INSTEON

INSTEON Developer Notes
On/Off Outlet (2663-222)

Table of Contents

Revision History

Release Date	Author	Description
05/06/2014	jtalmich	V0.1 for On/Off Outlet
05/07/2014	jlockyer	Minor typo fixes
05/07/2014	jtalmich	Added new command (Status Request 2)
05/23/2014	jtalmich	Removed unsupported command
06/27/2014	jtalmich	Added 2 new commands (Direct Group On & Direct Group Off)

Device Description

Details

Device Name	On/Off Outlet
Product SKU	2663-222
Product Website	
Category	0x02 – Switched Lighting Control
Subcategory	0x39
Tested Firmware Version	CA
Supports SD Messaging	YES
Supports ED Messaging	YES
I2CS enabled (CS)	YES

Example Standard Length Message

A Standard Length Message (SD) is comprised of exactly nine (9) bytes.

Byte(s)	Description	Example
1-3	Transmitting INSTEON Device ID	AA BB CC
4-6	Receiving INSTEON Device ID (Target Device)	11 22 33
7	Flag Byte (Message Type)	0F
8	Command 1	11
9	Command 2	FF

Standard Message Formatted	AA BB CC 11 22 33 0F 11 FF

The above example will send an ON(11) at Full(FF) command to device 11 22 33.*

*For a detailed explanation of INSTEON Messaging, please see the INSTEON Manual

Example Extended Length Message

An Extended Length Message (ED) is comprised of exactly nine (23) bytes.

Byte(s)	Description	Example
1-3	Transmitting INSTEON Device ID	AA BB CC
4-6	Receiving INSTEON Device ID (Target Device)	11 22 33
7	Flag Byte (Message Type)	1F
8	Command 1	20
9	Command 2	01
10-22	Data1 – Data13	00 00 00 00 00 00 00 00 00 00 00 00 00
23	Data14 (Checksum)	DF

Extended Message Formatted	AA BB CC 11 22 33 1F 20 01 00 00 00 00 00 00 00 00 00 00 00 00 00 DF

The above example will send a Set Operating Flags (20) of Programming Lock Off (01) command to device 11 22 33.*

*For a detailed explanation of INSTEON Messaging, please see the INSTEON Manual

Messages Sent From – On/Off Outlet

When an INSTEON device is active to trigger a group message the messages are sent in the following order *depending on flag options for some devices

Message Sent (Type)	Example
Group Broadcast Message on Activation	AA BB CC 00 00 01 CF 11 01
Direct Message for CleanUp	AA BB CC 11 22 33 40 11 01
Group Broadcast Message Success Report	AA BB CC 11 01 01 CF 06 00

All INSTEON Devices will send a group message for a particular activation. For Multi Group devices, the Group number will change depending on the group that was activated. The CleanUp messages and Success Reports will be the same with exception to the Group Number.

Assign to ALL-Link Group

This command is sent after holding down the SET Button for 3 seconds on the device.

Command Name	Assign to ALL-Link Group
Message Length	Standard Message (SD)
Message Type	Broadcast
To Address (Hi Byte)	0x02
To Address (Mid Byte)	0x39
To Address (Low Byte)	Firmware Revision
Command 1	0x01
Command 2	Hardware Revision

Command Example:

Assign to ALL-Link Group	**AA BB CC 02 39 C2 8B 01 01**

The above example is the command an On/Off Outlet sends when it goes into Linking Mode after its SET Button has been pressed and held for about 3 seconds. The To Address contains the Device Category (0x02), Device Subcategory (0x39), and Firmware Revision (0xC2). Command 2 contains the Hardware Revision (0x01).

Docklight Example:

```
02 50 1A CE D1 02 39 C2 8B 01 00  STD INSTEON RX
```

Success Report

This command is sent at the end of a group broadcast.

Command Name	Success Report
Message Length	Standard Message (SD)
Message Type	Broadcast
To Address (Hi Byte)	Cmd1 being cleaned up
To Address (Mid Byte)	Number of devices to be cleaned up
To Address (Low Byte)	Group number
Command 1	0x06
Command 2	Number of failed cleanups

Command Example:

Success Report	**AA BB CC 11 02 01 CB 06 01**

The above example is the message an On/Off Outlet sends out after a group broadcast. The To Address contains the Cmd1 being cleaned up (0x11), number of devices to be cleaned up (0x02), and the group number (0x01). Command 2 contains the number of failed cleanups (0x01)

Docklight Example:

```
02 50 21 7D B9 11 02 01 CB 06 00  INSTEON STD RX
 Cleanup Report Zero Error Example (Cmd1=0x11, 2 Devices in Group, Group 1)
02 50 21 7D B9 11 02 01 CB 06 00  INSTEON STD RX
 Cleanup Report Zero Error Example (Cmd1=0x11, 2 Devices in Group, Group 1)

02 50 21 7D B9 11 02 01 CB 06 01  INSTEON STD RX
 Cleanup Report One Error Example (Cmd1=0x11, 2 Devices in Group, Group 1)
02 50 21 7D B9 11 02 01 CB 06 01 INSTEON STD RX
 Cleanup Report One Error Example (Cmd1=0x11, 2 Devices in Group, Group 1)
```

Messages Sent To – On/Off Outlet

INSTEON Engine Version

This command requests the INSTEON Engine version of the device.

