Motion Sensor II Developer Notes (FW 0x46)

Product Name	Insteon Motion Sensor	
SKU	2844-222	
Category	0x10	
Sub-category	0x16	
Firmware Version	0x46	

Contents

Introduction

Hardware Inputs	
INPUT	**FUNCTION**
Set Button	1. Linking / Unlinking 2. Factory Reset
Motion Enable / Disable Button	Disables the motion sensor motion detection for 12 hours.

Hardware Outputs	
OUTPUT	**FUNCTION**
LED	1. GREEN flash when motion is sensed 2. GREEN fast flashing when motion detection is enabled via motion enable / disable button 3. GREEN blinking when in linking mode 4. GREEN double blinking when in multi-linking mode 5. RED fast flashing when motion detection is disabled via motion enable / disable button 6. RED blinking when in unlinking mode

	7. RED double blinking when in multi-unlinking mode
Beeper	Used as acknowledgement when the motion sensor: 1. is powered on 2. is put into linking, multi-linking, unlinking, multi-unlinking mode 3. is linked or unlinked to/from a device 4. is factory reset 5. has its battery cover is removed

Supported Insteon Commands

The following are the Insteon commands supported by the Motion Sensor II. Note that the device must be awake or plugged in to receive commands. If battery powered, wake the motion sensor by putting it into linking mode. Press and hold the set button until it beeps and starts flashing green.

Commands to the Device (Standard)

Standard length Insteon commands (9 bytes) used for querying properties of the device. Note that the device must be awake or plugged in to receive commands. If battery powered, wake the motion sensor by putting it into linking mode. Press and hold the set button until it beeps and starts flashing green.

STATUS REQUEST (19 00) - Get State Flags

Request

Message	
Command	**STATUS REQUEST (19 00) - Get State Flags**
Message Type	Direct Message
Message Direction	To Sensor
Message Length	Standard (9 Bytes)

	Description	Length	Message	Example
From Address	Controller ID	3 bytes	varies	11 22 33
To Address	Sensor ID	3 bytes	*varies*	AA BB CC
Flags Byte	Direct Message	1 byte	0x	05
Command 1	Command Type	1 byte	19	19
Command 2	Command Type	1 byte	00	00
PLM EXAMPLE	0262AABBCC051900			

Response

Message				
Command	**STATUS RESPONSE (19 00) - Get State Flags**			
Message Type	Direct Message Acknowledge			
Message Direction	From Sensor			
Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Sensor ID	3 bytes	*varies*	AA BB CC
To Address	Controller ID	3 bytes	*varies*	11 22 33
Flags Byte	Direct Message Ack	1 byte	2x	25
Command 1	Command Type	1 byte	19	19
Command 2	Stage Flags: bit 7 = Battery Good (> 2.7v) bit 6 = PIR Hold bit 5 = Night bit 4 = Day bit 3 = Hot bit 2 = Cold bit 1 = USB Powered bit 0 = PIR Disabled	1 byte	xx	D2
PLM EXAMPLE	0250AABBCC1122332519D2			

STATUS REQUEST (19 01) - Get Last Recorded Temperature

Request

Message				
Command	**STATUS REQUEST (19 01) - Get Last Recorded Temperature**			
Message Type	Direct Message			
Message Direction	To Sensor			
Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Controller ID	3 bytes	varies	11 22 33
To Address	Sensor ID	3 bytes	*varies*	AA BB CC
Flags Byte	Direct Message	1 byte	0x	05
Command 1	Command Type	1 byte	19	19
Command 2	Command Type	1 byte	01	01
PLM EXAMPLE	0262AABBCC051901			

Response

Message				
Command	**STATUS RESPONSE (19 01) - Get Last Recorded Temperature**			
Message Type	Direct Message Ack			
Message Direction	From Sensor			
Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Sensor ID	3 bytes	*varies*	AA BB CC
To Address	Controller ID	3 bytes	*varies*	11 22 33
Flags Byte	Direct Message Ack	1 byte	2x	25
Command 1	Command Type	1 byte	19	19
Command 2	Last Recorded Temperature	1 byte	xx	85
PLM EXAMPLE	0250AABBCC11223325198			

STATUS REQUEST (19 02) - Get Last Recorded Light Level

Request

Message

Command	**STATUS REQUEST (19 02) - Get Last Recorded Light Level**			
Message Type	Direct Message			
Message Direction	To Sensor			
Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Controller ID	3 bytes	varies	11 22 33
To Address	Sensor ID	3 bytes	*varies*	AA BB CC
Flags Byte	Direct Message	1 byte	0x	05
Command 1	Command Type	1 byte	19	19
Command 2	Command Type	1 byte	02	02
PLM EXAMPLE	0262112233AABBCC0519			

Response

Message				
Command	**STATUS RESPONSE (19 02) - Get Last Recorded Light Level**			
Message Type	Direct Message Ack			
Message Direction	From Sensor			
Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Sensor ID	3 bytes	*varies*	AA BB CC
To Address	Controller ID	3 bytes	*varies*	11 22 33
Flags Byte	Direct Message Ack	1 byte	2x	25
Command 1	Command Type	1 byte	19	19
Command 2	Last Recorded Light Level	1 byte	xx	62
PLM EXAMPLE	0250AABBCC112233251962			

STATUS REQUEST (19 03) - Get Last Recorded Battery Level

Request

Message	
Command	**STATUS REQUEST (19 03) - Get Last Recorded Battery Level**

Message Type	Direct Message			
Message Direction	To Sensor			
Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Controller ID	3 bytes	varies	11 22 33
To Address	Sensor ID	3 bytes	*varies*	AA BB CC
Flags Byte	Direct Message	1 byte	0x	05
Command 1	Command Type	1 byte	19	19
Command 2	Command Type	1 byte	13	03
PLM EXAMPLE	0262AABBCC051903			

Response

Message				
Command	**STATUS RESPONSE (19 03) - Get Last Recorded Battery Level**			
Message Type	Direct Message Ack			
Message Direction	From Sensor			
Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Sensor ID	3 bytes	*varies*	AA BB CC
To Address	Controller ID	3 bytes	*varies*	11 22 33
Flags Byte	Direct Message Ack	1 byte	2x	25
Command 1	Command Type	1 byte	19	19
Command 2	Last Recorded Battery Level	1 byte	xx	CC

DATA REQUEST (1F 01) - Get Database Delta

The Motion Sensor will only respond if it is awake or plugged in. If battery powered, wake the motion sensor by putting it into linking mode. Press and hold the set button until it beeps and starts flashing green.

Request

Message	
Command	**DATA REQUEST (1F 01) - Get Database Delta**
Message Type	Direct Message

Message Direction	To Sensor			
Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Controller ID	3 bytes	varies	11 22 33
To Address	Sensor ID	3 bytes	*varies*	AA BB CC
Flags Byte	Direct Message	1 byte	0x	05
Command 1	Command Type	1 byte	1F	1F
Command 2	Command Type	1 byte	01	01
PLM EXAMPLE	0262AABBCC051F01			

Response

Message				
Command	**DATA RESPONSE (1F 01) - Get Database Delta**			
Message Type	Direct Message Ack			
Message Direction	From Sensor			
Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Sensor ID	3 bytes	*varies*	AA BB CC
To Address	Controller ID	3 bytes	*varies*	11 22 33
Flags Byte	Direct Message Ack	1 byte	2x	25
Command 1	Command Type	1 byte	1F	1F
Command 2	Database Delta	1 byte	xx	03
PLM EXAMPLE	0250AABBCC112233251F03			

DATA REQUEST (1F 02) - Get Global Flags

The Motion Sensor will only respond if it is awake or plugged in. If battery powered, wake the motion sensor by putting it into linking mode. Press and hold the set button until it beeps and starts flashing green.

Request

Message	
Command	**DATA REQUEST (1F 02) - Get Global Flags**
Message Type	Direct Message

Message Direction	To Sensor			
Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Controller ID	3 bytes	varies	11 22 33
To Address	Sensor ID	3 bytes	*varies*	AA BB CC
Flags Byte	Direct Message	1 byte	0x	05
Command 1	Command Type	1 byte	1F	1F
Command 2	Command Type	1 byte	02	02
PLM EXAMPLE	0262AABBCC051F02			

Response

Message				
Command	**DATA RESPONSE (1F 02) - Get Global Flags**			
Message Type	Direct Message Ack			
Message Direction	From Sensor			
Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Sensor ID	3 bytes	*varies*	AA BB CC
To Address	Controller ID	3 bytes	*varies*	11 22 33
Flags Byte	Direct Message Ack	1 byte	2x	25
Command 1	Command Type	1 byte	1F	1F
Command 2	Global Flags: bit 7 = 0 Linking Enabled bit 6 = 1 Heartbeat Enabled bit 5 = 0 LED Enabled bit 4 = 1 Low Battery Alert Enabled bit 3 = 0 Beeper Enabled bit 2 = (Not Used) bit 1 = 1 Alternate Heartbeat Enabled bit 0 = 1 Clean-up Report Enabled	1 byte	xx	45
PLM EXAMPLE	0250AABBCC112233251F45			

Commands to the Device (Extended)

DISABLE LINKING (20 00)

Disables linking mode by setting the corresponding **Global Bit Flag** (bit 7) to 1. This command is the same as pressing the physical "set button" on the device.
The Motion Sensor will only respond if it is awake or plugged in. If battery powered, wake the motion sensor by putting it into linking mode. Press and hold the set button until it beeps and starts flashing green.

Request

Message				
Command	**DISABLE LINKING REQUEST (20 00)**			
Message Type	Direct Extended Message			
Message Direction	To Sensor			
Message Length	Extended(23 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Controller ID	3 bytes	*varies*	11 22 33
To Address	Sensor ID	3 bytes	*varies*	AA BB CC
Flags Byte	Direct Extended Message	1 byte	1x	15
Command 1	Command Type	1 byte	20	20
Command 2	Command Type	1 byte	00	00
Data 1-13	Not Used	13 bytes	00	00
Data 14	Checksum	1 byte	E0	E0
PLM EXAMPLE	0262AABBCC1F2000000000000000000000000000E0			

Response

Message				
Command	**DISABLE LINKING RESPONSE (20 00)**			
Message Type	Direct Message Ack			
Message Direction	From Sensor			
Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Sensor ID	3 bytes	*varies*	AA BB CC

To Address	Controller ID	3 bytes	*varies*	11 22 33
Flags Byte	Direct Message Ack	1 byte	2x	25
Command 1	Command Type	1 byte	20	20
Command 2	Command Type	1 byte	00	00
PLM EXAMPLE	0250AABBCC112233252000			

ENABLE LINKING (20 01)

Enables linking mode by setting the corresponding **Global Bit Flag** (bit 7) to 0. This command is the same as pressing the physical "set button" on the device.
The Motion Sensor will only respond if it is awake or plugged in. If battery powered, wake the motion sensor by putting it into linking mode. Press and hold the set button until it beeps and starts flashing green.

Request

Message				
Command	**ENABLE LINKING REQUEST (20 01)**			
Message Type	Direct Extended Message			
Message Direction	To Sensor			
Message Length	Extended(23 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Controller ID	3 bytes	varies	11 22 33
To Address	Sensor ID	3 bytes	*varies*	AA BB CC
Flags Byte	Direct Extended Message	1 byte	1x	1F
Command 1	Command Type	1 byte	20	20
Command 2	Command Type	1 byte	01	01
Data 1-13	Not Used	13 bytes	00	00
Data 14	Checksum	1 byte	DF	DF
PLM EXAMPLE	0262AABBCC1F2001000000000000000000000000DF			

Response

Message	
Command	**ENABLE LINKING RESPONSE (20 01)**

Message Type	Direct Message Ack			
Message Direction	From Sensor			
Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Sensor ID	3 bytes	*varies*	AA BB CC
To Address	Controller ID	3 bytes	*varies*	11 22 33
Flags Byte	Direct Message Ack	1 byte	2x	25
Command 1	Command Type	1 byte	20	20
Command 2	Command Type	1 byte	01	01
PLM EXAMPLE	0250AABBCC112233252001			

DISABLE LED (20 02)

Disables the flashing of the LED due to motion by setting the corresponding **Global Bit Flag** (bit 5) to 1.

The Motion Sensor will only respond if it is awake or plugged in. If battery powered, wake the motion sensor by putting it into linking mode. Press and hold the set button until it beeps and starts flashing green.

**Note: LED will still very quickly flash when this option is disabled and device is battery powered.*

Request

Message				
Command	**DISABLE LED REQUEST (20 02)**			
Message Type	Direct Extended Message			
Message Direction	To Sensor			
Message Length	Extended(23 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Controller ID	3 bytes	varies	11 22 33
To Address	Sensor ID	3 bytes	*varies*	AA BB CC
Flags Byte	Direct Extended Message	1 byte	1x	15
Command 1	Command Type	1 byte	20	20
Command 2	Command Type	1 byte	02	02

Data 1-13	Not Used	13 bytes	00	00
Data 14	Checksum	1 byte	DE	DE
PLM EXAMPLE	0262AABBCC1520020000000000000000000000000DE			

Response

Message				
Command	**DISABLE LED RESPONSE (20 02)**			
Message Type	Direct Message Ack			
Message Direction	From Sensor			
Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Sensor ID	3 bytes	*varies*	AA BB CC
To Address	Controller ID	3 bytes	*varies*	11 22 33
Flags Byte	Direct Message Ack	1 byte	2x	25
Command 1	Command Type	1 byte	20	20
Command 2	Command Type	1 byte	02	02
PLM EXAMPLE	0250AABBCC112233252002			

ENABLE LED (20 03)

Enables the flashing of the LED due to motion by setting the corresponding **Global Bit Flag** (bit 5) to 0.

