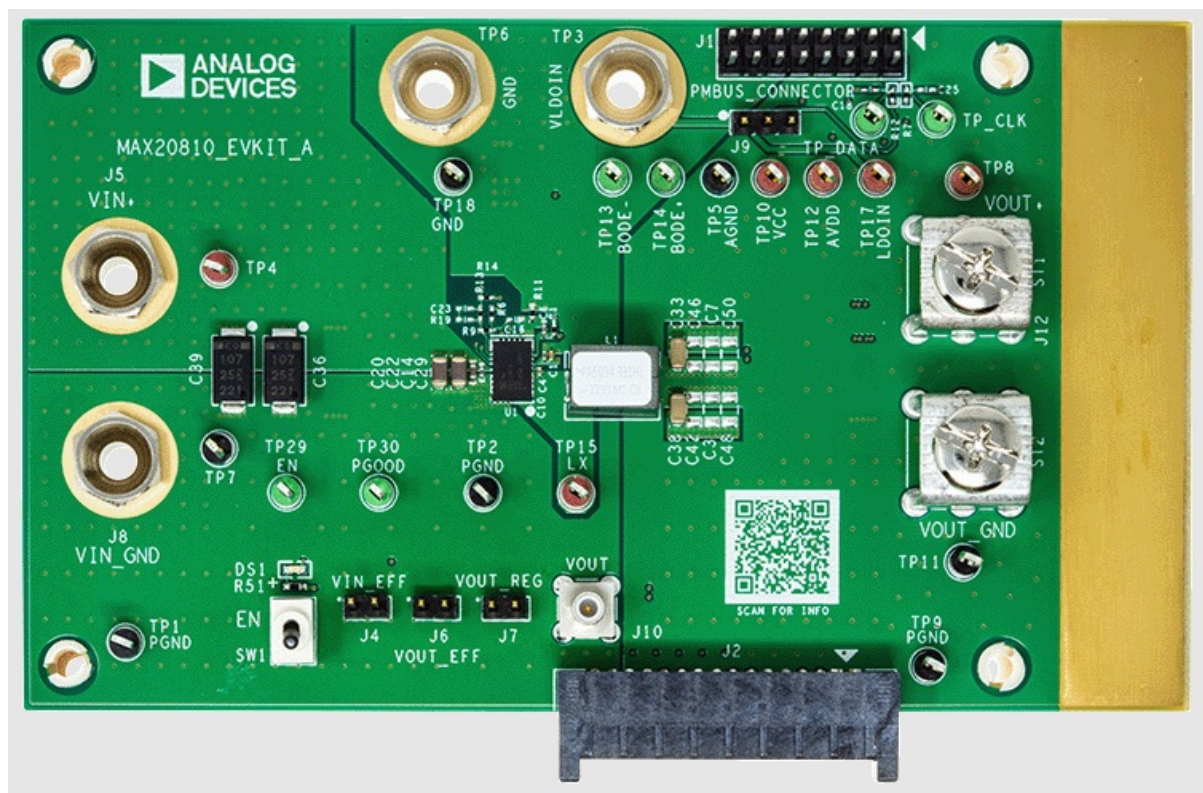**ANALOG DEVICES MAX20810 Integrated Step Down Switching Regulator**

Specifications

- Product Name: MAX20810 PMBus Command Set User Guide
- Model Number: UG2157
- Revision: 0
- Date: 10/23

Product Information

This user guide lists and describes the Power Management Bus (PMBus) commands implemented in the MAX20810 integrated step-down switching regulator. The MAX20810 implements a subset of PMBus Application Profile commands for DC-DC point of loads. Standard commands from the PMBus specification are not described in detail unless there are deviations from the PMBus specification functionality. Analog Devices manufacturer-specific commands are fully described in this document.
The MAX20810's command functionality is based on the Revision 1.3 PMBus specifications, which are referenced throughout this document.

For more information, visit the PMBus and SMBus organization websites: PMBus Specifications SMBus Specifications

Product Usage Instructions

PMBus Communication Protocol
This section describes the protocol and command packet formats required for executing PMBus transactions on the MAX20810. It is implemented in compliance with Revision 1.3 of the PMBus Specification (Part II).

Bit and Byte Symbols Legend

Symbol	Description
Gray-colored symbol	The host is asserting the SDA signal and therefore the bit or byte is sent from the host to the MAX20810 device.
Blue-colored symbol	The MAX20810 device is asserting the SDA signal and therefore the bit or byte is sent from the device to the host.

FAQ

Q: Where can I find the complete list of commands for MAX20810?
A: The complete list of commands can be found in this user guide. Please refer to the specific sections for detailed descriptions.

Q: Is there a specific website for PMBus and SMBus specifications?
A: Yes, you can visit the following links for more information: PMBus Specifications, SMBus Specifications.

Abstract
This user guide lists and describes the Power Management Bus (PMBus) commands implemented in the MAX20810 integrated step-down switching regulator. Standard commands from the PMBus specification are not described in detail unless there are deviations from the PMBus specification functionality. Analog Devices, Inc.'s manufacturer-specific commands are fully described in this document.