Command Name	INSTEON Engine Version
Message Length	Standard Message (SD)
Message Type	Direct
Transmitting Device ID	Controller
Receiving Device ID	On/Off Outlet
Flags Byte	Message Type
Command 1	0x0D
Command 2	0x00

Command Name	INSTEON Engine Version Response
Message Length	Standard Message (SD)
Message Type	Ack
Transmitting Device ID	On/Off Outlet
Receiving Device ID	Controller
Flags Byte	Message Type
Command 1	0x0D
Command 2	0x02 (Indicates i2CS engine version)

Command Example:

INSTEON Engine Version **INSTEON Engine Version Response**	**AA BB CC 11 22 33 0F 0D 00** **11 22 33 AA BB CC 2B 0D 02**

The above example device 11 22 33 is asked what its Engine Version is (0x0D 0x00). Device 11 22 33 then responds back that it has an i2CS engine version (0x02).

Docklight Example:

```
9/24/2013 13:35:39.123 [RX] - 02 62 21 7D B9 0F 0D 00 06  INSTEON STD TX
02 50 21 7D B9 1A 77 7B 2B 0D 02  INSTEON STD RX
 i2CS Engine Version
```

Ping

This command checks that the device is able to respond over INSTEON.

Command Name	Ping
Message Length	Standard Message (SD)
Message Type	Direct
Transmitting Device ID	Controller
Receiving Device ID	On/Off Outlet
Flags Byte	Message Type
Command 1	0x0F
Command 2	Ignored Value

Command Name	Ping Response
Message Length	Standard Message (SD)
Message Type	Ack
Transmitting Device ID	On/Off Outlet
Receiving Device ID	Controller
Flags Byte	Message Type
Command 1	0x0F
Command 2	Same as what was received in Command 2

Command Example:

Ping **Ping Response**	**AA BB CC 11 22 33 0F 0F 00** **11 22 33 AA BB CC 2B 0F 00**

The above example is the communication that goes on between a Controller and the On/Off Outlet when it is sent a Ping command. The device 11 22 33 is sent a Ping Command (0x0F). The device 11 22 33 then responds back to device AA BB CC with a Ping Response of the exact same thing it received in Command 1 and Command 2.

Docklight Example:

```
9/24/2013 13:35:40.329 [TX] - 02 62 21 7D B9 0F 0F 00
9/24/2013 13:35:40.355 [RX] - 02 62 21 7D B9 0F 0F 00 06  INSTEON STD TX
02 50 21 7D B9 1A 77 7B 2B 0F 00  INSTEON STD RX
 Ping Response
```

ID Request

This command asks for the device's Device category, Device Subcategory, Firmware Revision, and Hardware Revision. It is the same info the device sends when it goes into Linking Mode.

Command Name	ID Request
Message Length	Standard Message (SD)
Message Type	Direct
Transmitting Device ID	Controller
Receiving Device ID	On/Off Outlet
Flags Byte	Message Type
Command 1	0x10
Command 2	Ignored Value

Command Name	ID Request Response
Message Length	Standard Message (SD)
Message Type	Ack
Transmitting Device ID	On/Off Outlet
Receiving Device ID	Controller
Flags Byte	Message Type
Command 1	0x10
Command 2	Same as what was received in Command 2

Command Name	ID Request Data
Message Length	Standard Message (SD)
Message Type	Broadcast
Transmitting Device ID	On/Off Outlet
To Address (Hi Byte)	Device Category
To Address (Mid Byte)	Device Subcategory
To Address (Low Byte)	Firmware Revision
Flags Byte	Message Type
Command 1	0x01
Command 2	Hardware Revision

Command Example:

ID Request **ID Request Response** **ID Request Data**	**AA BB CC 11 22 33 0F 10 00** **11 22 33 AA BB CC 2B 10 00** **11 22 33 02 39 C2 8B 01 00**

The above example is the communication that goes on between a Controller and the On/Off Outlet when it is sent an ID Request command. The device 11 22 33 is sent an ID Request Command (0x10). The device 11 22 33 then responds back to device AA BB CC with a ID Request Response of the exact same thing it received in Command 1 and Command 2. The device 11 22 33 then responds back with the ID Request Data of Device category (0x02), Device subcategory (0x39), Firmware Revision (0xC2), and the Hardware Revision (0x00). Essentially the device sends out the exact same thing it sends out when it goes into Linking Mode without going into Linking Mode.

Docklight Example:

```
2/26/2014 17:01:57.067 [TX] - 02 62 00 00 04 0F 10 00
2/26/2014 17:01:57.082 [RX] - 02 62 00 00 04 0F 10 00 06  INSTEON STD TX
02 50 00 00 04 AA AA 01 2B 10 00  INSTEON STD RX
 ID Request
02 50 00 00 04 02 39 C2 8B 01 00  INSTEON STD RX
 Assign to ALL-Link Group/ID Request
```

ON (Top Outlet)

This command turns ON the load for the top outlet.