The Motion Sensor will only respond if it is awake or plugged in. If battery powered, wake the motion sensor by putting it into linking mode. Press and hold the set button until it beeps and starts flashing green.

Request

Message				
Command	**ENABLE LED REQUEST (20 03)**			
Message Type	Direct Extended Message			
Message Direction	To Sensor			
Message Length	Extended(23 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Controller ID	3 bytes	varies	11 22 33

To Address	Sensor ID	3 bytes	*varies*	AA BB CC
Flags Byte	Direct Extended Message	1 byte	1x	15
Command 1	Command Type	1 byte	20	20
Command 2	Command Type	1 byte	03	03
Data 1-13	Not Used	13 bytes	00	00
Data 14	Checksum	1 byte	DD	DD
PLM EXAMPLE	0262AABBCC1520030000000000000000000000000DD			

Response

Message				
Command	**ENABLE LED RESPONSE (20 03)**			
Message Type	Direct Message Ack			
Message Direction	From Sensor			
Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Sensor ID	3 bytes	*varies*	AA BB CC
To Address	Controller ID	3 bytes	*varies*	11 22 33
Flags Byte	Direct Message Ack	1 byte	2x	25
Command 1	Command Type	1 byte	20	20
Command 2	Command Type	1 byte	03	03
PLM EXAMPLE	0250AABBCC112233252003			

DISABLE BEEPER (20 04)

Disables the beeper by setting the corresponding **Global Bit Flag** (bit 3) to 1.
The Motion Sensor will only respond if it is awake or plugged in. If battery powered, wake the motion sensor by putting it into linking mode. Press and hold the set button until it beeps and starts flashing green.

Request

Message	
Command	**DISABLE BEEPER REQUEST (20 04)**
Message Type	Direct Extended Message

Message Direction	To Sensor			
Message Length	Extended(23 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Controller ID	3 bytes	varies	11 22 33
To Address	Sensor ID	3 bytes	*varies*	AA BB CC
Flags Byte	Direct Extended Message	1 byte	1x	15
Command 1	Command Type	1 byte	20	20
Command 2	Command Type	1 byte	04	04
Data 1-13	Not Used	13 bytes	00	00
Data 14	Checksum	1 byte	DC	DC
PLM EXAMPLE	0262AABBCC1520040000000000000000000000000DC			

Response

Message				
Command	**DISABLE BEEPER RESPONSE (20 04)**			
Message Type	Direct Message Ack			
Message Direction	From Sensor			
Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Sensor ID	3 bytes	*varies*	AA BB CC
To Address	Controller ID	3 bytes	*varies*	11 22 33
Flags Byte	Direct Message Ack	1 byte	2x	25
Command 1	Command Type	1 byte	20	20
Command 2	Command Type	1 byte	04	04
PLM EXAMPLE	0250AABBCC112233252004			

ENABLE BEEPER (20 05)

Enables the beeper by setting the corresponding **Global Bit Flag** (bit 3) to 0.

The Motion Sensor will only respond if it is awake or plugged in. If battery powered, wake the motion sensor by putting it into linking mode. Press and hold the set button until it beeps and starts flashing green.

Request

Message				
Command	**ENABLE BEEPER REQUEST (20 05)**			
Message Type	Direct Extended Message			
Message Direction	To Sensor			
Message Length	Extended(23 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Controller ID	3 bytes	varies	11 22 33
To Address	Sensor ID	3 bytes	*varies*	AA BB CC
Flags Byte	Direct Extended Message	1 byte	1x	15
Command 1	Command Type	1 byte	20	20
Command 2	Command Type	1 byte	05	05
Data 1-13	Not Used	13 bytes	00	00
Data 14	Checksum	1 byte	DB	DB
PLM EXAMPLE	0262AABBCC1520050000000000000000000000000DB			

Response

Message				
Command	**ENABLE BEEPER RESPONSE (20 05)**			
Message Type	Direct Message Ack			
Message Direction	From Sensor			
Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Sensor ID	3 bytes	*varies*	AA BB CC
To Address	Controller ID	3 bytes	*varies*	11 22 33
Flags Byte	Direct Message Ack	1 byte	2x	25
Command 1	Command Type	1 byte	20	20

Command 2	Command Type	1 byte	05	05
PLM EXAMPLE	0250AABBCC112233252005			

ENABLE LOW BATTERY GROUP (20 06)

Enables the transmission of a **low battery group (03)** "ON" command when the **battery level** passes the **low battery threshold** by setting the corresponding **Global bit Flag** (bit 4) to 1. The Motion Sensor will only respond if it is awake or plugged in. If battery powered, wake the motion sensor by putting it into linking mode. Press and hold the set button until it beeps and starts flashing green.

Request

Message				
Command	**ENABLE LOW BATTERY GROUP REQUEST (20 06)**			
Message Type	Direct Extended Message			
Message Direction	To Sensor			
Message Length	Extended(23 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Controller ID	3 bytes	varies	11 22 33
To Address	Sensor ID	3 bytes	*varies*	AA BB CC
Flags Byte	Direct Extended Message	1 byte	1x	15
Command 1	Command Type	1 byte	20	20
Command 2	Command Type	1 byte	06	06
Data 1-13	Not Used	13 bytes	00	00
Data 14	Checksum	1 byte	DA	DA
PLM EXAMPLE	0262AABBCC1520060000000000000000000000000DA			

Response

Message				
Command	**ENABLE LOW BATTERY GROUP RESPONSE (20 06)**			
Message Type	Direct Message Ack			
Message Direction	From Sensor			
Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**

From Address	Sensor ID	3 bytes	*varies*	AA BB CC
To Address	Controller ID	3 bytes	*varies*	11 22 33
Flags Byte	Direct Message Ack	1 byte	2x	25
Command 1	Command Type	1 byte	20	20
Command 2	Command Type	1 byte	06	06
PLM EXAMPLE	0250AABBCC112233252006			

DISABLE LOW BATTERY GROUP (20 07)

Enables the transmission of a **low battery group (03)** "ON" command when the **battery level** passes the **low battery threshold** by setting the corresponding **Global bit Flag** (bit 4) to 0. The Motion Sensor will only respond if it is awake or plugged in. If battery powered, wake the motion sensor by putting it into linking mode. Press and hold the set button until it beeps and starts flashing green.

Request

Message				
Command	**DISABLE LOW BATTERY GROUP REQUEST (20 07)**			
Message Type	Direct Extended Message			
Message Direction	To Sensor			
Message Length	Extended(23 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Controller ID	3 bytes	varies	11 22 33
To Address	Sensor ID	3 bytes	*varies*	AA BB CC
Flags Byte	Direct Extended Message	1 byte	1x	15
Command 1	Command Type	1 byte	20	20
Command 2	Command Type	1 byte	07	07
Data 1-13	Not Used	13 bytes	00	00
Data 14	Checksum	1 byte	D9	D9
PLM EXAMPLE	0262AABBCC1520070000000000000000000000000D9			

Response

Message	
Command	**DISABLE LOW BATTERY GROUP RESPONSE (20 07)**

Message Type	Direct Message Ack			
Message Direction	From Sensor			
Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Sensor ID	3 bytes	*varies*	AA BB CC
To Address	Controller ID	3 bytes	*varies*	11 22 33
Flags Byte	Direct Message Ack	1 byte	2x	25
Command 1	Command Type	1 byte	20	20
Command 2	Command Type	1 byte	07	07
PLM EXAMPLE	0250AABBCC112233252007			

ENABLE HEARTBEAT GROUP (20 08)

Enables the periodic transmission of a **Heartbeat group (04)** command defined by the **Heartbeat Interval** by setting the corresponding **Global bit Flag** (bit 6) to 1.
The Motion Sensor will only respond if it is awake or plugged in. If battery powered, wake the motion sensor by putting it into linking mode. Press and hold the set button until it beeps and starts flashing green.

Request

Message				
Command	**ENABLE HEARTBEAT GROUP REQUEST (20 08)**			
Message Type	Direct Extended Message			
Message Direction	To Sensor			
Message Length	Extended(23 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Controller ID	3 bytes	varies	11 22 33
To Address	Sensor ID	3 bytes	*varies*	AA BB CC
Flags Byte	Direct Extended Message	1 byte	1x	15
Command 1	Command Type	1 byte	20	20
Command 2	Command Type	1 byte	08	08
Data 1-13	Not Used	13 bytes	00	00

Data 14	Checksum	1 byte	D8	D8
PLM EXAMPLE	0262AABBCC1520080000000000000000000000000D8			

Response

Message				
Command	**ENABLE HEARTBEAT GROUP RESPONSE (20 08)**			
Message Type	Direct Message Ack			
Message Direction	From Sensor			
Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Sensor ID	3 bytes	*varies*	AA BB CC
To Address	Controller ID	3 bytes	*varies*	11 22 33
Flags Byte	Direct Message Ack	1 byte	2x	25
Command 1	Command Type	1 byte	20	20
Command 2	Command Type	1 byte	08	08
PLM EXAMPLE	0250AABBCC112233252008			

DISABLE HEARTBEAT GROUP (20 09)

Disables the periodic transmission of a **Heartbeat group (04)** command defined by the **Heartbeat Interval** by setting the corresponding **Global bit Flag** (bit 6) to 0.
The Motion Sensor will only respond if it is awake or plugged in. If battery powered, wake the motion sensor by putting it into linking mode. Press and hold the set button until it beeps and starts flashing green.

Request

Message				
Command	**DISABLE HEARTBEAT GROUP REQUEST (20 09)**			
Message Type	Direct Extended Message			
Message Direction	To Sensor			
Message Length	Extended(23 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Controller ID	3 bytes	varies	11 22 33
To Address	Sensor ID	3 bytes	*varies*	AA BB CC

Flags Byte	Direct Extended Message	1 byte	1x	15
Command 1	Command Type	1 byte	20	20
Command 2	Command Type	1 byte	09	09
Data 1-13	Not Used	13 bytes	00	00
Data 14	Checksum	1 byte	D7	D7
PLM EXAMPLE	0262AABBCC1520090000000000000000000000000D7			

Response

Message				
Command	**DISABLE HEARTBEAT GROUP RESPONSE (20 09)**			
Message Type	Direct Message Ack			
Message Direction	From Sensor			
Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Sensor ID	3 bytes	*varies*	AA BB CC
To Address	Controller ID	3 bytes	*varies*	11 22 33
Flags Byte	Direct Message Ack	1 byte	2x	25
Command 1	Command Type	1 byte	20	20
Command 2	Command Type	1 byte	09	09
PLM EXAMPLE	0250AABBCC112233252009			

ENABLE ALTERNATE HEARTBEAT GROUP (20 0A)

Enables the periodic transmission of an **Alternate Heartbeat group (0B)** command defined by the **Heartbeat Interval** by setting the corresponding **Global bit Flag** (bit 1) to 1. The heartbeat command includes the current temperature instead of the battery level.

The Motion Sensor will only respond if it is awake or plugged in. If battery powered, wake the motion sensor by putting it into linking mode. Press and hold the set button until it beeps and starts flashing green.

Request

Message	
Command	**ENABLE ALTERNATE HEARTBEAT GROUP REQUEST (20 0A)**
Message Type	Direct Extended Message

Message Direction	To Sensor			
Message Length	Extended(23 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Controller ID	3 bytes	varies	11 22 33
To Address	Sensor ID	3 bytes	*varies*	AA BB CC
Flags Byte	Direct Extended Message	1 byte	1x	15
Command 1	Command Type	1 byte	20	20
Command 2	Command Type	1 byte	0A	0A
Data 1-13	Not Used	13 bytes	00	00
Data 14	Checksum	1 byte	D6	D6
PLM EXAMPLE	0262AABBCC15200A00000000000000000000000000D6			

Response

Message				
Command	**ENABLE ALTERNATE HEARTBEAT GROUP RESPONSE (20 0A)**			
Message Type	Direct Message Ack			
Message Direction	From Sensor			
Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Sensor ID	3 bytes	*varies*	AA BB CC
To Address	Controller ID	3 bytes	*varies*	11 22 33
Flags Byte	Direct Message Ack	1 byte	2X	25
Command 1	Command Type	1 byte	20	20
Command 2	Command Type	1 byte	0A	0A
PLM EXAMPLE	0250AABBCC11223325200A			

DISABLE ALTERNATE HEARTBEAT GROUP (20 0B)

Disables the periodic transmission of an **Alternate Heartbeat group (0B)** command defined by the **Heartbeat Interval** by setting the corresponding **Global bit Flag** (bit 1) to 0. The heartbeat command includes the current temperature instead of the battery level.

The Motion Sensor will only respond if it is awake or plugged in. If battery powered, wake the motion sensor by putting it into linking mode. Press and hold the set button until it beeps and starts flashing green.

Request

Message				
Command	**DISABLE ALTERNATE HEARTBEAT GROUP REQUEST (20 0B)**			
Message Type	Direct Extended Message			
Message Direction	To Sensor			
Message Length	Extended(23 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Controller ID	3 bytes	varies	11 22 33
To Address	Sensor ID	3 bytes	*varies*	AA BB CC
Flags Byte	Direct Extended Message	1 byte	1x	15
Command 1	Command Type	1 byte	20	20
Command 2	Command Type	1 byte	0B	0B
Data 1-13	Not Used	13 bytes	00	00
Data 14	Checksum	1 byte	D5	D5
PLM EXAMPLE	0262AABBCC15200B00000000000000000000000000D5			

Response

Message				
Command	**DISABLE ALTERNATE HEARTBEAT GROUP RESPONSE (20 0B)**			
Message Type	Direct Message Ack			
Message Direction	From Sensor			
Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Sensor ID	3 bytes	*varies*	AA BB CC
To Address	Controller ID	3 bytes	*varies*	11 22 33
Flags Byte	Direct Message Ack	1 byte	2X	25
Command 1	Command Type	1 byte	20	20
Command 2	Command Type	1 byte	0B	0B

PLM EXAMPLE	0250AABBCC11223325200B

DISABLE CLEAN-UP REPORT (20 16)

Disables the broadcast of a Clean-Up report after performing cleanup for a group activation by setting the corresponding **Global bit flag** (bit 0) to 0.
The Motion Sensor will only respond if it is awake or plugged in. If battery powered, wake the motion sensor by putting it into linking mode. Press and hold the set button until it beeps and starts flashing green.