Introduction

This document lists and describes the PMBus™ commands implemented in the MAX20810 integrated step-down switching regulator. The MAX20810 implements a subset of PMBus Application Profile commands for DC-DC point of loads. Standard commands from the PMBus specification are not described in detail unless there are deviations from the PMBus specification functionality. Analog Devices manufacturer-specific commands are fully described in this document.

The MAX20810's command functionality is based on the Revision 1.3 PMBus specifications, which are therefore referenced throughout this document. The PMBus specifications can be found on the PMBus and SMBus™ organization websites.

https://pmbus.org/current-specifications/
http://smbus.org/specs/
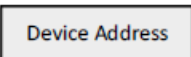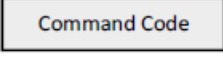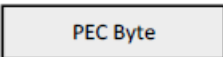
The commands in this document are presented in the following format:

<COMMAND_NAME>			
Reference:	<"Standard Command" or "Analog Devices Specific">		
Command Code:	<Hex value>	**Format:**	<Data format>
Data Bytes:	<Byte count>	**Units:**	<Unit of measure>
Transfer:	<SMBus transaction type>	**Factory Value:**	<Factory setting>
Description/Notes:	<Command definition if "Analog Devices Specific"; or notes on command functionality where it differs from the PMBus specification.>		

PMBus Communication Protocol

This section describes the protocol and command packet formats required for executing PMBus transactions on the MAX20810. This has been implemented in compliance with Revision 1.3 of the PMBus Specification (Part II).

Bit and Byte Symbols Legend

BIT/BYTE SYMBOL	NO. OF BITS	DESCRIPTION
Gray-colored symbol	Various	The host is asserting the SDA signal and therefore the bit or byte is sent from the host to the MAX20810 device.
Blue-colored symbol	Various	The MAX20810 device is asserting the SDA signal and therefore the bit or byte is sent from the device to the host.
S	0	START condition: SCL and SDA lines are initially high; SDA transitions low while SCL is high; SCL transitions low thereafter. This indicates the start of a transaction.
Sr	0	REPEATED START condition: Behaves the same as a standard START condition except that it is sent after a START condition without there being a STOP condition in between.
P	0	STOP condition: SCL and SDA lines are initially low; SCL transitions high while SDA is low; SDA transitions high thereafter. This indicates the completion of a transaction.
R	1	Read bit: logic-high
W	1	Write bit: logic-low
A	1	ACK (Acknowledge): If a byte transaction is successful, the receiver sends an ACK by pulling SDA low for the next SCL pulse.
NA	1	NACK (No-acknowledge): If the receiver sends a NACK by leaving SDA high for the next SCL pulse, this indicates either a fatal condition or the end of a transaction.
Device Address	7	Each MAX20810 device's 7-bit address can be configured using the PGM0 resistor. The host sends this address at the start of a transaction to select the device it wishes to communicate with. The device address must always be followed by either a Read or Write bit to complete the byte and indicate the type of transaction.
Command Code	8	All supported PMBus commands have an associated command code to indicate which command the host wishes to execute.
Data Byte	8	Depending on the command's transaction type, a varying number of data bytes may be included (Send Byte: 0, Read/Write Byte: 1, Read/Write Word: 2, Read/Write Block: 2+).

BIT/BYTE SYMBOL	NO. OF BITS	DESCRIPTION
PEC Byte	8	Packet Error Check (PEC) Byte: Optional byte that is sent at the end of the transaction to protect against data corruption; calculated using a CRC-8 checksum.

Read Transaction Protocol
Three main types of read transactions are used by this part: Read Byte, Read Word and Read Block. The command packet format for a read transaction is dependent on the specific transaction type, which varies with respect to each PMBus command. The appropriate read transaction type for each command is specified in its designated section within this document.

The following command packet format should be used for a Read Byte operation:

S	Device Address	W	A	Command Code	A	• • •

S r	Device Address	R	A	Data Byte	A	PEC Byte	N A	P

OPTIONAL
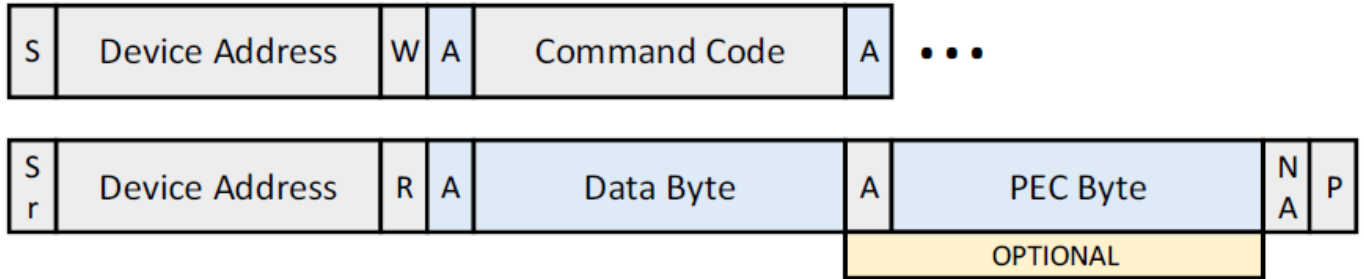
The following command packet format should be used for a Read Word operation:

S	Device Address	W	A	Command Code	A	• • •

S r	Device Address	R	A	Low Data Byte	A	High Data Byte	A	PEC Byte	N A	P

OPTIONAL
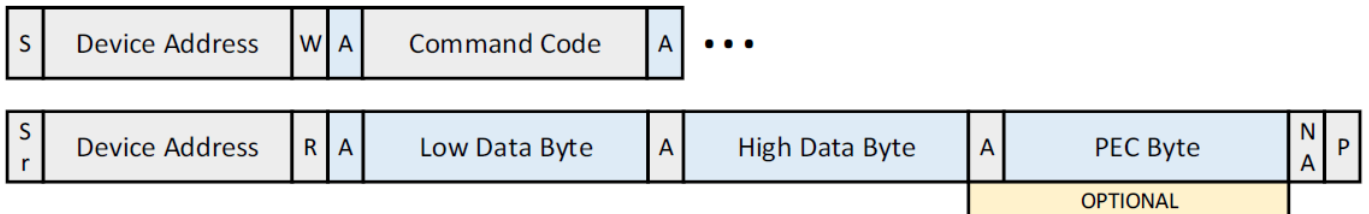
The following command packet format should be used for a Read Block operation:

S	Device Address	W	A	Command Code	A	• • •

S r	Device Address	R	A	Block Count = N	A	Data Byte 1	A	Data Byte 2	A	• • •

Data Byte N	A	PEC Byte	N A	P

OPTIONAL
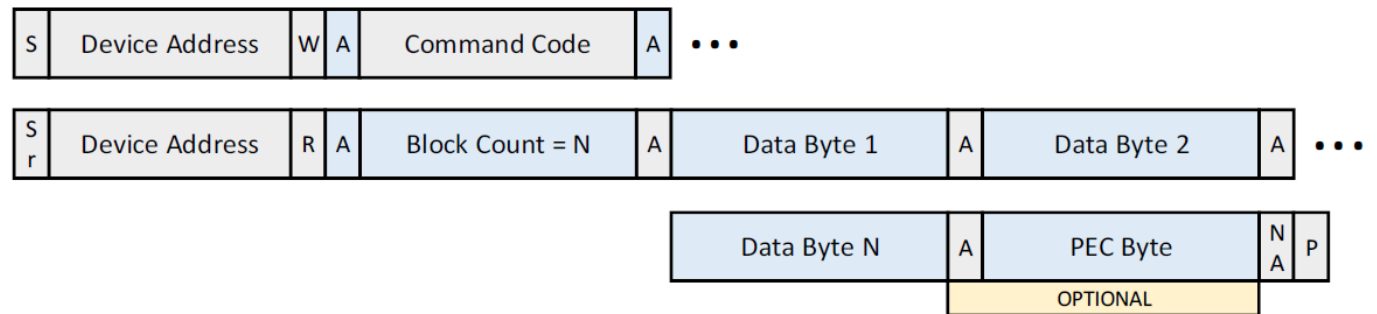
Write Transaction Protocol

Two main types of write transactions are used by this part: Write Byte and Write Word. The command packet format for a write transaction is dependent on the specific transaction type, which varies with respect to each PMBus command. The appropriate write transaction type for each command is specified in its designated section within this document.

The following command packet format should be used for a Write Byte operation

S	Device Address	W	A	Command Code	A	Data Byte	A	PEC Byte	A	P

OPTIONAL
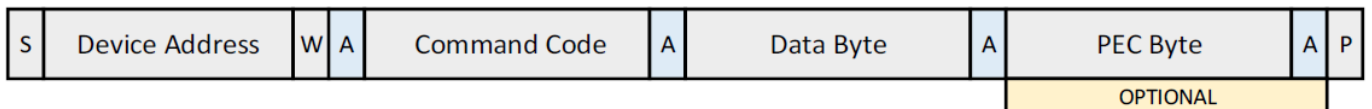
The following command packet format should be used for a Write Word operation

S	Device Address	W	A	Command Code	A	Low Data Byte	A	High Data Byte	A	PEC Byte	A	P