Command Name	ON (top outlet)
Message Length	Standard Message (SD)
Message Type	Direct
Transmitting Device ID	Controller
Receiving Device ID	On/Off Outlet
Flags Byte	Message Type
Command 1	0x11
Command 2	0x01 -> 0xFF = On, 0x00 = Off

Command Name	ON (top outlet) Response
Message Length	Standard Message (SD)
Message Type	Ack
Transmitting Device ID	On/Off Outlet
Receiving Device ID	Controller
Flags Byte	Message Type
Command 1	0x11
Command 2	Same as what was received in Command 2

Command Example:

ON (top outlet)	**AA BB CC 11 22 33 0F 11 FF**
ON (top outlet) Response	**11 22 33 AA BB CC 2B 11 FF**

The above example the On/Off Outlet is sent the command to turn the load for the top outlet to On (Command 1 = 0x11, Command 2 = 0xFF). The On/Off Outlet then responds back with the exact same message.

Docklight Example:

```
5/6/2014 10:05:25.099 [TX] - 02 62 00 00 04 0F 11 FF
5/6/2014 10:05:25.115 [RX] - 02 62 00 00 04 0F 11 FF 06  INSTEON STD TX
02 50 00 00 04 1A 77 7B 27 11 FF  INSTEON STD RX
```

OFF (Top Outlet)

This command turns OFF the load for the top outlet.

Command Name	OFF (top outlet)
Message Length	Standard Message (SD)
Message Type	Direct
Transmitting Device ID	Controller
Receiving Device ID	On/Off Outlet
Flags Byte	Message Type
Command 1	0x13
Command 2	Ignored Value

Command Name	OFF (top outlet) Response
Message Length	Standard Message (SD)
Message Type	Ack
Transmitting Device ID	On/Off Outlet
Receiving Device ID	Controller
Flags Byte	Message Type
Command 1	0x13
Command 2	Same as what was received in Command 2

Command Example:

OFF (top outlet) **OFF (top outlet) Response**	**AA BB CC 11 22 33 0F 13 00** **11 22 33 AA BB CC 2B 13 00**

The above example the On/Off Outlet is sent the command to turn the load for the top outlet to Off (Command 1 = 0x13). The On/Off Outlet then responds back with the exact same message.

Docklight Example:

```
5/6/2014 12:41:36.744 [TX] - 02 62 00 00 04 0F 13 00
5/6/2014 12:41:36.770 [RX] - 02 62 00 00 04 0F 13 00 06  INSTEON STD TX
02 50 00 00 04 1A 77 7B 2B 13 00  INSTEON STD RX
 Light OFF
```

ON (Bottom Outlet)

This command turns ON the load for the bottom outlet

Command Name	ON (bottom outlet)
Message Length	Extended Message (ED)
Message Type	Direct
Transmitting Device ID	Controller
Receiving Device ID	On/Off Outlet
Flags Byte	Message Type
Command 1	0x11
Command 2	0x01 -> 0xFF = On, 0x00 = Off
Data 1	0x02
Data 2 – Data 13	Ignored Value
Data 14	Calculated Checksum (See below in Checksum Information)

Command Name	ON (bottom outlet) Response
Message Length	Standard Message (SD)
Message Type	Ack
Transmitting Device ID	On/Off Outlet
Receiving Device ID	Controller
Flags Byte	Message Type
Command 1	0x11
Command 2	Same as what was received in Command 2

Command Example:

ON (bottom outlet) **ON (bottom outlet) Response**	**AA BB CC 11 22 33 1F 11 01 02 00 00 00 00 00 00 00 00 00 00 00 00 00 EC** **11 22 33 AA BB CC 2B 11 01**

The above example device 11 22 33 is sent a command to turn the load for the bottom outlet to On (Command 1 = 0x11, Command 2 = 0x01, Data 1 = 0x02). The On/Off Outlet then responds back with the exact same data in Command 1 and Command 2.

Docklight Example:

```
5/6/2014 12:45:35.001 [TX] - 02 62 00 00 04 1F 11 01 02 00 00 00 00 00 00 00 00 00 00 00 EC
5/6/2014 12:45:35.022 [RX] - 02 62 00 00 04 1F 11 01 02 00 00 00 00 00 00 00 00 00 00 00 EC 06
INSTEON EXT TX
                             02 50 00 00 04 1A 77 7B 2B 11 01  INSTEON STD RX
```

OFF (Bottom Outlet)

This command turns OFF the load for the bottom outlet.

Command Name	OFF (bottom outlet)
Message Length	Extended Message (ED)
Message Type	Direct
Transmitting Device ID	Controller
Receiving Device ID	On/Off Outlet
Flags Byte	Message Type
Command 1	0x13
Command 2	Ignored Value
Data 1	0x02
Data 2 – Data 13	Ignored Value
Data 14	Calculated Checksum (See below in Checksum Information)

Command Name	OFF (bottom outlet) Response
Message Length	Standard Message (SD)
Message Type	Ack
Transmitting Device ID	On/Off Outlet
Receiving Device ID	Controller
Flags Byte	Message Type
Command 1	0x13
Command 2	Same as what was received in Command 2

Command Example:

OFF (bottom outlet) **OFF (bottom outlet) Response**	**AA BB CC 11 22 33 1F 13 00 02 00 00 00 00 00 00 00 00 00 00 00 00 00 00 EB** **11 22 33 AA BB CC 2B 13 00**

The above example the On/Off Outlet is sent the command to turn the load for the bottom outlet to Off (Command 1 = 0x13, and Data 1 = 0x02). The On/Off Outlet then responds back with the exact same message in Command 1 and Command 2.