Request

Message				
Command	**DISABLE CLEAN-UP REPORT REQUEST (20 16)**			
Message Type	Direct Extended Message			
Message Direction	To Sensor			
Message Length	Extended(23 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Controller ID	3 bytes	varies	11 22 33
To Address	Sensor ID	3 bytes	*varies*	AA BB CC
Flags Byte	Direct Extended Message	1 byte	1x	15
Command 1	Command Type	1 byte	20	20
Command 2	Command Type	1 byte	16	16
Data 1-13	Not Used	13 bytes	00	00
Data 14	Checksum	1 byte	CA	CA
PLM EXAMPLE	0262AABBCC1520160000000000000000000000000000CA			

Response

Message				
Command	**DISABLE CLEAN-UP REPORT RESPONSE (20 16)**			
Message Type	Direct Message Ack			
Message Direction	From Sensor			
Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Sensor ID	3 bytes	*varies*	AA BB CC
To Address	Controller ID	3 bytes	*varies*	11 22 33

Flags Byte	Direct Message	1 byte	2X	25
Command 1	Command Type	1 byte	20	20
Command 2	Property	1 byte	16	16
PLM EXAMPLE	0250AABBCC112233252016			

ENABLE CLEAN-UP REPORT (20 17)

Enables the broadcast of a Clean-Up report after performing cleanup for a group activation by setting the corresponding **Global bit flag** (bit 0) to 1.
The Motion Sensor will only respond if it is awake or plugged in. If battery powered, wake the motion sensor by putting it into linking mode. Press and hold the set button until it beeps and starts flashing green.

Request

Message				
Command	**ENABLE CLEAN-UP REPORT REQUEST (20 17)**			
Message Type	Direct Extended Message			
Message Direction	To Sensor			
Message Length	Extended(23 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Controller ID	3 bytes	varies	11 22 33
To Address	Sensor ID	3 bytes	*varies*	AA BB CC
Flags Byte	Direct Extended Message	1 byte	1x	15
Command 1	Command Type	1 byte	20	20
Command 2	Command Type	1 byte	17	17
Data 1-13	Not Used	13 bytes	00	00
Data 14	Checksum	1 byte	C9	C9
PLM EXAMPLE	0262AABBCC1520170000000000000000000000000C9			

Response

Message	
Command	**ENABLE CLEAN-UP REPORT RESPONSE (20 17)**
Message Type	Direct Message Ack
Message Direction	From Sensor

Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Sensor ID	3 bytes	*varies*	AA BB CC
To Address	Controller ID	3 bytes	*varies*	11 22 33
Flags Byte	Direct Message Ack	1 byte	2x	25
Command 1	Command Type	1 byte	20	20
Command 2	Property	1 byte	17	17
PLM EXAMPLE	0250AABBCC112233252017			

ENABLE STAY AWAKE (20 18)

Forces the device to stay awake so that it may respond to commands. This drains battery. Duration used when the motion sensor receives this command is 255 seconds (FF). Exiting linking mode will cause the device to return to normal behavior. Use this command in response to a group broadcast to allow for more time for communication.
The Motion Sensor will only respond if it is awake or plugged in. If battery powered, wake the motion sensor by putting it into linking mode. Press and hold the set button until it beeps and starts flashing green.

Request

Message				
Command	**ENABLE STAY AWAKE REQUEST (20 18)**			
Message Type	Direct Extended Message			
Message Direction	To Sensor			
Message Length	Extended(23 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Controller ID	3 bytes	varies	11 22 33
To Address	Sensor ID	3 bytes	*varies*	AA BB CC
Flags Byte	Direct Extended Message	1 byte	1x	15
Command 1	Command Type	1 byte	20	20
Command 2	Property	1 byte	18	18
Data 1-13	Not Used	13 bytes	00	00
Data 14	Checksum	1 byte	C8	C8

PLM EXAMPLE	0262AABBCC1520180000000000000000000000000C8

Response

Message				
Command	**ENABLE STAY AWAKE RESPONSE (20 18)**			
Message Type	Direct Message Ack			
Message Direction	From Sensor			
Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Sensor ID	3 bytes	*varies*	AA BB CC
To Address	Controller ID	3 bytes	*varies*	11 22 33
Flags Byte	Direct Message Ack	1 byte	2x	25
Command 1	Command Type	1 byte	20	20
Command 2	Property	1 byte	18	18
PLM EXAMPLE	0250AABBCC112233252018			

DISABLE STAY AWAKE -Sleep (20 19)

Resumes normal sleep pattern.

The Motion Sensor will only respond if it is awake or plugged in. If battery powered, wake the motion sensor by putting it into linking mode. Press and hold the set button until it beeps and starts flashing green.

Request

Message				
Command	**DISABLE STAY AWAKE REQUEST (20 19)**			
Message Type	Direct Extended Message			
Message Direction	To Sensor			
Message Length	Extended(23 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Controller ID	3 bytes	*varies*	11 22 33
To Address	Sensor ID	3 bytes	*varies*	AA BB CC
Flags Byte	Direct Extended Message	1 byte	1x	15

Command 1	Command Type	1 byte	20	20
Command 2	Property	1 byte	19	19
Data 1-13	Not Used	13 bytes	00	00
Data 14	Checksum	1 byte	C7	C7
PLM EXAMPLE	0262AABBCC1520190000000000000000000000000C7			

Response

Message				
Command	**DISABLE STAY AWAKE RESPONSE (20 19)**			
Message Type	Direct Message Ack			
Message Direction	From Sensor			
Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Sensor ID	3 bytes	*varies*	AA BB CC
To Address	Controller ID	3 bytes	*varies*	11 22 33
Flags Byte	Direct Message Ack	1 byte	2x	25
Command 1	Command Type	1 byte	20	20
Command 2	Property	1 byte	19	19
PLM EXAMPLE	0250AABBCC112233252019			

DISABLE OCCUPANCY MODE II (20 1A)

Disables the transmission of an "ON" boradcast the **Alternate Motion OFF Group (05)** when the **motion timeout** expires (default 30s) after motion is detected by setting the corresponding **PIR bit Flag** (bit 4) to 0.

The Motion Sensor will only respond if it is awake or plugged in. If battery powered, wake the motion sensor by putting it into linking mode. Press and hold the set button until it beeps and starts flashing green.

Request

Message	
Command	**DISABLE OCCUPANCY MODE II REQUEST (20 1A)**
Message Type	Direct Extended Message
Message Direction	To Sensor

Message Length	Extended(23 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Controller ID	3 bytes	varies	11 22 33
To Address	Sensor ID	3 bytes	*varies*	AA BB CC
Flags Byte	Direct Extended Message	1 byte	1x	15
Command 1	Command Type	1 byte	20	20
Command 2	Property	1 byte	1A	1A
Data 1-13	Not Used	13 bytes	00	00
Data 14	Checksum	1 byte	C6	C6
PLM EXAMPLE	0262AABBCC15201A00000000000000000000000000C6			

Response

Message				
Command	**DISABLE OCCUPANCY MODE II RESPONSE (1A)**			
Message Type	Direct Message Ack			
Message Direction	From Sensor			
Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Sensor ID	3 bytes	*varies*	AA BB CC
To Address	Controller ID	3 bytes	*varies*	11 22 33
Flags Byte	Direct Message Ack	1 byte	2x	25
Command 1	Command Type	1 byte	20	20
Command 2	Command Type	1 byte	1A	1A
PLM EXAMPLE	0250AABBCC11223325201A			

ENABLE OCCUPANCY MODE II (20 1B)

Enables the transmission of an "ON" boradcast the **Alternate Motion OFF Group (05)** when the **motion timeout** expires (default 30s) after motion is detected by setting the corresponding **PIR bit Flag** (bit 4) to 1.

The Motion Sensor will only respond if it is awake or plugged in. If battery powered, wake the motion sensor by putting it into linking mode. Press and hold the set button until it beeps and starts flashing green.

Request

Message				
Command	**ENABLE OCCUPANCY MODE II REQUEST (20 1B)**			
Message Type	Direct Extended Message			
Message Direction	To Sensor			
Message Length	Extended(23 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Controller ID	3 bytes	varies	11 22 33
To Address	Sensor ID	3 bytes	*varies*	AA BB CC
Flags Byte	Direct Extended Message	1 byte	1x	15
Command 1	Command Type	1 byte	20	20
Command 2	Command Type	1 byte	1B	1B
Data 1-13	Not Used	13 bytes	00	00
Data 14	Checksum	1 byte	C5	C5
PLM EXAMPLE	0262AABBCC15201B00000000000000000000000000C5			

Response

Message				
Command	**ENABLE OCCUPANCY MODE II RESPONSE (20 1B)**			
Message Type	Direct Message Ack			
Message Direction	From Sensor			
Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Sensor ID	3 bytes	*varies*	AA BB CC
To Address	Controller ID	3 bytes	*varies*	11 22 33
Flags Byte	Direct Message Ack	1 byte	2x	25
Command 1	Command Type	1 byte	20	20
Command 2	Command Type	1 byte	1B	1B
PLM Example	0250AABBCC11223325201B			

DISABLE MOTION (20 1C)

This command is the same as pressing the physical disable button on the motion sensor. Disables motion detection for the time specified by **Off Button Timeout** (default 12hr). The state of whether the PIR is currently enabled/disabled is represented in **State Flags** (bit 0).
The Motion Sensor will only respond if it is awake or plugged in. If battery powered, wake the motion sensor by putting it into linking mode. Press and hold the set button until it beeps and starts flashing green.

Request

Message				
Command	**DISABLE MOTION REQUEST (20 1C)**			
Message Type	Direct Extended Message			
Message Direction	To Sensor			
Message Length	Extended(23 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Controller ID	3 bytes	varies	11 22 33
To Address	Sensor ID	3 bytes	*varies*	AA BB CC
Flags Byte	Direct Extended Message	1 byte	1x	1
Command 1	Command Type	1 byte	20	20
Command 2	Command Type	1 byte	1C	1C
Data 1-13	Not Used	13 bytes	00	00
Data 14	Checksum	1 byte	C4	C4
PLM EXAMPLE	0262AABBCC15201C00000000000000000000000000C4			

Response

Message	
Command	**DISABLE MOTION RESPONSE (20 1C)**

Message Type	Direct Message Ack			
Message Direction	From Sensor			
Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Sensor ID	3 bytes	*varies*	AA BB CC
To Address	Controller ID	3 bytes	*varies*	11 22 33
Flags Byte	Direct Message Ack	1 byte	2x	25
Command 1	Command Type	1 byte	20	20
Command 2	Command Type	1 byte	1C	1C
PLM EXAMPLE	0250AABBCC11223325201C			

ENABLE MOTION (20 1D)

This command is the same as pressing the physical disable button on the motion sensor. Re-enables motion detection if it was disabled. The state of whether the PIR is currently enabled/disabled is represented in **State Flags** (bit 0).

The Motion Sensor will only respond if it is awake or plugged in. If battery powered, wake the motion sensor by putting it into linking mode. Press and hold the set button until it beeps and starts flashing green.

Request

Message				
Command	**ENABLE MOTION REQUEST (20 1D)**			
Message Type	Direct Extended Message			
Message Direction	To Sensor			
Message Length	Extended(23 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Controller ID	3 bytes	varies	11 22 33
To Address	Sensor ID	3 bytes	*varies*	AA BB CC
Flags Byte	Direct Extended Message	1 byte	1x	15
Command 1	Command Type	1 byte	20	20
Command 2	Command Type	1 byte	1D	1D
Data 1-13	Not Used	13 bytes	00	00

Data 14	Checksum	1 byte	C3	C3
PLM EXAMPLE	0262AABBCC15201D00000000000000000000000000C3			

Response

Message				
Command	**ENABLE MOTION RESPONSE (20 1D)**			
Message Type	Direct Message Ack			
Message Direction	From Sensor			
Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Sensor ID	3 bytes	*varies*	AA BB CC
To Address	Controller ID	3 bytes	*varies*	11 22 33
Flags Byte	Direct Message Ack	1 byte	2x	25
Command 1	Command Type	1 byte	20	20
Command 2	Command Type	1 byte	1D	1D
PLM Example	AABBCC11223325201D			

GET EXTENDED PROPERTIES (2E 01)

This command will return two responses. First response is the command acknowledgement, second command is the return of the data requested.

The Motion Sensor will only respond if it is awake or plugged in. If battery powered, wake the motion sensor by putting it into linking mode. Press and hold the set button until it beeps and starts flashing green.