OPTIONAL
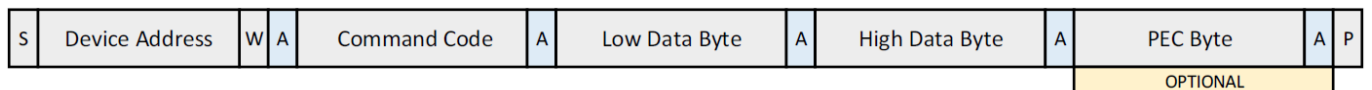
Send Byte Transaction Protocol

The following command packet format should be used for a Send Byte operation

S	Device Address	W	A	Command Code	A	PEC Byte	A	P

OPTIONAL
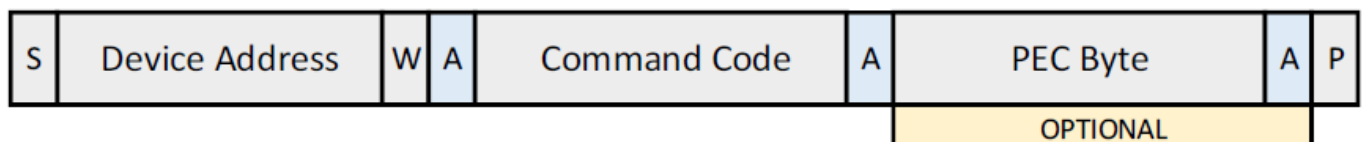
PMBus Timing Diagram

The timing diagrams below illustrate the transaction protocol for the two parts of a Read Byte transaction as an example—starting from the STOP condition of the previous transaction and leading up to the STOP condition of the Read Byte transaction itself.
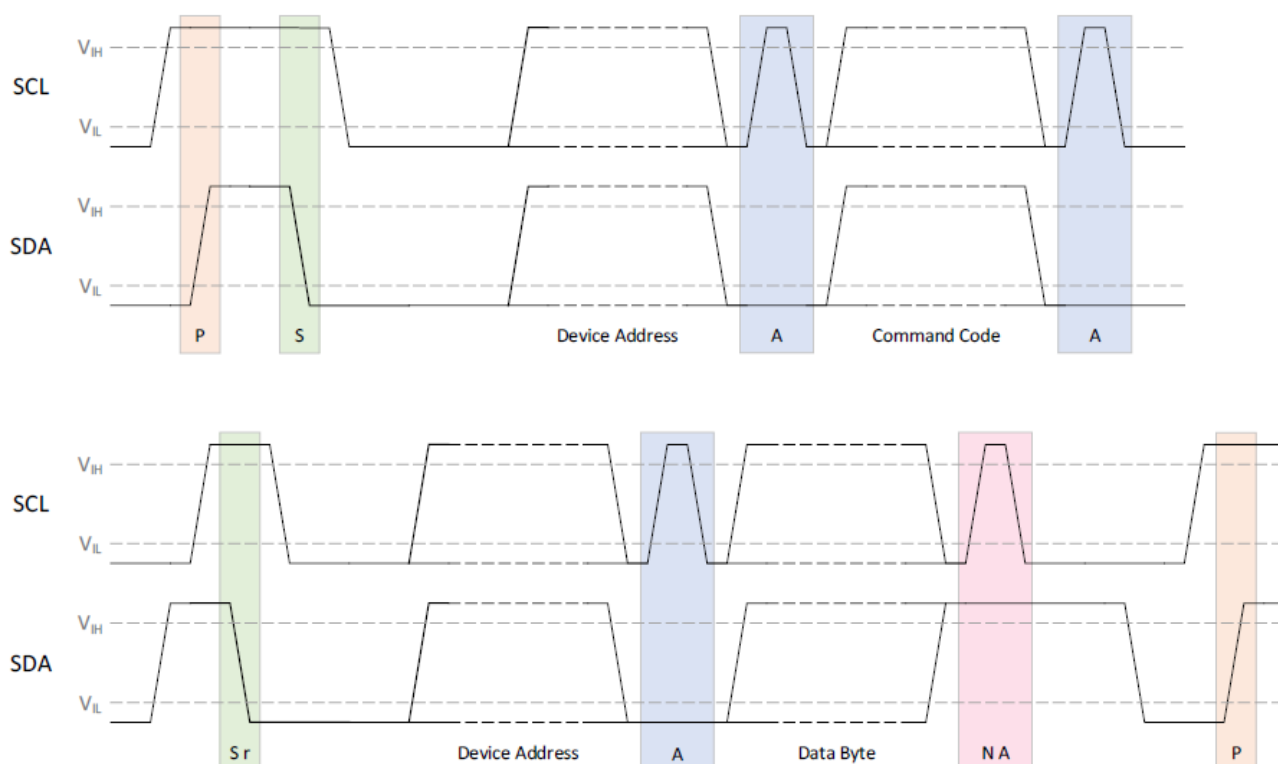
MAX20810 List of PMBus Commands

The table lists and summarizes the PMBus commands that are supported by the MAX20810, providing a brief description of each command as well as its command code, transaction type, data format, and factory value, where applicable.

COMMAND CODE	COMMAND NAME	DESCRIPTION	TYPE	DATA FORMAT	FACTORY VALUE
0x01	**OPERATION**	Output enable/disable.	R/W Byte	Bit field	0x80
0x02	**ON_OFF_CONFIG**	EN pin and PMBus OPERATION command setting.	R/W Byte	Bit field	0x1F
0x03	**CLEAR_FAULTS**	Clears any fault bits that have been set.	Send Byte	N/A	N/A
0x10	**WRITE_PROTECT**	Level of protection provided by the device against accidental changes.	R/W Byte	Bit field	0x20