Docklight Example:

```
5/6/2014 12:45:38.729 [TX] - 02 62 00 00 04 1F 13 00 02 00 00 00 00 00 00 00 00 00 00 00 00 EB
5/6/2014 12:45:38.750 [RX] - 02 62 00 00 04 1F 13 00 02 00 00 00 00 00 00 00 00 00 00 00 00 EB 06
INSTEON EXT TX
02 50 00 00 04 1A 77 7B 2B 13 00  INSTEON STD RX
```

Direct Group On

This command is a Group On message that is sent directly to the device.

Command Name	Direct Group On
Message Length	Standard Message (SD)
Message Type	Direct
Transmitting Device ID	Controller
Receiving Device ID	On/Off Outlet
Flags Byte	Message Type
Command 1	0x32
Command 2	Group Number: Group 1 = Top Outlet Group 2 = Bottom Outlet

Command Name	Direct Group On Response
Message Length	Standard Message (SD)
Message Type	Ack
Transmitting Device ID	On/Off Outlet
Receiving Device ID	Controller
Flags Byte	Message Type
Command 1	0x32
Command 2	Same as what was received in Command 2

Command Example:

Direct Group On **Direct Group On Response**	**AA BB CC 11 22 33 0F 32 02** **11 22 33 AA BB CC 2B 32 02**

The above example the On/Off Outlet is sent a Direct Group 2 On command (Command 1 = 0x32, Command 2 = 0x02). The On/Off Outlet then responds back with the exact same message and the bottom outlet should turn ON.

Docklight Example:

```
6/27/2014 14:23:43.341 [TX] - 02 62 22 92 0D 0F 32 02
6/27/2014 14:23:43.357 [RX] - 02 62 22 92 0D 0F 32 02 06  INSTEON STD TX
02 50 22 92 0D 1A 77 7B 2B 32 02  INSTEON STD RX
```

Direct Group Off

This command is a Group Off message that is sent directly to the device.

Command Name	Direct Group Off
Message Length	Standard Message (SD)
Message Type	Direct
Transmitting Device ID	Controller
Receiving Device ID	On/Off Outlet
Flags Byte	Message Type
Command 1	0x33
Command 2	Group Number: Group 1 = Top Outlet Group 2 = Bottom Outlet

Command Name	Direct Group Off Response
Message Length	Standard Message (SD)
Message Type	Ack
Transmitting Device ID	On/Off Outlet
Receiving Device ID	Controller
Flags Byte	Message Type
Command 1	0x33
Command 2	Same as what was received in Command 2

Command Example:

Direct Group Off **Direct Group Off Response**	**AA BB CC 11 22 33 0F 33 01** **11 22 33 AA BB CC 2B 33 01**

The above example the On/Off Outlet is sent a Direct Group 1 Off command (Command 1 = 0x33, Command 2 = 0x01). The On/Off Outlet then responds back with the exact same message and the top outlet should turn OFF.

Docklight Example:

```
6/27/2014 14:23:59.512 [TX] - 02 62 22 92 0D 0F 33 02
6/27/2014 14:23:59.531 [RX] - 02 62 22 92 0D 0F 33 02 06  INSTEON STD TX
02 50 22 92 0D 1A 77 7B 2B 33 02  INSTEON STD RX
```

Status Request

This command asks the device for the current On-Level of the top outlet and its Database Delta.

Command Name	Status Request
Message Length	Standard Message (SD)
Message Type	Direct
Transmitting Device ID	Controller
Receiving Device ID	On/Off Outlet
Flags Byte	Message Type
Command 1	0x19
Command 2	0x00

Command Name	Status Request Response
Message Length	Standard Message (SD)
Message Type	Ack
Transmitting Device ID	On/Off Outlet
Receiving Device ID	Controller
Configuration Byte	Message Type
Command 1	Database Delta
Command 2	Current On-Level of Top Outlet

Command Example:

Status Request **Status Request Response**	**AA BB CC 11 22 33 0F 19 00** **11 22 33 AA BB CC 2B 01 FF**

The above example device 11 22 33 is sent a command that asks it for its Status (Command 1 = 0x19, Command 2 = 0x00). Device 11 22 33 then responds back with its Status in Command 1 (0x01 = Database Delta is 1) and Command 2 (0xFF = Top Outlet is On).

Docklight Example:

```
5/5/2014 16:05:15.772 [TX] - 02 62 00 00 04 0F 19 00
5/5/2014 16:05:15.788 [RX] - 02 62 00 00 04 0F 19 00 06  INSTEON STD TX
 Status Request
02 50 00 00 04 1A 77 7B 2B 00 FF  INSTEON STD RX

5/5/2014 16:05:23.533 [TX] - 02 62 00 00 04 0F 19 00
5/5/2014 16:05:23.562 [RX] - 02 62 00 00 04 0F 19 00 06  INSTEON STD TX
 Status Request
02 50 00 00 04 1A 77 7B 27 01 00  INSTEON STD RX
```

Status Request 2

This command asks the device for the current On-Level of both outlets and its Database Delta.