Request

Message				
Command	**GET EXTENDED PROPERTIES REQUEST (2E 01)**			
Message Type	Direct Extended Message			
Message Direction	To Sensor			
Message Length	Extended (23 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Controller ID	3 bytes	varies	11 22 33
To Address	Sensor ID	3 bytes	*varies*	AA BB CC

Flags Byte	Direct Extended Message	1 byte	1x	15
Command 1	Command Type	1 byte	2E	2E
Command 2	Command Type	1 byte	01	01
Data 1	Not Used	1 byte	00	00
Data 2	Data Request	1 byte	00	00
Data 3-13	Not Used	12 bytes	00	00
Data 14	Checksum	1 byte	D1	D1
PLM EXAMPLE	0262AABBCC152E0100000000000000000000000000D1			

Response I

Message				
Command	**GET EXTENDED PROPERTIES RESPONSE I (2E 01)**			
Message Type	Direct Message Ack			
Message Direction	From Sensor			
Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Sensor ID	3 bytes	*varies*	AA BB CC
To Address	Controller ID	3 bytes	*varies*	11 22 33
Flags Byte	Direct Message Ack	1 byte	2x	25
Command 1	Command Type	1 byte	2E	2E
Command 2	Command Type	1 byte	01	01
PLM EXAMPLE	0250AABBCC112233252E01			

Response II

Message	
Command	**GET EXTENDED PROPERTIES RESPONSE II (2E 01)**
Message Type	Direct Extended Message
Message Direction	From Sensor
Message Length	Extended (23 Bytes)

	Description	Length	Message	Example
From Address	Sensor ID	3 bytes	*varies*	AA BB CC
To Address	Controller ID	3 bytes	*varies*	11 22 33
Flags Byte	Direct Extended Message	1 byte	1x	1F
Command 1	Command Type	1 byte	2E	2E
Command 2	Command Type	1 byte	01	01
Data 1	Not used	1 byte	xx	01
Data 2	Return of Data	1 byte	01	01
Data 3	PIR Flags Bit 7: 1 = Disable PIR Bit 6: 1 = Enable Light Harvest Bit 5: 1 = On Only Bit 4: 1 = Two Groups Bit 3: 1 = Only if Cold Bit 2: 1 = Only if Hot Bit 1: 1 = Only if Day Bit 0: 1 = Only if Night For Off Only, set bit 4 &5	1 byte	xx	00
Data 4	(Not Used)	1 byte	xx	07
Data 5	Motion Timeout - in 10 sec increments	1 byte	xx	03
Data 6	Cold Threshold	1 byte	xx	7B
Data 7	Cold Flags Bit 7: 1 = Disable Cold Bit 6: 1 = Tamper 2 Groups Bit 5: 1 = On Only Bit 4: 1 = Two Groups Bit 3: 1 = Enable Moved Bit 2: 1 = Enable Tamper Bit 1: 1 = Only if Day Bit 0: 1 = Only if Night	1 byte	xx	84
Data 8	Cold Hysteresis	1 byte	xx	80
Data 9	Hot Threshold	1 byte	xx	92
Data 10	Hot Flags Bit 7: 1 = Disable Hot Bit 6: 1 = Disable Report Temp	1 byte	xx	C0

	Change Bit 5: 1 = On Only Bit 4: 1 = Two Groups Bit 3: N/A Bit 2: N/A Bit 1: 1 = Only if Day Bit 0: 1 = Only if Night			
Data 11	Hot Hysteresis	1 byte	xx	8D
Data 12	Low Battery Threshold	1 byte	85	85
Data 13	Heartbeat Interval - 23 minute increments (Default 3E - 23.8 hours)	1 byte	xx	3E
Data 14	Checksum	1 byte	xx	36
PLM EXAMPLE	0251AABBCC1122331F2E0101010007037B8480C08D853E36			

GET EXTENDED PROPERTIES (2E 02)

This command will return two responses. First response is the command acknowledgement, second command is the return of the data requested.
The Motion Sensor will only respond if it is awake or plugged in. If battery powered, wake the motion sensor by putting it into linking mode. Press and hold the set button until it beeps and starts flashing green.

Request

Message				
Command	**GET EXTENDED PROPERTIES REQUEST (2E 02)**			
Message Type	Direct Extended Message			
Message Direction	To Sensor			
Message Length	Extended (23 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Controller ID	3 bytes	varies	11 22 33
To Address	Sensor ID	3 bytes	*varies*	AA BB CC
Flags Byte	Direct Extended Message	1 byte	1x	15
Command 1	Command Type	1 byte	2E	2E
Command 2	Command Type	1 byte	02	02

Data 1	Not Used	1 byte	00	00
Data 2	Data Request	1 byte	00	00
Data 3-13	Not Used	12 bytes	00	00
Data 14	Checksum	1 byte	D0	D0
PLM EXAMPLE	0262AABBCC152E020000000000000000000000000D0			

Response I

Message				
Command	**GET EXTENDED PROPERTIES RESPONSE I (2E 02)**			
Message Type	Direct Message Ack			
Message Direction	From Sensor			
Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Sensor ID	3 bytes	*varies*	AA BB CC
To Address	Controller ID	3 bytes	*varies*	11 22 33
Flags Byte	Direct Message Ack	1 byte	2x	25
Command 1	Command Type	1 byte	2E	2E
Command 2	Command Type	1 byte	02	02
PLM EXAMPLE	AABBCC112233252E02			

Response II

Message				
Command	**GET EXTENDED PROPERTIES RESPONSE II (2E 02)**			
Message Type	Direct Extended Message			
Message Direction	From Sensor			
Message Length	Extended (23 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Sensor ID	3 bytes	*varies*	AA BB CC
To Address	Controller ID	3 bytes	*varies*	11 22 33
Flags Byte	Direct Extended Message	1 byte	1x	1F

Command 1	Command Type	1 byte	2E	2E
Command 2	Command Type	1 byte	02	02
Data 1	Not used	1 byte	xx	01
Data 2	Return of Data	1 byte	01	01
Data 3	Night Threshold	1 byte	xx	40
Data 4	Day Threshold	1 byte	xx	50
Data 5	Light Flags Bit 7: 1 = Disable Light Bit 6: 1 = Disable Light Report Bit 5: 1 = On Only Bit 4: 1 = Two Groups Bit 3: 1 = Only if Cold Bit 2: 1 = Only if Hot Bit 1: 1 = Target Harvest Bit 0: N/A	1 byte	xx	C0
Data 6	Dark Flags Bit 7: 1 = Disable Dark Bit 6: 1 = PIR Disabled Two Groups Bit 5: 1 = On Only Bit 4: 1 = Two Groups Bit 3: 1 = Only if Cold Bit 2: 1 = Only if Hot Bit 1: 1 = Dark Cancel PIR Off Bit 0: 1 = PIR Mode: OCC III	1 byte	xx	80
Data 7	Light Poll Interval - (in seconds) - (low byte)	1 byte	xx	3C
Data 8	Light Poll Interval - (in seconds) - (high byte)	1 byte	xx	3C
Data 9	Light Hysteresis	1 byte	xx	05
Data 10	Light Harvest Constant	1 byte	xx	00
Data 11	Off Button Timeout	1 byte	xx	21
Data 12	(Not Used)	1 byte	xx	00
Data 13	Not Used	1 byte	xx	00
Data 14	Checksum	1 byte	xx	60

PLM EXAMPLE	0251AABBCC1122331F2E0201014050C0803C3C050021000060

GET EXTENDED PROPERTIES (2E 03)

This command will return two responses. First response is the command acknowledgement, second command is the return of the data requested.
The Motion Sensor will only respond if it is awake or plugged in. If battery powered, wake the motion sensor by putting it into linking mode. Press and hold the set button until it beeps and starts flashing green.

Request

Message				
Command	**GET EXTENDED PROPERTIES REQUEST (2E 03)**			
Message Type	Direct Extended Message			
Message Direction	To Sensor			
Message Length	Extended (23 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Controller ID	3 bytes	*varies*	11 22 33
To Address	Sensor ID	3 bytes	*varies*	AA BB CC
Flags Byte	Direct Extended Message	1 byte	1x	15
Command 1	Command Type	1 byte	2E	2E
Command 2	Command Type	1 byte	03	03
Data 1	Not Used	1 byte	00	00
Data 2	Data Request	1 byte	00	00
Data 3-13	Not Used	12 bytes	00	00
Data 14	Checksum	1 byte	CF	CF
PLM EXAMPLE	0262AABBCC152E03000000000000000000000000000CF			

Response I

Message	
Command	**GET EXTENDED PROPERTIES RESPONSE I (2E 03)**
Message Type	Direct Message Ack

Message Direction	From Sensor			
Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Sensor ID	3 bytes	*varies*	AA BB CC
To Address	Controller ID	3 bytes	*varies*	11 22 33
Flags Byte	Direct Message	1 byte	2x	25
Command 1	Command Type	1 byte	2E	2E
Command 2	Command Type	1 byte	03	03
PLM EXAMPLE	0250AABBCC112233252E03			

Response II

Message				
Command	**GET EXTENDED PROPERTIES RESPONSE II (2E 03)**			
Message Type	Direct Extended Message			
Message Direction	From Sensor			
Message Length	Extended (23 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Sensor ID	3 bytes	*varies*	AA BB CC
To Address	Controller ID	3 bytes	*varies*	11 22 33
Flags Byte	Direct Extended Message	1 byte	1x	1F
Command 1	Command Type	1 byte	2E	2E
Command 2	Command Type	1 byte	03	03
Data 1	Not used	1 byte	xx	01
Data 2	Return of Data	1 byte	01	01
Data 3	Last Recorded Battery Level	1 byte	xx	CC
Data 4	Last Recorded Light Level	1 byte	xx	AA
Data 5	Last Recorded Temperature	1 byte	xx	7F
Data 6	Battery Level	1 byte	xx	D5
Data 7	Light Level	1 byte	xx	8C

Data 8	Temperature	1 byte	xx	80
Data 9	Temperature Offset Value	1 byte	xx	00
Data 10	Not Used	1 byte	xx	00
Data 11	Not Used	1 byte	xx	00
Data 12	Not Used	1 byte	xx	00
Data 13	Not Used	1 byte	xx	00
Data 14	Checksum	1 byte	xx	F7
PLM EXAMPLE	0251AABBCC1122332F2E030101CCAA7FD58C800000000000F7			

GET EXTENDED PROPERTIES (2E 04)

This command will return two responses. First response is the command acknowledgement, second command is the return of the data requested.
The Motion Sensor will only respond if it is awake or plugged in. If battery powered, wake the motion sensor by putting it into linking mode. Press and hold the set button until it beeps and starts flashing green.

Request

Message				
Command	**GET EXTENDED PROPERTIES REQUEST (2E 04)**			
Message Type	Direct Extended Message			
Message Direction	To Sensor			
Message Length	Extended (23 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Controller ID	3 bytes	varies	11 22 33
To Address	Sensor ID	3 bytes	*varies*	AA BB CC
Flags Byte	Direct Extended Message	1 byte	1x	15
Command 1	Command Type	1 byte	2E	2E
Command 2	Command Type	1 byte	04	04
Data 1	Not Used	1 byte	00	00
Data 2	Data Request	1 byte	00	00

Data 3-13	Not Used	12 bytes	00	00
PLM EXAMPLE	0262112233152E040000000000000000000000000000CE			

Response I

Message				
Command	**GET EXTENDED PROPERTIES RESPONSE I (2E 04)**			
Message Type	Direct Message Ack			
Message Direction	From Sensor			
Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Sensor ID	3 bytes	*varies*	AA BB CC
To Address	Controller ID	3 bytes	*varies*	11 22 33
Flags Byte	Direct Message	1 byte	2x	25
Command 1	Command Type	1 byte	2E	2E
Command 2	Command Type	1 byte	04	04
PLM EXAMPLE	0250AABBCC112233252E04			

Response II

Message				
Command	**GET EXTENDED PROPERTIES RESPONSE II (2E 04)**			
Message Type	Direct Extended Message			
Message Direction	From Sensor			
Message Length	Extended (23 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Sensor ID	3 bytes	*varies*	AA BB CC
To Address	Controller ID	3 bytes	*varies*	11 22 33
Flags Byte	Direct Extended Message	1 byte	1x	1F
Command 1	Command Type	1 byte	2E	2E
Command 2	Command Type	1 byte	04	04

Data 1	Not used	1 byte	xx	01
Data 2	Return of Data	1 byte	01	01
Data 3	Accelerometer Register - 1 Enable & ODR	1 byte	xx	3F
Data 4	Accelerometer Register 2 - Enable (High Pass Filter)	1 byte	xx	00
Data 5	Accelerometer Register 4 - Force	1 byte	xx	80
Data 6	Accelerometer Threshold	1 byte	xx	20
Data 7	Accelerometer Sensitivity/Duration	1 byte	xx	00
Data 8	Accelerometer Trigger Point	1 byte	xx	0F
Data 9	Accelerometer Who Am I	1 byte	xx	33
Data 10	Very Hot Threshold	1 byte	xx	B2
Data 11	Very Cold Threshold	1 byte	xx	4C
Data 12	Unused	1 byte	xx	00
Data 13	Unused	1 byte	xx	00
Data 14	Checksum	1 byte	xx	AD
PLM EXAMPLE	0251AABBCC1122332F2F0401013F008020000F33B24C0000AD			

SET EXTENDED PROPERTY - MOTION TIMEOUT - (2E 00 00 03)

This command sets the motion timeout, or the number of 10 second increments after motion detection that must elapse before an OFF broadcast may be sent and another ON broadcast can be sent again to the motion group (01).
The Motion Sensor will only respond if it is awake or plugged in. If battery powered, wake the motion sensor by putting it into linking mode. Press and hold the set button until it beeps and starts flashing green.