0x19	**CAPABILITY**	Summary of PMBus optional communication protocols supported by this device.	R Byte	Bit field	0xA0
0x20	**VOUT_MODE**	Output voltage data format and mantissa exponent.	R Byte	Bit field	0x17
0x21	**VOUT_COMMAND**	Feedback reference voltage setpoint.	R/W Word	ULINEAR16	0x0100
0x24	**VOUT_MAX**	Upper limit of reference voltage setpoint.	R/W Word	ULINEAR16	0x019A
0x78	**STATUS_BYTE**	One byte summary of the unit's fault condition.	R Byte	Bit field	N/A
0x79	**STATUS_WORD**	Two bytes summary of the unit's fault condition.	R Word	Bit field	N/A
0x7A	**STATUS_VOUT**	Output voltage fault and warning status.	R Byte	Bit field	N/A
0x7B	**STATUS_IOUT**	Output current fault and warning status.	R Byte	Bit field	N/A
0x7C	**STATUS_INPUT**	Input voltage fault and warning status.	R Byte	Bit field	N/A
0x7D	**STATUS_ TEMPERATURE**	IC junction temperature fault and warning status.	R Byte	Bit field	N/A
0x7E	**STATUS_CML**	Communication fault and warning status.	R Byte	Bit field	N/A
0x80	**STATUS_MFR_ SPECIFIC**	Manufacture specific fault and warning status.	R Byte	Bit field	N/A
0x88	**READ_VIN**	Input voltage telemetry.	R Word	LINEAR11	N/A
0x8B	**READ_VOUT**	Feedback voltage telemetry.	R Word	ULINEAR16	N/A
0x8C	**READ_IOUT**	Output current telemetry.	R Word	LINEAR11	N/A
0x8D	**READ_ TEMPERATURE_1**	IC junction temperature telemetry.	R Word	LINEAR11	N/A
0xAD	**IC_DEVICE_ID**	Device root part number.	R Block	ASCII	"MAX20810"
0xAE	**IC_DEVICE_REV**	Device revision code.	R Block	ASCII	Various
0xD0	**MFR_PINSTRAP**	Manufactures specific device operating configurations.	R/W Byte	Bit field	PGM0/1 Dependent
0xD1	**MFR_SCENARIO_0**	Manufactures specific device operating configurations.	R/W Byte	Bit field	PGM1 Dependent

| 0xD2 | **MFR_SCENARIO_1** | Manufactures specific device operating configurations. | R/W Byte | Bit field | PGM1 Dependent |

| 0xD3 | **MFR_SCENARIO_2** | Manufactures specific device operating configurations. | R/W Byte | Bit field | PGM1 Dependent |

On, Off, and Margin Testing Related Commands

OPERATION			
Reference:	Standard Command		
Command Code:	0x01	**Format:**	Bit field
Data Bytes:	1	**Units:**	N/A
Transfer:	Read/Write Byte	**Factory Value:**	0x80
Description/Notes:	See *Section 12.1* of the PMBus Specification Part II. This device supports two settings for the OPERATION command. Invalid data bytes trigger an "Invalid or Unsupported Data" response per *Section 10.9.3* of the PMBus specification. Supported values for the OPERATION command: <table><tr><td>**DATA BYTE VALUE**</td><td>**MEANING**</td></tr><tr><td>0x00</td><td>Immediate-off, no sequencing</td></tr><tr><td>0x80</td><td>Output enabled, if allowed by ON_OFF_CONFIG setting</td></tr></table>		

ON_OFF_CONFIG			
Reference:	Standard Command		
Command Code:	0x02	**Format:**	Bit field
Data Bytes:	1	**Units:**	N/A
Transfer:	Read/Write Byte	**Factory Value:**	0x1F
Description/Notes:	See *Section 12.2* of the PMBus Specification Part II. This device supports three settings for the ON_OFF_CONFIG command. Invalid data bytes trigger an "Invalid or Unsupported Data" response per *Section 10.9.3* of the PMBus specification. Supported Values for the ON_OFF_CONFIG command: 	DATA BYTE VALUE	MEANING
---	---
0x17	Ignore OPERATION setting; require EN high for regulation; immediate-off on loss of EN
0x1B	Require OPERATION = 0x80 for regulation; ignore EN; immediate-off if OPERATION = 0x00
0x1F	Require both OPERATION = 0x80 and EN high for regulation; immediate-off on loss of EN or OPERATION = 0x00			

Output Voltage Related Commands

VOUT_MODE			
Reference:	Standard Command		
Command Code:	0x20	**Format:**	Bit field
Data Bytes:	1	**Units:**	N/A
Transfer:	Read Byte	**Factory Value:**	0x17 (N = -9)
Description/Notes:	See *Section 13.1* of the PMBus Specification Part II. This device supports the PMBus ULINEAR16 format for the values of output voltage related commands. These commands return and receive two-byte data which serve as the integer mantissa in the ULINEAR16 format. The read-only VOUT_MODE command has a value of 0x17, which indicates a ULINEAR 16 exponent of N = -9.		

VOUT_COMMAND			
Reference:	Standard Command		
Command Code:	0x21	**Format:**	ULINEAR16
Data Bytes:	2	**Units:**	V
Transfer:	Read/Write Word	**Factory Value:**	0x0100 (0.500V)
Description/Notes:	See *Section 13.2* of the PMBus Specification Part II. The device can receive PMBus ULINEAR16 values. VOUT_COMMAND data sent to and from the device is divided by 512 to determine the actual output voltage value, with an LSB size of 1.95mV. VOUT_COMMAND accepts values from 0x0CD (+400.4mV) to 0x19A (+800.8mV), provided that the VOUT_MAX value is not being exceeded. Output voltages higher than +800.8mV must be adjusted by means of an external resistive voltage divider.		