Command Name	Status Request 2
Message Length	Standard Message (SD)
Message Type	Direct
Transmitting Device ID	Controller
Receiving Device ID	On/Off Outlet
Flags Byte	Message Type
Command 1	0x19
Command 2	0x01

Command Name	Status Request 2 Response
Message Length	Standard Message (SD)
Message Type	Ack
Transmitting Device ID	On/Off Outlet
Receiving Device ID	Controller
Configuration Byte	Message Type
Command 1	Database Delta
Command 2	Current On-Level of both outlets: 0x00 = Both Outlets Off 0x01 = Only Top Outlet On 0x02 = Only Bottom Outlet On 0x03 = Both Outlets On

Command Example:

Status Request 2	**AA BB CC 11 22 33 0F 19 01**
Status Request 2 Response	**11 22 33 AA BB CC 2B 03 03**

The above example device 11 22 33 is sent a command that asks it for its Status (Command 1 = 0x19, Command 2 = 0x01). Device 11 22 33 then responds back with its Status in Command 1 (0x01 = Database Delta is 3) and Command 2 (0x03 = Both Outlets On).

Docklight Example:

```
5/7/2014 10:48:00.993 [TX] - 02 62 00 00 04 0F 19 01
5/7/2014 10:48:01.013 [RX] - 02 62 00 00 04 0F 19 01 06  INSTEON STD TX
02 50 00 00 04 1A 77 7B 2B 03 03  INSTEON STD RX
```

Read Configuration Byte

This command asks the device for its Configuration Byte.

Command Name	Read Configuration Byte
Message Length	Standard Message (SD)
Message Type	Direct
Transmitting Device ID	Controller
Receiving Device ID	On/Off Outlet
Flags Byte	Message Type
Command 1	0x1F
Command 2	0x00

Command Name	Read Configuration Byte Response
Message Length	Standard Message (SD)
Message Type	Ack
Transmitting Device ID	On/Off Outlet
Receiving Device ID	Controller
Configuration Byte	Message Type
Command 1	0x1F
Command 2	Configuration Byte: bit 0 = Programming Lock On/**Off** bit 1 = LED Blink On/**Off** on TX bit 2 = LoadSense 2 On/**Off** bit 3 = LoadSense On/**Off** bit 4 = LED **On**/Off bit 5 = Keybeep On/**Off** bit 6 = RF **On**/Off bit 7 = Powerline **On**/Off (0x00 is the default Config Byte. Default settings are in Bold.)

Command Example:

Read Configuration Byte	`AA BB CC 11 22 33 0F 1F 00`
Read Configuration Byte Response	`11 22 33 AA BB CC 2B 1F 00`

The above example device 11 22 33 is sent a command that asks it for its Configuration Byte (Command 1 = 0x1F, Command 2 = 0x00). Device 11 22 33 then responds back with its Configuration Byte (0x00). This means that device 11 22 33 has Programming Lock Off, LED Blink on TX Off, LoadSense 2 Off, LoadSense Off, LED On, Keybeep Off, RF On, and Powerline On.

Docklight Example:

```
2/27/2014 13:51:36.916 [TX] - 02 62 00 00 04 0F 1F 00
2/27/2014 13:51:36.940 [RX] - 02 62 00 00 04 0F 1F 00 06  INSTEON STD TX
 Read Operating Flags 1
02 50 00 00 04 AA AA 01 2B 1F 00  INSTEON STD RX
```

Database Delta

This command asks the device for its current Database Delta Number. The Database Delta increments with any database write. The Database Delta is cleared on power cycle.

Command Name	Database Delta
Message Length	Standard Message (SD)
Message Type	Direct
Transmitting Device ID	Controller
Receiving Device ID	On/Off Outlet
Flags Byte	Message Type
Command 1	0x1F
Command 2	0x01

Command Name	Database Delta Response
Message Length	Standard Message (SD)
Message Type	Ack
Transmitting Device ID	On/Off Outlet
Receiving Device ID	Controller
Flags Byte	Message Type
Command 1	0x1F
Command 2	Database Delta

Command Example:

Database Delta **Database Delta Response**	**AA BB CC 11 22 33 0F 1F 01** **11 22 33 AA BB CC 2B 1F 03**

The above example device 11 22 33 is sent a command that asks it for its Database Delta (Command 1 = 0x1F, Command 2 = 0x01). Device 11 22 33 then responds back with its Database Delta (0x03). This means that device 11 22 33 has had three Database writes since its last power cycle.

Docklight Example:

```
9/13/2013 10:21:54.135 [TX] - 02 62 29 70 02 0F 1F 01
9/13/2013 10:21:54.161 [RX] - 02 62 29 70 02 0F 1F 01 06  INSTEON STD TX
                              02 50 29 70 02 1A 77 7B 2B 1F 01  INSTEON STD RX Database Delta
```

Beep

This command will beep the On/Off Outlet beeper once.

Command Name	Beep
Message Length	Standard Message (SD)
Message Type	Direct
Transmitting Device ID	Controller
Receiving Device ID	On/Off Outlet
Flags Byte	Message Type
Command 1	0x30
Command 2	0x01

Command Name	Beep Response
Message Length	Standard Message (SD)
Message Type	Ack
Transmitting Device ID	On/Off Outlet
Receiving Device ID	Controller
Flags Byte	Message Type
Command 1	0x30
Command 2	0x01

Command Example:

Beep	**AA BB CC 11 22 33 0F 30 01**
Beep Response	**11 22 33 AA BB CC 2B 30 01**

The above example device 11 22 33 is sent a command that asks it to beep once (Command 1 = 0x30, Command 2 = 0x01). Device 11 22 33 then responds back with the exact same data in Command 1 and Command 2 (Command 1 = 0x30, Command 2 = 0x01). The device should also beep once as well.