Request

Message	
Command	**SET EXTENDED PROPERTY - MOTION TIMEOUT REQUEST (2E 00 00 03)**
Message Type	Direct Extended Message
Message Direction	To Sensor
Message Length	Extended (23 Bytes)

	Description	Length	Message	Example
From Address	Controller ID	3 bytes	*varies*	11 22 33
To Address	Sensor ID	3 bytes	*varies*	AA BB CC
Flags Byte	Direct Extended Message	1 byte	1x	15
Command 1	Command Type	1 byte	2E	2E
Command 2	Command Type	1 byte	00	00
Data 1	Not Used	1 byte	00	00
Data 2	Property	1 byte	03	03
Data 3	Motion Timeout	1 byte	xx	01
Data 4-13	Not Used	10 bytes	00	00
Data 14	Checksum	1 byte	xx	CE
PLM EXAMPLE	0262AABBCC152E0000030100000000000000000000CE			

Response

Message				
Command	**SET EXTENDED PROPERTY - MOTION TIMEOUT RESPONSE - (2E 00 00 03)**			
Message Type	Direct Message Ack			
Message Direction	From Sensor			
Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Sensor ID	3 bytes	*varies*	AA BB CC
To Address	Controller ID	3 bytes	*varies*	11 22 33
Flags Byte	Direct Message Ack	1 byte	2x	25
Command 1	Command Type	1 byte	2E	2E
Command 2	Command Type	1 byte	00	00
PLM EXAMPLE	0250AABBCC112233252E			

SET EXTENDED PROPERTY - PIR FLAGS (2E 00 00 06)

This command sets the PIR flags and the motion timeout of the motion sensor.

The Motion Sensor will only respond if it is awake or plugged in. If battery powered, wake the motion sensor by putting it into linking mode. Press and hold the set button until it beeps and starts flashing green.

Request

Message				
Command	**SET EXTENDED PROPERTY - PIR FLAGS REQUEST (2E 00 00 06)**			
Message Type	Direct Extended Message			
Message Direction	To Sensor			
Message Length	Extended (23 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Controller ID	3 bytes	varies	11 22 33
To Address	Sensor ID	3 bytes	*varies*	AA BB CC
Flags Byte	Direct Extended Message	1 byte	1x	15
Command 1	Command Type	1 byte	2E	2E
Command 2	Command Type	1 byte	00	00
Data 1	Not Used	1 byte	00	00
Data 2	Property	1 byte	06	06
Data 3	PIR Flags Bit 7: 1 = Disable PIR Bit 6: 1 = Enable Light Harvest Bit 5: 1 = On Only Bit 4: 1 = Two Groups Bit 3: 1 = Only if Cold Bit 2: 1 = Only if Hot Bit 1: 1 = Only if Day Bit 0: 1 = Only if Night For Off Only, set bit 4 &5	1 byte	xx	40
Data 4	(Not Used)	1 byte	xx	0F
Data 5	Motion Timeout - 10 second increments	1 byte	xx	03
Data 6-13	Not Used	8 bytes	00	00
Data 14	Checksum	1 byte	xx	7A
PLM EXAMPLE	0262AABBCC152E000006400F03000000000000000007A			

Response

Message				
Command	**SET EXTENDED PROPERTY - PIR FLAGS RESPONSE (2E 00 00 06)**			
Message Type	Direct Message Ack			
Message Direction	From Sensor			
Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Sensor ID	3 bytes	*varies*	AA BB CC
To Address	Controller ID	3 bytes	*varies*	11 22 33
Flags Byte	Direct Message Ack	1 byte	2x	25
Command 1	Command Type	1 byte	2E	2E
Command 2	Command Type	1 byte	00	00
PLM EXAMPLE	0250AABBCC112233252E00			

SET EXTENDED PROPERTY - HOT/COLD SETTINGS (2E 00 00 07)

This command sets the hot and cold settings of the motion sensor.
The Motion Sensor will only respond if it is awake or plugged in. If battery powered, wake the motion sensor by putting it into linking mode. Press and hold the set button until it beeps and starts flashing green.

Request

Message				
Command	**SET EXTENDED PROPERTY - HOT/COLD SETTINGS REQUEST (2E 00 00 07)**			
Message Type	Direct Extended Message			
Message Direction	To Sensor			
Message Length	Extended (23 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Controller ID	3 bytes	varies	11 22 33
To Address	Sensor ID	3 bytes	*varies*	AA BB CC
Flags Byte	Direct Extended Message	1 byte	1x	15

Command 1	Command Type	1 byte	2E	2E
Command 2	Command Type	1 byte	00	00
Data 1	Not Used	1 byte	00	00
Data 2	Property	1 byte	07	07
Data 3	Cold Threshold	1 byte	xx	7F
Data 4	Cold Flags Bit 7: 1 = Disable Cold Bit 6: 1 = Tamper 2 Groups Bit 5: 1 = On Only Bit 4: 1 = Two Groups Bit 3: 1 = Enable Moved Bit 2: 1 = Enable Tamper Bit 1: 1 = Only if Day Bit 0: 1 = Only if Night	1 byte	xx	C0
Data 5	Not Cold Threshold (Hysteresis)	1 byte	xx	84
Data 6	Hot Threshold	1 byte	xx	90
Data 7	Hot Flags Bit 7: 1 = Disable Hot Bit 6: 1 = Disable Report Temp Change Bit 5: 1 = On Only Bit 4: 1 = Two Groups Bit 3: N/A Bit 2: N/A Bit 1: 1 = Only if Day Bit 0: 1 = Only if Night	1 byte	xx	C0
Data 8	Not Hot Threshold (Hysteresis)	1 byte	xx	8B
Data 9	Very Hot Threshold	1 byte	xx	B2
Data 10	Very Cold Threshold	1 byte	xx	4C
Data 11-13	Not Used	3 bytes	00	00
Data 14	Checksum	1 byte	xx	2F
PLM EXAMPLE	0262AABBCC152E0000077FC08490C08BB24C0000002F			

Response

Message

Command	SET EXTENDED PROPERTY - HOT/COLD SETTINGS RESPONSE (2E 00 00 07)			
Message Type	Direct Message Ack			
Message Direction	From Sensor			
Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Sensor ID	3 bytes	*varies*	AA BB CC
To Address	Controller ID	3 bytes	*varies*	11 22 33
Flags Byte	Direct Message	1 byte	2x	25
Command 1	Command Type	1 byte	2E	2E
Command 2	Command Type	1 byte	00	00
PLM EXAMPLE	0250AABBCC112233252E00			

SET EXTENDED PROPERTY - LIGHT/DARK SETTINGS (2E 00 00 08)

This command sets the light and dark settings of the motion sensor.
The Motion Sensor will only respond if it is awake or plugged in. If battery powered, wake the motion sensor by putting it into linking mode. Press and hold the set button until it beeps and starts flashing green.

Request

Message				
Command	**SET EXTENDED PROPERTY - LIGHT/DARK SETTINGS REQUEST (2E 00 00 08)**			
Message Type	Direct Extended Message			
Message Direction	To Sensor			
Message Length	Extended (23 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Controller ID	3 bytes	varies	11 22 33
To Address	Sensor ID	3 bytes	*varies*	AA BB CC
Flags Byte	Direct Extended Message	1 byte	1x	15

Command 1	Command Type	1 byte	2E	2E
Command 2	Command Type	1 byte	00	00
Data 1	Not Used	1 byte	00	00
Data 2	Property	1 byte	08	08
Data 3	Night Threshold	1 byte	xx	10
Data 4	Day Threshold	1 byte	xx	30
Data 5	Light Flags Bit 7: 1 = Disable Light Bit 6: 1 = Disable Light Report Bit 5: 1 = On Only Bit 4: 1 = Two Groups Bit 3: 1 = Only if Cold Bit 2: 1 = Only if Hot Bit 1: 1 = Target Harvest Bit 0: N/A	1 byte	xx	C0
Data 6	Dark Flags Bit 7: 1 = Disable Dark Bit 6: 1 = PIR Disabled Two Groups Bit 5: 1 = On Only Bit 4: 1 = Two Groups Bit 3: 1 = Only if Cold Bit 2: 1 = Only if Hot Bit 1: 1 = Dark Cancel PIR Off Bit 0: 1 = PIR Mode: OCC III	1 byte	xx	80
Data 7	Light Poll Interval - (in seconds) - (low byte)	1 byte	xx	3C
Data 8	Light Poll Internal - (in seconds) - (high byte)	1 byte	xx	3C
Data 9	Light Hysteresis	1 byte	xx	05
Data 10	Light Harvest Constant	1 byte	xx	00
Data 11	Off Button Timeout	1 byte	xx	21
Data 12-13	Not Used	2 bytes	00	00
Data 14	Checksum	1 byte	xx	AC
PLM EXAMPLE	0262AABBCC152E0000081030C0803C3C0500210000AC			

o

Response

Message				
Command	**SET EXTENDED PROPERTY - LIGHT/DARK SETTINGS RESPONSE (2E 00 00 08)**			
Message Type	Direct Message Ack			
Message Direction	From Sensor			
Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Sensor ID	3 bytes	*varies*	AA BB CC
To Address	Controller ID	3 bytes	*varies*	11 22 33
Flags Byte	Direct Message Ack	1 byte	2x	25
Command 1	Command Type	1 byte	2E	2E
Command 2	Command Type	1 byte	00	00
PLM EXAMPLE	0250AABBCC112233252E00			

SET EXTENDED PROPERTY - LOW BATTERY AND HEARTBEAT SETTINGS (2E 00 00 09)

This command sets the light and low battery and heartbeat settings of the motion sensor.
The Motion Sensor will only respond if it is awake or plugged in. If battery powered, wake the motion sensor by putting it into linking mode. Press and hold the set button until it beeps and starts flashing green. *Note: lowering the Heartbeat interval adversely affects battery performance.*

Request

Message	
Command	**SET EXTENDED PROPERTY - LOW BATTERY AND HEARTBEAT SETTINGS REQUEST (2E 00 00 09)**
Message Type	Direct Extended Message
Message Direction	To Sensor
Message Length	Extended (23 Bytes)

	Description	Length	Message	Example
From Address	Controller ID	3 bytes	varies	11 22 33
To Address	Sensor ID	3 bytes	*varies*	AA BB CC
Flags Byte	Direct Extended Message	1 byte	1x	15
Command 1	Command Type	1 byte	2E	2E
Command 2	Command Type	1 byte	00	00
Data 1	Not Used	1 byte	00	00
Data 2	Property	1 byte	09	09
Data 3	Low Battery Threshold	1 byte	xx	85
Data 4	Heartbeat Interval - 23 minute increments (Default 3E - 23.8 hours)	1 byte	xx	3E
Data 5-13	Not Used	9 bytes	00	00
Data 14	Checksum	1 byte	xx	06
PLM EXAMPLE	0262AABBCC152E000009853E00000000000000000006			

Response

Message				
Command	**SET EXTENDED PROPERTY - LOW BATTERY AND HEARTBEAT SETTINGS RESPONSE (2E 00 00 09)**			
Message Type	Direct Message Ack			
Message Direction	From Sensor			
Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Sensor ID	3 bytes	*varies*	AA BB CC
To Address	Controller ID	3 bytes	*varies*	11 22 33
Flags Byte	Direct Message Ack	1 byte	2x	25
Command 1	Command Type	1 byte	2E	2E

Command 2	Command Type	1 byte	00	00
PLM EXAMPLE	0250AABBCC112233252E00			

SET EXTENDED PROPERTY - GLOBAL FLAGS (2E 00 00 0A)

This command sets the Global Flags of the motion sensor. These flags dictate the behavior of the device. Each flag also has a specific 20 xx command to set their corresponding bit.
The Motion Sensor will only respond if it is awake or plugged in. If battery powered, wake the motion sensor by putting it into linking mode. Press and hold the set button until it beeps and starts flashing green.

Request

Message				
Command	**SET EXTENDED PROPERTY - GLOBAL FLAGS REQUEST (2E 00 00 0A)**			
Message Type	Direct Extended Message			
Message Direction	To Sensor			
Message Length	Extended (23 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Controller ID	3 bytes	*varies*	11 22 33
To Address	Sensor ID	3 bytes	*varies*	AA BB CC
Flags Byte	Direct Extended Message	1 byte	1x	15
Command 1	Command Type	1 byte	2E	2E
Command 2	Command Type	1 byte	00	00
Data 1	Not Used	1 byte	00	00
Data 2	Property	1 byte	08	0A
Data 3	Global Flags bit 7 = 0 Linking Enabled bit 6 = 1 Heartbeat Enabled bit 5 = 0 LED Enabled* bit 4 = 1 Low Battery Alert Enabled bit 3 = 0 Beeper Enabled	1 byte	xx	05

	bit 2 = (Not Used) bit 1 = 1 Alternate Heartbeat Enabled bit 0 = 1 Clean-up Report Enabled **Note: LED will still very quickly flash when this option is disabled and device is battery powered.*			
Data 4-13	Not Used	10 bytes	00	00
Data 14	Checksum	1 byte	xx	C3
PLM EXAMPLE	0262AABBCC152E00000A0500000000000000000000C3			

Response

Message				
Command	**SET EXTENDED PROPERTY - GLOBAL FLAGS RESPONSE (2E 00 00 0A)**			
Message Type	Direct Message Ack			
Message Direction	From Sensor			
Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Sensor ID	3 bytes	*varies*	AA BB CC
To Address	Controller ID	3 bytes	*varies*	11 22 33
Flags Byte	Direct Message Ack	1 byte	2x	25
Command 1	Command Type	1 byte	2E	2E
Command 2	Command Type	1 byte	00	00
PLM EXAMPLE	0250AABBCC112233252E00			

SET EXTENDED PROPERTY - Accelerometer (2E 00 00 0C)

The Motion Sensor will only respond if it is awake or plugged in. If battery powered, wake the motion sensor by putting it into linking mode. Press and hold the set button until it beeps and starts flashing green.