VOUT_MAX			
Reference:	Standard Command		
Command Code:	0x24	**Format:**	ULINEAR16
Data Bytes:	2	**Units:**	V
Transfer:	Read/Write Word	**Factory Value:**	0x19A (+800.8mV)
Description/Notes:	See *Section 13.5* of the PMBus Specification Part II. VOUT_MAX accepts values from 0 V to +800.8mV.		

Switching Frequency and Configuration Commands

MFR_PINSTRAP			
Reference:	Analog Devices Specific		
Command Code:	0xD0	**Format:**	Bit field
Data Bytes:	1	**Units:**	See Description
Transfer:	Read/Write Byte	**Factory Value:**	PGM0/1 Dependent

Description/Notes:	The MFR_PINSTRAP command sets the switching frequency, DCM operation, and POCP threshold for the device. It can be read at all times but should only be written to when the output is disabled. The default values of switching frequency and POCP are selected by pin-strap resistors connected to the PGM0 and PGM1 pins of the IC. **MFR_PINSTRAP [7:5]** **SWITCHING FREQUENCY** 0x0 500kHz 0x1 600kHz 0x2 750kHz 0x3 1000kHz 0x4 1200kHz 0x5 1500kHz 0x6 2000kHz **MFR_PINSTRAP [4]** **DCM OPTION** 0x0 Device is always in CCM operation (default) 0x1 Enable DCM operation at light load **MFR_PINSTRAP [3:2]** **POCP THRESHOLD (INDUCTOR PEAK CURRENT)** 0x0 15A 0x1 13A 0x2 11A 0x3 9A **MFR_ PINSTRAP [1:0]** **RESERVED/NOT USED** 0x0 –

MFR_SCENARIO_0			
Reference:	Analog Devices Specific		
Command Code:	0xD1	**Format:**	Bit field
Data Bytes:	1	**Units:**	See Description
Transfer:	Read/Write Byte	**Factory Value:**	PGM1 Dependent
Description/Notes:	The MFR_SCENARIO_0 command sets the advanced modulation scheme (AMS) options, slope compensation settings, and DCM threshold for the device. It can be read at all times but should only be written when the output is disabled. The default settings for AMS and the slope compensation are selected by pin-strap resistors connected to the PGM1 pin of the IC.		

MFR_SCENARIO_0 [7:4]   ADVANCED MODULATION SCHEME OPTION

0x0   AMS is disabled

0x9   AMS is enabled

MFR_SCENARIO_0 [0] MFR_SCENARIO_0 [3:2] SLOPE COMPENSATION

0x0	0x0	420nA
0x0	0x1	630nA
0x0	0x2	840nA
0x0	0x3	1050nA
0x1	0x0	1260nA
0x1	0x1	1470nA
0x1	0x2	1680nA
0x1	0x3	1890nA

MFR_SCENARIO_0 [1]   DCM THRESHOLD

0x0   DCM threshold is default, as in data sheet EC table 0x1
                 DCM threshold is reduced by 20%

MFR_SCENARIO_1			
Reference:	Analog Devices Specific		
Command Code:	0xD2	**Format:**	Bit field

Data Bytes:	1	Units:	See Description
Transfer:	Read/Write Byte	Factory Value:	PGM1 Dependent

Description/Notes:	The MFR_SCENARIO_1 command sets the voltage loop gain (RVGA), the soft startup time, and VDDH OVLO option for the device. It can be read at all times but should only be written when the output is disabled. The default value of RVGA is selected by pin-strap resistors connected to the PGM1 pin of the IC.

MFR_ SCENARIO_1 [7:4]   **VOLTAGE LOOP GAIN (RVGA)**

0x0	10.1kΩ
0x1	11.1kΩ
0x2	15.7kΩ
0x3	22.7kΩ
0x4	26.8kΩ
0x5	31.3kΩ
0x6	37.3kΩ
0x7	44.8kΩ
0x8	52.9kΩ
0x9	62.3kΩ
0xA	75.0kΩ
0xE	105.1kΩ

MFR_ SCENARIO_1 [3]   **SOFT-STARTUP TIME**

0x0	3ms
0x1	1ms (default)

MFR_ SCENARIO_1 [2]   **VDDH OVLO OPTION**

0x0	VHDD OVLO is enabled with a rising threshold of 17.8V (typical)
0x1	VHDD OVLO is disabled (default)