Docklight Example:

```
3/12/2013 16:18:43.155 [TX] - 02 62 1A CE D1 0F 30 01
3/12/2013 16:18:43.163 [RX] - 02 62 1A CE D1 0F 30 01 06  INSTEON STD TX

3/12/2013 16:18:43.467 [RX] - 02 50 1A CE D1 14 84 E2 2B 30 01  STD INSTEON RX
```

Remote Enter Linking Mode

This command puts the device into Linking Mode

Command Name	Remote Enter Linking Mode
Message Length	Extended Message (ED)
Message Type	Direct
Transmitting Device ID	Controller
Receiving Device ID	On/Off Outlet
Flags Byte	Message Type
Command 1	0x09
Command 2	Group Number
Data 1 – Data 13	Ignored Value
Data 14	Calculated Checksum (See below in Checksum Information)

Command Name	Remote Enter Linking Mode Response
Message Length	Standard Message (SD)
Message Type	Ack
Transmitting Device ID	On/Off Outlet
Receiving Device ID	Controller
Flags Byte	Message Type
Command 1	0x09
Command 2	Same as what was received in Command 2

Command Name	Assign to ALL-Link Group
Message Length	Standard Message (SD)
Message Type	Broadcast
Transmitting Device ID	On/Off Outlet
To Address (Hi Byte)	Device Category
To Address (Mid Byte)	Device Subcategory
To Address (Low Byte)	Firmware Revision
Flags Byte	Message Type
Command 1	0x01
Command 2	Hardware Revision

Command Example:

Remote Enter Linking Mode **Remote Enter Linking Mode Response** **Assign to ALL-Link Group**	**AA BB CC 11 22 33 1F 09 01 00 00 00 00** **00 00 00 00 00 00 00 00 00 F6** **11 22 33 AA BB CC 2B 09 01** **11 22 33 02 39 C2 8B 01 00**

The above example, device 11 22 33 is sent a command that tells it to go into Linking Mode (0x09) and to link to Group 1(0x01). Device 11 22 33 will ACK the command and then goes into Linking Mode.

Docklight Example:

```
3/3/2014 10:02:01.224 [TX] - 02 62 00 00 04 1F 09 01 00 00 00 00 00 00 00 00 00 00 00 00 F6
3/3/2014 10:02:01.246 [RX] - 02 62 00 00 04 1F 09 01 00 00 00 00 00 00 00 00 00 00 00 00 F6 06
INSTEON EXT TX
02 50 00 00 04 AA AA 01 2B 09 01  INSTEON STD RX
 Remote Enter Linking Mode
```

Remote Exit Linking Mode

This command tells the device to exit linking mode.

Command Name	Remote Exit Linking Mode
Message Length	Standard Message (SD)
Message Type	Direct
Transmitting Device ID	Controller
Receiving Device ID	On/Off Outlet
Flags Byte	Message Type
Command 1	0x08
Command 2	Ignored Value

Command Name	Remote Exit Linking Mode Response
Message Length	Standard Message (SD)
Message Type	Ack
Transmitting Device ID	On/Off Outlet
Receiving Device ID	Controller
Flags Byte	Message Type
Command 1	0x08
Command 2	Same as what was received in Command 2

Command Example:

Remote Exit Linking Mode	**AA BB CC 11 22 33 1F 08 00**
Remote Exit Linking Mode Response	**11 22 33 AA BB CC 2B 08 00**

The above example device 11 22 33 is sent a command that tells it to exit Linking Mode (0x08).

Docklight Example:

```
1/30/2014 11:53:13.594 [TX] - 02 62 1A CB 70 0F 08 01
1/30/2014 11:53:13.615 [RX] - 02 62 1A CB 70 0F 08 01 06  INSTEON STD TX

1/30/2014 11:53:13.913 [RX] - 02 50 1A CB 70 AA AA 01 2B 08 01  STD INSTEON RX
```

Remote Enter UnLinking Mode

This command tells the device to enter unlinking mode.

Command Name	Remote Enter UnLinking Mode
Message Length	Standard Message (SD)
Message Type	Direct
Transmitting Device ID	Controller
Receiving Device ID	On/Off Outlet
Flags Byte	Message Type
Command 1	0x0A
Command 2	Group Number

Command Name	Remote Enter UnLinking Mode Response
Message Length	Standard Message (SD)
Message Type	Ack
Transmitting Device ID	On/Off Outlet
Receiving Device ID	Controller
Flags Byte	Message Type
Command 1	0x0A
Command 2	Same as what was received in Command 2

Command Name	Set Button Held
Message Length	Standard Message (SD)
Message Type	Broadcast
Transmitting Device ID	On/Off Outlet
To Address (Hi Byte)	Device Category
To Address (Mid Byte)	Device Subcategory
To Address (Low Byte)	Firmware Revision
Flags Byte	Message Type
Command 1	0x01
Command 2	Hardware Revision

Command Example:

Remote Enter UnLinking Mode **Remote Enter UnLinking Mode Response** **Set Button Held**	**AA BB CC 11 22 33 1F 0A 01** **11 22 33 AA BB CC 2B 0A 01** **11 22 33 10 0A DC 8B 01 00**

The above example, device 11 22 33 is sent a command that tells it to go into UnLinking Mode (0x0A) and to unlink from Group 1(0x01). Device 11 22 33 will ACK the command and then goes into UnLinking Mode.