Request

Message Broadcast	
Command	**SET EXTENDED PROPERTY - Accelerometer (2E 00 00 0C)**

Message Type	Direct Extended Message			
Message Direction	To Sensor			
Message Length	Extended (23 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Controller ID	3 bytes	varies	11 22 33
To Address	Sensor ID	3 bytes	*varies*	AA BB CC
Flags Byte	Direct Extended Message	1 byte	1x	15
Command 1	Command Type	1 byte	2E	2E
Command 2	Command Type	1 byte	00	00
Data 1	Not Used	1 byte	00	00
Data 2	Property	1 byte	0C	0C
Data 3	Register 1 Enable & ODR	1 byte	xx	57
Data 4	Register 2 Enable (High Pass Filter)	1 byte	xx	00
Data 5	Register 4 Force	1 byte	xx	00
Data 6	Threshold	1 byte	xx	10
Data 7	Duration	1 byte	xx	00
Data 8	Trigger Point	1 byte	xx	0F
Data 9	Not Used	1 byte	xx	00
Data 10-13	Not Used	4 bytes	00	00
Data 14	Checksum	1 byte	xx	50
PLM EXAMPLE	0262112233AABBCC152E00000C57000010000F000000000050			

Response

Message				
Command	**SET EXTENDED PROPERTY - Accelerometer (2E 00 00 0C)**			
Message Type	Direct Message Ack			
Message Direction	From Sensor			
Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Sensor ID	3 bytes	*varies*	AA BB CC

To Address	Controller ID	3 bytes	*varies*	11 22 33
Flags Byte	Direct Message Ack	1 byte	2x	25
Command 1	Command Type	1 byte	2E	2E
Command 2	Command Type	1 byte	00	00
PLM EXAMPLE	0250AABBCC1122 33252E00			

SET EXTENDED PROPERTY - TEMPERATURE OFFSET (2E 00 00 0D)

This command sets temperature offset value the motion will use when calculating the temperature to report. The offset can be -128 to +127 (0-FF).
The Motion Sensor will only respond if it is awake or plugged in. If battery powered, wake the motion sensor by putting it into linking mode. Press and hold the set button until it beeps and starts flashing green.

Request

Message				
Command	**SET EXTENDED PROPERTY - TEMPERATURE OFFSET REQUEST (2E 00 00 0D)**			
Message Type	Direct Extended Message			
Message Direction	To Sensor			
Message Length	Extended (23 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Controller ID	3 bytes	varies	11 22 33
To Address	Sensor ID	3 bytes	*varies*	AA BB CC
Flags Byte	Direct Extended Message	1 byte	1x	15
Command 1	Command Type	1 byte	2E	2E
Command 2	Command Type	1 byte	00	00
Data 1	Not Used	1 byte	00	00
Data 2	Property	1 byte	0D	0D
Data 3	Temperature Offset	1 byte	xx	05
Data 4-13	Not Used	10 bytes	00	00
Data 14	Checksum	1 byte	xx	C0

PLM EXAMPLE	0262112233AABBCC152E00000D0500000000000000000000C0

Response

Message				
Command	**SET EXTENDED PROPERTY - TEMPERATURE OFFSET REPLY (2E 00 00 0C)**			
Message Type	Direct Message Ack			
Message Direction	From Sensor			
Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Sensor ID	3 bytes	*varies*	AA BB CC
To Address	Controller ID	3 bytes	*varies*	11 22 33
Flags Byte	Direct Message Ack	1 byte	2x	25
Command 1	Command Type	1 byte	2E	2E
Command 2	Command Type	1 byte	00	00
PLM EXAMPLE	0250AABBCC112233252E00			

FACTORY RESET (36 00)

Restores all software properties to their default values. See the **Software Properties** section to view the default values.

The Motion Sensor will only respond if it is awake or plugged in. If battery powered, wake the motion sensor by putting it into linking mode. Press and hold the set button until it beeps and starts flashing green.

Request

Message				
Command	**FACTORY RESET REQUEST (36 00)**			
Message Type	Direct Extended Message			
Message Direction	To Sensor			
Message Length	Extended (23 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Controller ID	3 bytes	varies	11 22 33
To Address	Sensor ID	3 bytes	*varies*	AA BB CC

Flags Byte	Direct Extended Message	1 byte	1x	15
Command 1	Command Type	1 byte	36	36
Command 2	Not Used	1 byte	00	00
Data 1-13	Not Used	13 bytes	00	00
Data 14	Checksum	1 byte	CA	CA
PLM EXAMPLE	0262112233AABBCC360000000000000000000000000000CA			

Response (no response will be sent by the motion sensor)

Message				
Command	**FACTORY RESET RESPONSE (N/A)**			
Message Type	N/A			
Message Direction				
Message Length				
	Description	**Length**	**Message**	**Example**
From Address	N/A			
To Address				
Flags Byte				
Command 1				
Command 2				

CALIBRATE TEMPERATURE (37 xx)

Calculates and uses the temperature offset needed to match the current temperature provided. The Motion Sensor will only respond if it is awake or plugged in. If battery powered, wake the motion sensor by putting it into linking mode. Press and hold the set button until it beeps and starts flashing green.

Request

Message	
Command	**CALIBRATE TEMPERATURE REQUEST (37 xx)**
Message Type	Direct Extended Message - (A Extended Broadcast, flags byte = 9F, can be used to calibrate multiple Sensors)
Message Direction	To Sensor

Message Length	Extended (23 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Controller ID	3 bytes	varies	11 22 33
To Address	Sensor ID	3 bytes	*varies*	AA BB CC
Flags Byte	Direct Extended Message	1 byte	1x	15
Command 1	Command Type	1 byte	37	37
Command 2	Ambient Temperature to Calibrate to	1 byte	xx	83 (~75°F)
Data 1-13	Not Used	13 bytes	00	00
Data 14	Checksum	1 byte	xx	46
PLM EXAMPLE	0262112233AABBCC153783000000000000000000000000046			

Response

Message				
Command	**CALIBRATE TEMPERATURE RESPONSE (37 xx)**			
Message Type	Direct Message Ack			
Message Direction	From Sensor			
Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Sensor ID	3 bytes	*varies*	AA BB CC
To Address	Controller ID	3 bytes	*varies*	11 22 33
Flags Byte	Direct Message Ack	1 byte	2x	25
Command 1	Command Type	1 byte	37	37
Command 2	Temperature	1 byte	xx	83
PLM EXAMPLE	0250AABBCC112233253783			

Commands from the Device

Group Descriptions

Group	Category	Group Name	Description
01	PIR (motion)	Motion	An ON broadcast is sent to this group when motion is sensed and an OFF broadcast is sent after no motion is sensed for the duration of the timeout period. (default timeout is 30 seconds). The ON broadcast is only sent if PIR bit flag 7 = 0 and State bit flag 0 = 0. The OFF broadcast is only sent if PIR bit flag 5 = 0.
02	Light/Dark	Sunrise/Sunset	After crossing the day or night threshold, there is a 7 minute delay before a message is broadcast to for this group.
03	Battery	Battery Low	The broadcast for this group will happen only once after the first of the following: 1. Battery level drops from normal to low 2. Sensor receives a command causing the battery level to be checked 3. Sensor heartbeats 4. After power cycle
04	Status	Heartbeat	A heartbeat broadcast will sent at the **HeartBeat Interval** unless the heartbeat group has been disabled via **Global Flag** (bit 6).
05	PIR (motion)	Alternate Motion "OFF"	If **PIR bit flag** 4 has been set, an on broadcast to this group will be sent after no motion is sensed for the duration of the timeout period. (default timeout is 30 seconds)
06	Light/Dark	Alternate Sunrise/Sunset	If **light bit flag** 7 and/or **dark bit flag** 7 are are set, a broadcast to this group will be sent after crossing the **day** or **night** threshold, there is a 7 minute delay before a message is broadcast to for this group.
07	Temperature	Hot	If **hot bit flag** 7 is set to 0, a broadcast to this group will be sent when the **temperature** crosses the **hot threshold**.
08	Temperature	Cold	If **cold bit flag** 7 is set to 0, a broadcast to this group will be sent when the **temperature** crosses the **cold threshold**.
09	Temperature	Alternate Not Hot "OFF"	If **hot bit flag** 4 is set to 1, an ON broadcast is sent to this group when the **temperature** goes below the **"Not Hot" threshold (hysteresis).**

0A	Temperature	Alternate Not Cold "OFF"	If **cold bit flag** 4 is set to 1, an ON broadcast is sent to this group when the **temperature** goes above the **"Not Cold" threshold (hysteresis).**
0B	Status	Alternate Heartbeat	A separate unique heartbeat broadcast will sent at the **heartbeat interval** unless the heartbeat group has been disabled via **Global Flag** (bit 6).
0C	Status	Status	Group used for storing a single database record for a single device whose state determines whether motion broadcasts **(Group 01)** are sent. To use, write ti the database with the **2F** command. C2 = 0x80 means if the status of the linked device is ON the motion sensor will not trigger, and C2 = 0x00 means that if the status of the linked device is OFF, the motion sensor will not trigger.
0D	PIR (motion)	PIR Disabled	If the user presses the "motion" button or sends **disable PIR** command **(20 1C),** an ON broadcast is sent to this group.
0E	PIR (motion)	Alternate PIR Disabled	After the amount of time specified by **Off button timeout** (default 12 hours) elapses after the PIR was disabled and the PIR disable two group flag is set, a broadcast is sent to this group.
0F	Alert	Sensor Moved	If the on-board accelerometer detects movement, and **Cold Flag** 3 is set, an ON broadcast is sent to this group.
10	Alert	Tamper	If the on-board tamper switch triggers, an ON broadcast is sent to this group. When the switch resets, an OFF broadcast is sent to this group.
11	Alert	Alternate Tamper	If the on-board tamper switch resets, an ON broadcast is sent to this group.
12	Temperature	Very Hot	If the **temperature** exceeds the **very hot threshold**, an ON broadcast is sent to this group.
13	Temperature	Very Cold	If the **temperature** exceeds the **very cold threshold**, an ON broadcast is sent to this group.
EE	Temperature	Temperature Change	If **Hot Flag** 6 is cleared, a broadcast is sent to this group when the **temperature** varies by about 5 degrees.
EF	Light/Dark	Light Change	If **Light Flag** bit 6 is set, a broadcast is sent to this group when the light level varies by the **light hysteresis.**

Group Commands

Message Broadcast				
Command	**Button Held / Entered a Linking Mode**			
Message Type	Broadcast			
Message Direction	From Sensor			
Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Sensor ID	3 bytes	*varies*	AA BB CC
Broadcast Information	Device Category	1 byte	10	10
Broadcast Information	Device Sub Category	1 byte	16	16
Broadcast Information	Firmware Version	1 byte	46	46
Flags Byte	Broadcast	1 byte	8x	8F
Command 1	Button Held / Entered a Linking Mode as a controller only	1 byte	02	02
Command 2	Hardware Rev	1 byte	xx	00

Message Broadcast				
Command	**Clean-Up Report - Sent after every group activation**			
Message Type	Group Broadcast			
Message Direction	From Sensor			
Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Sensor ID	3 bytes	*varies*	AA BB CC
Broadcast Information	Command Type	1 byte	xx	11
Broadcast Information	Members in group	1 byte	xx	02
Broadcast Information	Group Number	1 byte	xx	01
Flags Byte	Group Broadcast	1 byte	Cx	CF

Command 1	Clean-up message	1 byte	06	06
Command 2	Number of failed clean-ups	1 byte	xx	00

Message Broadcast				
Command	**Group 01 - MOTION ALERT**			
Message Type	Group Broadcast			
Message Direction	From Sensor			
Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Sensor ID	3 bytes	*varies*	AA BB CC
Broadcast Information	Broadcast	1 byte	00	00
Broadcast Information	Broadcast	1 byte	00	00
Broadcast Information	Group Number	1 byte	01	01
Flags Byte	Group Broadcast	1 byte	Cx	CF
Command 1	Command Type	1 byte	xx	11
Command 2	Group Number	1 byte	01	01

Message Broadcast				
Command	**Group 02 - SUNRISE / SUNSET ALERT**			
Message Type	Group Broadcast			
Message Direction	From Sensor			
Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Sensor ID	3 bytes	*varies*	AA BB CC
Broadcast Information	Broadcast	1 byte	00	00
Broadcast Information	Broadcast	1 byte	00	00
Broadcast Information	Group Number	1 byte	02	02
Flags Byte	Group Broadcast	1 byte	Cx	CF
Command 1	Command Type	1 byte	xx	11

Command 2	Group Number	1 byte	xx	02

Message Broadcast				
Command	**Group 03 - LOW BATTERY ALERT**			
Message Type	Group Broadcast			
Message Direction	From Sensor			
Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Sensor ID	3 bytes	*varies*	AA BB CC
Broadcast Information	Battery Level	1 byte	xx	84
Broadcast Information	Broadcast	1 byte	00	00
Broadcast Information	Group Number	1 byte	03	03
Flags Byte	Group Broadcast	1 byte	Cx	CF
Command 1	Command Type	1 byte	11	11
Command 2	Group Number	1 byte	03	03

Message Broadcast				
Command	**Group 04 - HEARTBEAT**			
Message Type	Group Broadcast			
Message Direction	From Sensor			
Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Sensor ID	3 bytes	*varies*	AA BB CC
Broadcast Information	Battery Level	1 byte	xx	84
Broadcast Information	Broadcast	1 byte	00	00
Broadcast Information	Group Number	1 byte	04	04
Flags Byte	Group Broadcast	1 byte	Cx	CF
Command 1	Command Type	1 byte	11	11