MFR_ SCENARIO_1 [1:0]   **RESERVED/NOT USED**

0x0	–

MFR_SCENARIO_2			
Reference:	Analog Devices Specific		
Command Code:	0xD3	**Format:**	Bit field
Data Bytes:	1	**Units:**	See Description
Transfer:	Read/Write Byte	**Factory Value:**	PGM1 Dependent
Description/Notes:	The MFR_SCENARIO_2 command sets the voltage loop zero for the device. It can be read at all times but should only be written when the output is disabled. The default value of the voltage loop zero is selected by pin-strap resistors connected to the PGM1 pin of the IC. <table><tr><td>**MFR_ SCENARIO_2 [7:5]**</td><td>**VOLTAGE LOOP ZERO**</td></tr><tr><td>0x0</td><td>3.22kHz</td></tr><tr><td>0x1</td><td>5kHz</td></tr><tr><td>0x2</td><td>7.6kHz</td></tr><tr><td>0x3</td><td>8.85kHz</td></tr><tr><td>0x4</td><td>10.6kHz</td></tr><tr><td>0x5</td><td>12.5kHz</td></tr><tr><td>0x6</td><td>15.2kHz</td></tr><tr><td>0x7</td><td>17.7kHz</td></tr><tr><td>**MFR_ SCENARIO_2 [4:0]**</td><td>**RESERVED/NOT USED**</td></tr><tr><td>0x00</td><td>–</td></tr></table>		

Status Commands

CLEAR_FAULTS			
Reference:	Standard Command		
Command Code:	0x03	**Format:**	N/A
Data Bytes:	0	**Units:**	N/A
Transfer:	Send Byte	**Factory Value:**	N/A
Description/Notes:	See *Section 15.1* of the PMBus Specification Part II. When received, the CLEAR_FAULTS command clears any fault bits that have been set and resets all STATUS registers.		

STATUS_BYTE			
Reference:	Standard Command		
Command Code:	0x78	**Format:**	Bit field
Data Bytes:	1	**Units:**	N/A
Transfer:	Read Byte	**Factory Value:**	N/A
Description/Notes:	See *Section 17.1* of the PMBus Specification Part II. **BIT MEANING** **7** Busy **6** Off **5** VOUT OV Fault **4** IOUT OC Fault **3** VIN UV Fault **2** TEMPERATURE Faults **1** CML Faults **0** NONE OF THE ABOVE: A fault or warning not listed in bits [7:1] of STATUS_BYTE has occurred.		

STATUS_WORD			
Reference:	Standard Command		
Command Code:	0x79	**Format:**	Bit field
Data Bytes:	2	**Units:**	N/A
Transfer:	Read Word	**Factory Value:**	N/A
Description/Notes:	See *Section 17.2* of the PMBus Specification Part II. **BIT MEANING** **High 15** VOUT Fault **Byte** **14** IOUT Fault **13** VIN Fault **12** Manufacturer-specific faults and warnings **11** POWER_GOOD# (Power-Good signal not asserted) **10** — **9** — **8** — **Low 7** Busy **Byte** **6** Off **5** VOUT OV Fault **4** IOUT OC Fault **3** VIN UV Fault **2** TEMPERATURE Faults **1** CML Faults **0** NONE OF THE ABOVE: A fault or warning not listed in bits [7:1] of STATUS_BYTE has occurred.		

STATUS_VOUT			
Reference:	Standard Command		
Command Code:	0x7A	**Format:**	Bit field
Data Bytes:	1	**Units:**	N/A
Transfer:	Read Byte	**Factory Value:**	N/A
Description/**Notes:**	See *Section 17.3* of the PMBus Specification Part II.		
	BIT MEANING		
	7 VOUT OV Fault		
	6 —		
	5 —		
	4 VOUT UV Fault		
	3 VOUT MAX Warnings		
	2 —		
	1 —		
	0 —		

STATUS_IOUT			
Reference:	Standard Command		
Command Code:	0x7B	**Format:**	Bit field
Data Bytes:	1	**Units:**	N/A
Transfer:	Read Byte	**Factory Value:**	N/A
Description/**Notes:**	See *Section 17.4* of the PMBus Specification Part II.		
	BIT MEANING		
	7 IOUT OC Fault		
	6 —		
	5 —		
	4 —		
	3 —		
	2 —		
	1 —		
	0 —		

STATUS_INPUT			
Reference:	Standard Command		
Command Code:	0x7C	**Format:**	Bit field
Data Bytes:	1	**Units:**	N/A
Transfer:	Read Byte	**Factory Value:**	N/A
Description/**Notes:**	See *Section 17.5* of the PMBus Specification Part II.		
	BIT MEANING		
	7 VIN OV Fault		
	6 —		
	5 —		
	4 VIN UV Fault		
	3 Unit Off due to Low Input Voltage		
	2 —		
	1 —		
	0 —		

STATUS_TEMPERATURE			
Reference:	Standard Command		
Command Code:	0x7D	**Format:**	Bit field
Data Bytes:	1	**Units:**	N/A
Transfer:	Read Byte	**Factory Value:**	N/A
Description/**Notes:**	See *Section 17.6* of the PMBus Specification Part II.		
	BIT MEANING		
	7 OT Fault		
	6 —		
	5 —		
	4 —		
	3 —		
	2 —		
	1 —		
	0 —		

STATUS_CML			
Reference:	Standard Command		
Command Code:	0x7E	**Format:**	Bit field
Data Bytes:	1	**Units:**	N/A
Transfer:	Read Byte	**Factory Value:**	N/A
Description/Notes:	See *Section 17.7* of the PMBus Specification Part II. **BIT MEANING** 7 Invalid or Unsupported Command Received 6 Invalid or Unsupported Data Received 5 Packet Error Check Failed 4 — 3 — 2 — (Reserved, per PMBus specification) 1 A communication fault other than the ones listed in this table has occurred 0 —		