Docklight Example:

```
1/30/2014 11:53:09.648 [TX] - 02 62 1A CB 70 0F 0A 01
1/30/2014 11:53:09.674 [RX] - 02 62 1A CB 70 0F 0A 01 06  INSTEON STD TX

1/30/2014 11:53:09.962 [RX] - 02 50 1A CB 70 AA AA 01 2B 0A 01  STD INSTEON RX

1/30/2014 11:53:10.154 [RX] - 02 50 1A CB 70 10 0A DC 8B 01 00  STD INSTEON RX
```

Programming Lock On

This command tells disables the ability of the device to go into Linking Mode.

Command Name	Programming Lock On
Message Length	Extended Message (ED)
Message Type	Direct
Transmitting Device ID	Controller
Receiving Device ID	On/Off Outlet
Flags Byte	Message Type
Command 1	0x20
Command 2	0x00
Data 1 – Data 13	Ignored Value
Data 14	Calculated Checksum (See below in Checksum Information)

Command Name	Programming Lock On Response
Message Length	Standard Message (SD)
Message Type	Ack
Transmitting Device ID	On/Off Outlet
Receiving Device ID	Controller
Flags Byte	Message Type
Command 1	0x20
Command 2	0x00

Command Example:

Programming Lock On	**AA BB CC 11 22 33 1F 20 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 E0**
Programming Lock On Response	**11 22 33 AA BB CC 2B 20 00**

The above example device 11 22 33 is sent a command that disables the ability to go into Linking Mode (0x20 0x00).

Docklight Example:

```
9/19/2013 10:44:40.362 [TX] - 02 62 29 70 02 1F 20 00 00 00 00 00 00 00 00 00 00 00 00 00 00 E0

9/19/2013 10:44:40.378 [RX] - 02 62 29 70 02 1F 20 00 00 00 00 00 00 00 00 00 00 00 00 00 00 E0
                              06  INSTEON EXT TX
                              02 50 29 70 02 1A 77 7B 2B 20 00  INSTEON STD RX Set Operating
                              Flags (Programming Lock On)
```

Programming Lock Off

This command enables the ability of the device to go into Linking Mode.

Command Name	Programming Lock Off
Message Length	Extended Message (ED)
Message Type	Direct
Transmitting Device ID	Controller
Receiving Device ID	On/Off Outlet
Flags Byte	Message Type
Command 1	0x20
Command 2	0x01
Data 1 – Data 13	Ignored Value
Data 14	Calculated Checksum (See below in Checksum Information)

Command Name	Programming Lock Off Response
Message Length	Standard Message (SD)
Message Type	Ack
Transmitting Device ID	On/Off Outlet
Receiving Device ID	Controller
Flags Byte	Message Type
Command 1	0x20
Command 2	0x01

Command Example:

Programming Lock Off	**AA BB CC 11 22 33 1F 20 01 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 DF**
Programming Lock Off Response	**11 22 33 AA BB CC 2B 20 01**

The above example device 11 22 33 is sent a command that enables the ability to go into Linking Mode (0x20 0x01).

Docklight Example:

```
9/18/2013 18:13:37.279 [TX] - 02 62 29 70 02 1F 20 01 00 00 00 00 00 00 00 00 00 00 00 00 00 00 DF
9/18/2013 18:13:37.291 [RX] - 02 62 29 70 02 1F 20 01 00 00 00 00 00 00 00 00 00 00 00 00 00 00 DF
06  INSTEON EXT TX
02 50 29 70 02 1A 77 7B 2B 20 01 INSTEON STD RX Set Operating Flags (Programming Lock Off)
```

LED Blink on Traffic On

This command enables the feature of the LED blinking on traffic.

Command Name	LED Blink on Traffic On
Message Length	Extended Message (ED)
Message Type	Direct
Transmitting Device ID	Controller
Receiving Device ID	On/Off Outlet
Flags Byte	Message Type
Command 1	0x20
Command 2	0x02
Data 1 – Data 13	Ignored Value
Data 14	Calculated Checksum (See below in Checksum Information)

Command Name	LED Blink on Traffic On Response
Message Length	Standard Message (SD)
Message Type	Ack
Transmitting Device ID	On/Off Outlet
Receiving Device ID	Controller
Flags Byte	Message Type
Command 1	0x20
Command 2	0x02

Command Example:

LED Blink on Traffic On **LED Blink on Traffic On Response**	**AA BB CC 11 22 33 1F 20 02 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 DE** **11 22 33 AA BB CC 2B 20 02**

The above example device 11 22 33 is sent a command that enables LED blinking on traffic (0x20 0x02).

Docklight Example:

```
2/5/2014 14:07:46.855 [TX] - 02 62 1A CB 70 1F 20 02 00 00 00 00 00 00 00 00 00 00 00 00 00 DE
2/5/2014 14:07:46.877 [RX] - 02 62 1A CB 70 1F 20 02 00 00 00 00 00 00 00 00 00 00 00 00 00 DE 06
INSTEON EXT TX

2/5/2014 14:07:47.404 [RX] - 02 50 1A CB 70 AA AA 01 2B 20 02  STD INSTEON RX
```

LED Blink on Traffic Off

This command disables the feature of the LED blinking on traffic.