Command 2	Group Number	1 byte	04	04

Message Broadcast				
Command	**Group 05 - MOTION TIMEOUT ALTERNATE to"OFF" ALERT**			
Message Type	Group Broadcast			
Message Direction	From Sensor			
Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Sensor ID	3 bytes	*varies*	AA BB CC
Broadcast Information		1 byte	00	00
Broadcast Information		1 byte	00	00
Broadcast Information	Group Number	1 byte	05	CF
Flags Byte	Group Broadcast	1 byte	C?	CF
Command 1	Command Type	1 byte	11	11
Command 2	Group Number	1 byte	05	05

Message Broadcast				
Command	**Group 06- SUNRISE / SUNSET ALTERNATE to "OFF" ALERT**			
Message Type	Group Broadcast			
Message Direction	From Sensor			
Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Sensor ID	3 bytes	*varies*	AA BB CC
Broadcast Information		1 byte	00	00

Broadcast Information		1 byte	00	00
Broadcast Information	Group Number	1 byte	06	06
Flags Byte	Group Broadcast	1 byte	C?	CF
Command 1	Command Type	1 byte	11	11
Command 2	Group Number	1 byte	06	06

Message Broadcast				
Command	**Group 07 - HOT ALERT**			
Message Type	Group Broadcast			
Message Direction	From Sensor			
Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Sensor ID	3 bytes	*varies*	AA BB CC
Broadcast Information	Why Alert? Temp Value	1 byte	xx	90
Broadcast Information		1 byte	00	00
Broadcast Information	Group Number	1 byte	07	07
Flags Byte	Group Broadcast	1 byte	C?	CF
Command 1	Command Type	1 byte	11	11
Command 2	Group Number	1 byte	07	07

Message Broadcast				
Command	**Group 08 - COLD ALERT**			
Message Type	Group Broadcast			
Message Direction	From Sensor			
Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Sensor ID	3 bytes	*varies*	AA BB CC

Broadcast Information	Why Alert? Temp Value	1 byte	xx	30
Broadcast Information		1 byte	00	00
Broadcast Information	Group Number	1 byte	08	08
Flags Byte	Group Broadcast	1 byte	C?	CF
Command 1	Command Type	1 byte	11	11
Command 2	Group Number	1 byte	08	08

Message Broadcast				
Command	**Group 09 - NOT HOT ALTERNATE to "OFF" ALERT**			
Message Type	Group Broadcast			
Message Direction	From Sensor			
Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Sensor ID	3 bytes	*varies*	AA BB CC
Broadcast Information	Why Alert? Temp Value	1 byte	xx	75
Broadcast Information		1 byte	00	00
Broadcast Information	Group Number	1 byte	09	09
Flags Byte	Group Broadcast	1 byte	C?	CF
Command 1	Command Type	1 byte	11	11
Command 2	Group Number	1 byte	09	09

Message Broadcast				
Command	**Group 0A - NOT COLD ALTERNATE to "OFF" ALERT**			
Message Type	Group Broadcast			
Message Direction	From Sensor			
Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Sensor ID	3 bytes	*varies*	AA BB CC
Broadcast Information	Why Alert? Temp Value	1 byte	xx	50

Broadcast Information		1 byte	00	00
Broadcast Information	Group Number	1 byte	C?	CF
Flags Byte	Group Broadcast	1 byte	0A	0A
Command 1	Command Type	1 byte	11	11
Command 2	Group Number	1 byte	0A	0A

Message Broadcast				
Command	**Group 0B - ALTERNATE HEARTBEAT**			
Message Type	Group Broadcast			
Message Direction	From Sensor			
Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Sensor ID	3 bytes	*varies*	AA BB CC
Broadcast Information	Battery Level	1 byte	xx	60
Broadcast Information	Light Level	1 byte	xx	9F
Broadcast Information	Group Number	1 byte	0B	0B
Flags Byte	Group Broadcast	1 byte	C?	CF
Command 1	Command Type	1 byte	11	11
Command 2	Temperature	1 byte	xx	80

Message Broadcast				
Command	**Group 0D - PIR ENABLED / DISABLED ALERT (12 hour duration)**			
Message Type	Group Broadcast			
Message Direction	From Sensor			
Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Sensor ID	3 bytes	*varies*	AA BB CC

Broadcast Information	Broadcast	1 byte	00	00
Broadcast Information	Broadcast	1 byte	00	00
Broadcast Information	Group Number	1 byte	0D	0D
Flags Byte	Group Broadcast	1 byte	Cx	CF
Command 1	Command Type	1 byte	xx	11
Command 2	Group Number	1 byte	0D	0D

Message Broadcast				
Command	**Group 0E - PIR ENABLED / DISABLED ALTERNATE to "OFF" ALERT**			
Message Type	Group Broadcast			
Message Direction	From Sensor			
Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Sensor ID	3 bytes	*varies*	AA BB CC
Broadcast Information		1 byte	00	00
Broadcast Information		1 byte	00	
Broadcast Information	Group Number	1 byte	0E	0E
Flags Byte	Group Broadcast	1 byte	C?	CF
Command 1	Command Type	1 byte	11	11
Command 2	Group Number	1 byte	0E	0E

Message Broadcast	
Command	**Group 0F - SENSOR MOVED ALERT**
Message Type	Group Broadcast

Message Direction	From Sensor			
Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Sensor ID	3 bytes	*varies*	AA BB CC
Broadcast Information		1 byte	00	00
Broadcast Information		1 byte	00	00
Broadcast Information		1 byte	0F	0F
Flags Byte	Group Broadcast	1 byte	C?	CF
Command 1	Command Type	1 byte	11	11
Command 2	Group Number	1 byte	0F	0F

Message Broadcast				
Command	**Group 10 - TAMPER ALERT - Battery Door Opened**			
Message Type	Group Broadcast			
Message Direction	From Sensor			
Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Sensor ID	3 bytes	*varies*	AA BB CC
Broadcast Information	Broadcast	1 byte	00	00
Broadcast Information	Broadcast	1 byte	00	00
Broadcast Information	Group Number	1 byte	10	10
Flags Byte	Group Broadcast	1 byte	Cx	CF
Command 1	Command Type	1 byte	xx	11
Command 2	Group Number	1 byte	10	10

Message Broadcast	
Command	**Group 11 - ALTERNATE TAMPER ALERT**
Message Type	Group Broadcast
Message Direction	From Sensor

Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Sensor ID	3 bytes	*varies*	AA BB CC
Broadcast Information		1 byte	00	00
Broadcast Information		1 byte	00	00
Broadcast Information	Group Number	1 byte	11	11
Flags Byte	Group Broadcast	1 byte	C?	CF
Command 1	Command Type	1 byte	11	11
Command 2	Group Number	1 byte	11	11

Message Broadcast				
Command	**Group 12 - VERY HOT ALERT**			
Message Type	Group Broadcast			
Message Direction	From Sensor			
Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Sensor ID	3 bytes	*varies*	AA BB CC
Broadcast Information	Why Alert? Temp Value	1 byte	xx	A0
Broadcast Information		1 byte	00	00
Broadcast Information	Group Number	1 byte	12	12
Flags Byte	Group Broadcast	1 byte	C?	CF
Command 1	Command Type	1 byte	11	11
Command 2	Group Number	1 byte	12	12

Message Broadcast	
Command	**Group 13 - VERY COLD ALERT**
Message Type	Group Broadcast
Message Direction	From Sensor
Message Length	Standard (9 Bytes)

	Description	Length	Message	Example
From Address	Sensor ID	3 bytes	*varies*	AA BB CC
Broadcast Information	Why Alert? Temp Value	1 byte	xx	20
Broadcast Information		1 byte	00	00
Broadcast Information	Group Number	1 byte	13	13
Flags Byte	Group Broadcast	1 byte	C?	CF
Command 1	Command Type	1 byte	11	11
Command 2	Group Number	1 byte	13	13

Message Broadcast				
Command	**Group EE - TEMPERATURE CHANGE ALERT**			
Message Type	Group Broadcast			
Message Direction	From Sensor			
Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**
From Address	Sensor ID	3 bytes	*varies*	AA BB CC
Broadcast Information	Broadcast	1 byte	00	00
Broadcast Information	Broadcast	1 byte	00	00
Broadcast Information	Group Number	1 byte	EE	EE
Flags Byte	Group Broadcast	1 byte	Cx	CF
Command 1	Command Type	1 byte	xx	03
Command 2	Temperature	1 byte	xx	80

Message Broadcast				
Command	**Group EF - LIGHT CHANGE ALERT**			
Message Type	Group Broadcast			
Message Direction	From Sensor			
Message Length	Standard (9 Bytes)			
	Description	**Length**	**Message**	**Example**

From Address	Sensor ID	3 bytes	*varies*	AA BB CC
Broadcast Information		1 byte	00	00
Broadcast Information		1 byte	00	00
Broadcast Information	Group Number	1 byte	EE	EE
Flags Byte	Group Broadcast	1 byte	Cx	CF
Command 1	Command Type	1 byte	03	03
Command 2	Light Level	1 byte	xx	94

Software Properties

General

Name	Default Value (hex)	Get CMD	Set CMD	Description
State Flags	N/A	Get State Flags (19 00)	N/A	Byte of flags representing various statuses of the device. *See corresponding table in the "Flag Descriptions" section for individual bits.*
Global Flags	45	Get Global Flags (1F 02)	Set Global Flags (2E 00 00 0A), Enable/Disable xx (20 00 - 20 17)	Byte of flags affecting device behavior. *See corresponding table in the "Flag Descriptions" section for individual bits.*
PIR Flags	00	Get Properties 1 (2E 01)	Set PIR Flags (2E 00 00 06),	Byte of flags affecting device group communication behavior. *See corresponding table in the "Flag Descriptions" section for individual bits.*
Motion Timeout	03 *(30sec)*	Get Properties 1 (2E 01)	Set PIR Flags (2E 00 00 06), Set Motion Timeout (2E 00 00 03)	Time after motion detected where no additional motion detection messages are sent. Given in 10 second increments (0-FF). (10s-42min)
Current Motion Timeout	00	Get Properties 0 (2E 00)	N/A	Time left until **motion timeout** expires. Given in 10 second increments (0-FF). (10s-42min)

Off Button Timeout	21 (12hr)	Get Properties 2 (2E 02)	Set Light Dark Settings (2E 00 00 08)	Time motion broadcasts are disabled after button press/**Disable Motion (20 1C)** command in 23 minute increments.
Heartbeat Interval	3E (24hr)	Get Properties 1 (2E 01)	setLowBattHB (2E 00 00 09)	Time between "heartbeat" (group 04) messages in 23 minute increments. This is also the period which **battery level** is automatically calculated. *Note: Lowering this value from it's default adversely affects battery performance.*
Battery Level	N/A	Get Properties 3 (2E 03)	N/A	Reading this value fetches the voltage of the device's power supply
Last Recorded Battery Level	N/A	Get Last Recorded Battery Level (19 03), Get Properties 3 (2E 03)	N/A	Battery level last time it was automatically checked. Updated daily by default (**HeartBeat Interval**).
Low Battery Threshold	85 *(1.9v)*	Get Properties 1 (2E 01)	Set Low Battery and HeartBeat Settings (2E 00 00 09)	**Battery level** threshold which triggers "low battery" broadcast (group 03)
Database Delta	00	Get Database Delta (1F 01)	N/A	Numbers of times the database has been modified.

Hot/Cold

Name	Default Value (hex)	Get CMD	Set CMD	Description
Temperature	N/A	Get Properties 3 (2E 03)		Reading this value fetches the device's current ambient temperature. Calibrate with **Calibrate Temperature (37 xx).**
Temperature Offset	00	Get Properties 3 (2E 03)	Set Temperature	Signed integer offset applied to raw temperature reading

			Offset (2E 00 00 0D)	(0-FF). Set this value to calibrate the temperature sensor manually.
Last Recorded Temperature	N/A	Get Last Recorded Temperature (19 01), Get Properties 3 (2E 03)	N/A	**Temperature** the last time it was automatically. Updated every 4 minutes.
Very Hot Threshold	B2 (105°F)	Get Properties 4 (2E 04)	Set Hot Cold Settings (2E 00 00 07)	**Temperature** threshold for "Very Hot" (group 12 Broadcast trigger).
Hot Threshold	92 (81°F)	Get Properties 1 (2E 01)	Set Hot Cold Settings (2E 00 00 07)	**Temperature** threshold for Hot (group 07 "ON" Broadcast trigger). **State bit flag** 3 is set when passing above this threshold.
Not Hot Threshold (Hot Hysteresis)	8D (77°F)	Get Properties 1 (2E 01)	Set Hot Cold Settings (2E 00 00 07)	**Temperature** threshold for leaving Hot state (group 07 "OFF" or group 09 "ON" Broadcast trigger). **State bit flag** 3 is cleared when after passing below this threshold.
Not Cold Threshold (Cold Hysteresis)	80 (69°F)	Get Properties 1 (2E 01)	Set Hot Cold Settings (2E 00 00 07)	**Temperature** threshold for leaving Cold state (group 08 "OFF" or group 0A "ON" Broadcast trigger). **State bit flag** 2 is cleared when passing above this threshold.
Cold Threshold	7B (64°F)	Get Properties 1 (2E 01)	Set Hot Cold Settings (2E 00 00 07)	**Temperature** threshold for Cold (group 08 "ON" Broadcast). **State bit flag** 2 is set when passing below this threshold.
Very Cold Threshold	4C (36°F)	Get Properties 4 (2E 04)	Set Hot Cold Settings (2E 00 00 07)	**Temperature** threshold for Very Cold (group 13 Broadcast trigger)
Cold Flags	84	Get Properties 1 (2E 01)	Set Hot Cold Settings (2E 00 00 07)	Byte of flags affecting the behavior of the cold group commands. See corresponding

				table in the "Flag Descriptions" section for individual bits.
Hot Flags	C0	Get Properties 1 (2E 01)	Set Hot Cold Settings (2E 00 00 07)	Byte of flags affecting the behavior of the hot group commands. See corresponding table in the "Flag Descriptions" section for individual bits.