STATUS_MFR_SPECIFIC			
Reference:	Standard Command		
Command Code:	0x80	**Format:**	Bit field
Data Bytes:	1	**Units:**	N/A
Transfer:	Read Byte	**Factory Value:**	N/A
Description/Notes:	See *Section 17.9* of the PMBus Specification Part II. **BIT MEANING** **7** Fast POCP Fault. Once triggered, cannot be cleared until power cycle. **6** Seal ring fault. Once triggered, cannot be cleared until power cycle. **5** — **4** AVDD undervoltage **3** BST undervoltage **2** LX short fault. Once triggered, cannot be cleared until power cycle. **1** — **0** —		

Telemetry Commands

READ_VIN			
Reference:	Standard Command		
Command Code:	0x88	**Format:**	LINEAR11
Data Bytes:	2	**Units:**	V
Transfer:	Read Word	**Factory Value:**	N/A
Description/Notes:	See *Section 18.1* of the PMBus Specification Part II.		

READ_VOUT			
Reference:	Standard Command		
Command Code:	0x8B	**Format:**	ULINEAR16
Data Bytes:	2	**Units:**	V
Transfer:	Read Word	**Factory Value:**	N/A
Description/Notes:	See *Section 18.4* of the PMBus Specification Part II. The READ_VOUT command returns the voltage at the feedback pin; the value is not adjusted for any external divider that might be present.		

READ_IOUT			
Reference:	Standard Command		
Command Code:	0x8C	**Format:**	LINEAR11
Data Bytes:	2	**Units:**	A
Transfer:	Read Word	**Factory Value:**	N/A
Description/Notes:	See *Section 18.5* of the PMBus Specification Part II.		

READ_TEMPERATURE_1			
Reference:	Standard Command		
Command Code:	0x8D	**Format:**	LINEAR11
Data Bytes:	2	**Units:**	°C
Transfer:	Read Word	**Factory Value:**	N/A
Description/Notes:	See *Section 18.6* of the PMBus Specification Part II.		

Inventory Information and Device Identification Commands

CAPABILITY			
Reference:	Standard Command		
Command Code:	0x19	**Format:**	Bit field
Data Bytes:	1	**Units:**	N/A
Transfer:	Read Byte	**Factory Value:**	0xA0
Description/Notes:	See *Section 11.12* of the PMBus Specification Part II. The following features are supported: · Packet error checking · 1000kHz bus speed · LINEAR11 numeric format		

IC_DEVICE_ID			
Reference:	Standard Command		
Command Code:	0xAD	**Format:**	ASCII string
Data Bytes:	9	**Units:**	N/A
Transfer:	Read Block	**Factory Value:**	"MAX20810"
Description/Notes:	See *Section 22.2.7* of the PMBus Specification Part II. The IC_DEVICE_ID is a 9-character ASCII string used to represent the part number of the IC. For this part, this command reads: "MAX20810".		

IC_DEVICE_REV			
Reference:	Standard Command		
Command Code:	0xAE	**Format:**	ASCII string
Data Bytes:	2	**Units:**	N/A
Transfer:	Read Block	**Factory Value:**	Device Revision (See Description)
Description/Notes:	See *Section 22.2.8* of the PMBus Specification Part II. The IC_DEVICE_REV is a 2-character ASCII string, representing a five-bit device revision code from 00-31.		

Security Commands

WRITE_PROTECT			
Reference:	Standard Command		
Command Code:	0x10	**Format:**	Bit field
Data Bytes:	1	**Units:**	N/A
Transfer:	Read/Write Byte	**Factory Value:**	0x20

Description/Notes:	See *Section 11.1* of the PMBus Specification Part II.
	Only the following values of WRITE_PROTECT are supported:

DATA BYTE VALUE	MEANING
0x80	Disable all writes except to the WRITE_PROTECT command
0x40	Disable all writes except to the WRITE_PROTECT and OPERATION commands
0x20	Disable all writes except to the WRITE_PROTECT, OPERATION, ON_OFF_CONFIG, and VOUT_COMMAND commands
0x00	Enable writes to all commands

Note that despite the CLEAR_FAULTS command being a Send Byte command, this command too is protected by WRITE_PROTECT. Therefore, WRITE_PROTECT needs to be set to 0x00 in order to send a CLEAR_FAULTS command.

Trademarks

- SMBus is a trademark of SMIF, Inc.
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Revision History

REVISION NUMBER	REVISION DATE	DESCRIPTION	PAGES CHANGED
0	10/23	Initial release	—

Documents / Resources

[ANALOG DEVICES MAX20810 Integrated Step Down Switching Regulator](#) [pdf] User Guide
MAX20810 Integrated Step Down Switching Regulator, MAX20810, Integrated Step Down Switching Regulator, Step Down Switching Regulator, Switching Regulator, Regulator

References

- 🌐 **SMBus Specifications**
- 🌐 **Sign in to your account**
- 🌐 **Sign in to your account**
- 🌐 **Current Specifications | PMBus**
- **User Manual**