Light/Dark

Name	Default Value (hex)	Get CMD	Set CMD	Description
Light Level	N/A	Get Properties 3 (2E 03)	N/A	Reading this value fetches the device's current ambient light level
Last Recorded Light Level	N/A	Get Last Recorded Light Level (19 02), Get Properties 3 (2E 03)	N/A	**Light Level** the last time it was automatically calculated. Updated hourly.
Night Threshold	40	Get Properties 2 (2E 02)	Set Light Dark Settings (2E 00 00 08)	**Light Level** threshold for **Night** (group 2).
Day Threshold	50	Get Properties 2 (2E 02)	Set Light Dark Settings (2E 00 00 08)	**Light Level** threshold for **Day** (group 2).
Light Flags	C0	Get Properties 2 (2E 02)	Set Light Dark Settings (2E 00 00 08)	Byte of flags affecting the behavior of the light group commands. *See corresponding table in the "Flag Descriptions" section for individual bits.*
Dark Flags	80	Get Properties 2 (2E 02)	Set Light Dark Settings (2E 00 00 08)	Byte of flags affecting the behavior of the dark group commands. *See corresponding table in the "Flag Descriptions" section for individual bits.*
Light Poll Interval	3C3C (4hr 17min)	Get Properties 2 (2E 02)	Set Light Dark Settings (2E 00 00 08)	Time between automatic **light level** calculation in seconds.

Light Hysteresis	05	Get Properties 2 (2E 02)	Set Light Dark Settings (2E 00 00 08)	Hysteresis constant applied to **night/day threshold** for triggering the "light change alert" group command (EF).
Light Harvest Constant	00	Get Properties 2 (2E 02)	Set Light Dark Settings (2E 00 00 08)	If **light flag** bit 1 and **PIR Flag** bit 6 are set, this value is used as the target brightness value for the room the motion sensor is currently in.

Accelerometer

We recommend that you leave the various accelerometer properties at their default values. If you must, you may experiment with changing them with the **Set Accelerometer Properties (2E 00 00 0C)** and getting them with **2E 04.** If **Cold Flag** bit 3 is set, significant enough movement of the device will trigger a broadcast alert on **group 0F.** The default accelerometer configuration will trigger when the device is pitched or rolled more than a couple centimeters. The accelerometer will not trigger from yaw movement by default. Additionally, the default configuration triggers if the device is bumped or dropped.

Appendix

Mode Descriptions

The table below is a description of the various motion sensor modes. Some of these modes can be combined, some are exclusive. Special attention should be paid to the modes being set and the values for each mode to avoid having the motion sensor always trigger or never trigger as that is likely not the desired behavior.

Mode	Description
Occupancy I	This is the factory default mode that the motion sensor is set to out of box. The motion sensor will send an ON broadcast to its motion group (01) when motion is sensed. An OFF broadcast will be sent to the motion group when there is no motion detected for **motion timeout** duration (Default - 30 seconds).
Occupancy II	The motion sensor will send an ON broadcast to its motion group (01) when motion is sensed. An ON broadcast will be sent to the alternate motion group (05) if there is no motion detected for the duration of the **motion timeout** value. The default timeout is 30 seconds. No OFF broadcast will be sent to the primary motion group (01).
Occupancy III	If the Light sensor sees a transition from **light** to **dark**, the **motion timeout** will be cleared allowing any new motion to turn the lights back on
On Only (Security)	An On command is sent when motion is first sensed but no off command is every sent making the user manually turn off the lights

Off Only (Vacancy)	When motion is sensed, no On command is sent but when there is no motion for 30 seconds (Default) an Off command is sent. So the lights have to be manually turned on.
Night Only	On command is only sent with motion at **night**. The device's light level is below the night threshold for 7 minutes.
Day Only	On command is only sent with motion during the **day**. The device's light level is above the night threshold for 7 minutes.
Light Harvest	Enabled via **PIR Flag** bit 6. The brightness of the motion sensor's dimmable responders is manipulated to match a desired ambient light light level. This means that instead of sending an "ON" broadcast to group 01 when motion is detected, a series of direct commands are sent to the list of responders with a specific brightness value. If **light flag** bit 1 is set, **Light Harvest Constant**, is used as the target ambient light level. If **light flag** bit 1 is NOT set, the **Day Threshold** is used as the target ambient light level.
Sunrise/Sunset	An On/Off command is sent when state transitions to **Night/Day**. Alternately, An On/On is sent to two different groups
Hot	An On/Off command is sent at **Hot/Not Hot**. Alternately, An On/On is sent to two different groups
Cold	An On/Off command is sent at **Cold/Not Cold**. Alternately, An On/On is sent to two different groups
Party	Disable the Motion Sensor activations due to motion for a period of time defined by **Off Button Timeout** (default 12hr).

Flag Descriptions

State Flags

These flags represent various statuses of the device. These flags cannot be directly written.

Bit Position	Value (True)	Name	Description
Bit 7	1	Battery Good	True when **battery level** > 0xC0 or 2.7 volts.
Bit 6	1	PIR Hold	True after motion has been detected but the time since the detection has been less than the time specified by **PIR Timeout.** In other words, the device is waiting to send further ON broadcasts to the motion group.
Bit 5	1	Night	True when the **light level** is below the **night threshold**
Bit 4	1	Day	True when the **light level** is above the day **threshold**

Bit 3	1	Hot	True when the **temperature** has passed the **hot threshold** and has not yet passed back below the not **hot threshold**
Bit 2	1	Cold	True when the **temperature** has passed the **cold threshold** and has not yet passed back above the not **cold threshold**
Bit 1	1	USB Powered	True when USB powered instead of battery powered. (There's a port behind the battery slot).
Bit 0	1	PIR Disabled	True when the user pressed the "Motion" button or the **Disable Motion (20 1C)** command was sent and it has been less than the time specified by **Off Button Timeout**.

Global Flags

Default = 0x45

Bit Position	Value (true)	Name	Description
Bit 7	1	Disable Linking	Setting this flag disables the motion sensor's ability to go into linking mode.
Bit 6	1	Disable Heartbeat	Setting this flag disables the "heartbeat" broadcast
Bit 5	1	Disable LED	Disables the motion sensor's LED. **Note: LED will still very quickly flash when this option is disabled and device is battery powered.*
Bit 4	1	Enable Battery	Setting this flag enables the low battery group/broadcast when **battery level** passes the **low battery threshold**.
Bit 3	1	Beeper Off	Prevents the motion sensor from beeping.
Bit 2	1	(Not Used)	(Not Used)
Bit 1	1	Alternate Heartbeat	Enables the alternate heartbeat group broadcast and disables the standard heartbeat group broadcast.
Bit 0	1	Clean-up Report	Prevents the motion sensor from broadcasting its **Clean-Up Report**.

PIR Flags

Default = 0x00

Bit Position	Value (true)	Name	Description
Bit 7	1	Disable PIR	Broadcasts to the "MOTION" group (01) are disabled.

Bit 6	1	Harvest	Harvest Mode enabled. When motion is detected, the device's current **light level** will be used to set the brightness of dimmable responders to a desired brightness (either the **day threshold** or **light harvest constant**).
Bit 5	1	On Only	Motion sensor sends ON command only, no OFF command is sent when the **motion timeout** expires. (Default 30s)
Bit 4	1	Two Groups	Sends an ON command to alternate motion group (05) when the **motion timeout** expires. (Default 30s)
Bit 3	1	Cold Only	Will only send an ON command when the motion sensor senses motion IF the **current temperature** is below the **cold threshold**.
Bit 2	1	Hot Only	Will only send an ON command when the motion sensor senses motion IF the **current temperature** is above the **hot threshold**.
Bit 1	1	Day Only	Will only send an ON command when the motion sensor senses motion IF the **current light level** has sustained above the **day threshold** for over 7 minutes.
Bit 0	1	Night Only	Will only send an ON command when the motion sensor senses motion IF the **current light level** has sustained below the **night threshold** for over 7 minutes.

Hot Flags

Default = 0xC0

Bit Position	Value (true)	Name	Description
Bit 7	1	Hot Disabled	Broadcasts to the "HOT" group (07) are disabled
Bit 6	1	Temperature Change Alert Disabled	Disables "Temperature Change Alert" group (EF)
Bit 5	1	Hot On Only	Sends ON command only when motion is sensed and the **current temperature** is above the the **hot threshold**. No OFF command is sent when temperature passes **not hot threshold (hysteresis)**.
Bit 4	1	Hot Two Groups	Sends an ON command to "Alternate Hot" group (09) when the **current temperature** passes the **not hot threshold (hysteresis)**.
Bit 3	1	(Not Used)	(Not Used)
Bit 2	1	(Not Used)	(Not Used)

Bit 1	1	Hot Day Only	Sends an ON command on IF the **current temperature** is above the **hot threshold** and the **current light level** has sustained above the **day threshold** for over 7 minutes.
Bit 0	1	Hot Night Only	Sends an ON command on IF the **current temperature** is above the **hot threshold** and the **light level** has sustained below the **night threshold** for over 7 minutes.

Cold Flags

Default = 0x84

Bit Position	Value (true)	Name	Description
Bit 7	1	Cold Disabled	Broadcasts to the "COLD" group (08) are disabled
Bit 6	1	Tamper Two Groups	Sends an ON command to "alternate tamper" group (11h) when battery cover is closed.
Bit 5	1	Cold On Only	Sends ON command only when motion is sensed and the **current temperature** is below the the **cold threshold**. No OFF command is sent when temperature passes **not cold threshold (hysteresis)**.
Bit 4	1	Cold Two Groups	Sends an ON command to "alternate cold" group (0A) when temperature passes **not cold threshold hysteresis.**
Bit 3	1	Moved Enabled	Sends an ON command to the "sensor moved" group (0F) if the sensor is moved.
Bit 2	1	Tamper Enabled	Enables the "tamper" group (10h)
Bit 1	1	Cold Day Only	Sends an ON command IF the **current temperature** is below the **cold threshold** and the **current light level** has sustained above the **day threshold** for over 7 minutes.
Bit 0	1	Cold Night Only	Sends an ON command IF the **current temperature** is below the **cold threshold** and the **light level** has sustained below the **night threshold** for over 7 minutes.

Light Flags

Default = 0xC0

Bit Position	Value (true)	Name	Description
Bit 7	1	Light Disabled	Broadcasts triggered during **Day** are disabled.

Bit 6	1	Light Change Alert Disabled	Disables "Light Change Alert" group (EE)
Bit 5	1	Light On Only	Only Day commands (Redundant command, same as Light Disabled)
Bit 4	1	Light Two Groups	Enables the "alternate sunrise" group (06)
Bit 3	1	Light Cold Only	Sends command only when current **light level** has sustained above the **day threshold** for 7 minutes, and the **current temperature** is below the **cold threshold.**
Bit 2	1	Light Hot Only	Sends command only when the **current light** level has sustained above the **day threshold** for 7 minutes, and the **current temperature** is above the **hot threshold**.
Bit 1	1	Target Harvest	When the motion sensor is is **harvest mode**, this value is used as the setpoint for the ambient light in the room. Dimmable responders will be automatically adjust to reach this target.
Bit 0	1	(Not Used)	(Not Used)

Dark Flags

Default = 0x80

Bit Position	Value (true)	Name	Description
Bit 7	1	Dark Disabled	Broadcasts triggered during **Night** are disabled.
Bit 6	1	OFF Two Groups	Enables alternate group (0E) when motion **disable timeout** expires (**off button timeout** - default 12hr) after button press.
Bit 5	1	Dark On Only	Only Night commands (Redundant command, same as Dark Disabled)
Bit 4	1	(Not Used)	(Not Used)
Bit 3	1	Dark Cold Only	Sends an ON command IF the **current temperature** is below the **cold threshold** and the **current light level** has sustained below the **night threshold** for over 7 minutes.
Bit 2	1	Dark Hot Only	Sends an ON command on IF the **current temperature** is above the **hot threshold** and the **light level** has sustained below the **night threshold** for over 7 minutes.

Bit 1	1	Dark Cancel PIR Off	If the current **light level** is below the **day threshold**, don't send Off after **motion timeout** expires.
Bit 0	1	PIR OCC III	**Motion timeout** forcibly expires if the current light level is below the **night threshold.**

Temperature Conversion

Properties of the device which represent a temperature are given as a value 0-255 (0-FF). The temperature can be calculated using this value using one of two linear relationships:

- If the device is battery powered: **Temperature (°F) = 0.73 * Value (decimal) - 20.53**
- If the device is USB powered: **Temperature (°F) = 0.72 * Value (decimal) - 24.61**

You can determine whether the device is battery vs USB powered by using the **Get State Flags (19 00)** command (State Flag bit 0).

Battery Level Conversion

Properties of the device which represent a battery voltage are given as a value 0-255 (0-FF). The battery voltage can be approximated using the following linear relationship.

- **Voltage = Value (decimal) * 70**

Note that a fully charged battery will be approximately 0xD2 (3.0v), a "good battery" is considered one above 0xC0 (2.7v), and the device usually ceases to operate as intended around 0x70 (1.6v).