Command Name	LED Blink on Traffic Off
Message Length	Extended Message (ED)
Message Type	Direct
Transmitting Device ID	Controller
Receiving Device ID	On/Off Outlet
Flags Byte	Message Type
Command 1	0x20
Command 2	0x03
Data 1 – Data 13	Ignored Value
Data 14	Calculated Checksum (See below in Checksum Information)

Command Name	LED Blink on Traffic Off Response
Message Length	Standard Message (SD)
Message Type	Ack
Transmitting Device ID	On/Off Outlet
Receiving Device ID	Controller
Flags Byte	Message Type
Command 1	0x20
Command 2	0x03

Command Example:

LED Blink on Traffic Off **LED Blink on Traffic Off Response**	**AA BB CC 11 22 33 1F 20 03 00 00 00 00 00 00 00 00 00 00 00 00 00 00 DD** **11 22 33 AA BB CC 2B 20 03**

The above example device 11 22 33 is sent a command that disables LED Blink on Traffic (0x20 0x03).

Docklight Example:

```
2/5/2014 14:07:48.238 [TX] - 02 62 1A CB 70 1F 20 03 00 00 00 00 00 00 00 00 00 00 00 00 00 DD
2/5/2014 14:07:48.252 [RX] - 02 62 1A CB 70 1F 20 03 00 00 00 00 00 00 00 00 00 00 00 00 00 DD 06
INSTEON EXT TX

2/5/2014 14:07:48.780 [RX] - 02 50 1A CB 70 AA AA 01 2B 20 03  STD INSTEON RX
```

Load Sense On (Bottom Outlet)

This command enables the load sense feature for the bottom outlet.

Command Name	Load Sense On (Bottom Outlet)
Message Length	Extended Message (ED)
Message Type	Direct
Transmitting Device ID	Controller
Receiving Device ID	On/Off Outlet
Flags Byte	Message Type
Command 1	0x20
Command 2	0x04
Data 1 – Data 13	Ignored Value
Data 14	Calculated Checksum (See below in Checksum Information)

Command Name	Load Sense On (Bottom Outlet) Response
Message Length	Standard Message (SD)
Message Type	Ack
Transmitting Device ID	On/Off Outlet
Receiving Device ID	Controller
Flags Byte	Message Type
Command 1	0x20
Command 2	0x04

Command Example:

Load Sense On (Bottom Outlet) **Load Sense On (Bottom Outlet) Response**	**AA BB CC 11 22 33 1F 20 04 00 00 00 00 00 00 00 00 00 00 00 00 00 DC** **11 22 33 AA BB CC 2B 20 04**

The above example device 11 22 33 is sent a command that enables Load Sense on the bottom outlet (0x20 0x04).

Docklight Example:

```
2/5/2014 14:07:46.855 [TX] - 02 62 1A CB 70 1F 20 04 00 00 00 00 00 00 00 00 00 00 00 00 00 DC
2/5/2014 14:07:46.877 [RX] - 02 62 1A CB 70 1F 20 04 00 00 00 00 00 00 00 00 00 00 00 00 00 DC 06
INSTEON EXT TX

2/5/2014 14:07:47.404 [RX] - 02 50 1A CB 70 AA AA 01 2B 20 04  STD INSTEON RX
```

Load Sense Off (Bottom Outlet)

This command disables the load sense feature for the bottom outlet.

Command Name	Load Sense Off (Bottom Outlet)
Message Length	Extended Message (ED)
Message Type	Direct
Transmitting Device ID	Controller
Receiving Device ID	On/Off Outlet
Flags Byte	Message Type
Command 1	0x20
Command 2	0x05
Data 1 – Data 13	Ignored Value
Data 14	Calculated Checksum (See below in Checksum Information)

Command Name	Load Sense Off (Bottom Outlet) Response
Message Length	Standard Message (SD)
Message Type	Ack
Transmitting Device ID	On/Off Outlet
Receiving Device ID	Controller
Flags Byte	Message Type
Command 1	0x20
Command 2	0x05

Command Example:

Load Sense Off (Bottom Outlet) **Load Sense Off (Bottom Outlet) Response**	**AA BB CC 11 22 33 1F 20 05 00 00 00 00 00 00 00 00 00 00 00 00 00 DB 11 22 33 AA BB CC 2B 20 05**

The above example device 11 22 33 is sent a command that disables Load Sense on the bottom outlet (0x20 0x05).

Docklight Example:

```
2/5/2014 14:07:48.238 [TX] - 02 62 1A CB 70 1F 20 05 00 00 00 00 00 00 00 00 00 00 00 00 00 DB
2/5/2014 14:07:48.252 [RX] - 02 62 1A CB 70 1F 20 05 00 00 00 00 00 00 00 00 00 00 00 00 00 DB 06
INSTEON EXT TX

2/5/2014 14:07:48.780 [RX] - 02 50 1A CB 70 AA AA 01 2B 20 05  STD INSTEON RX
```

Load Sense On (Top Outlet)

This command enables the load sense feature for the top outlet.

Command Name	Load Sense On (Top Outlet)
Message Length	Extended Message (ED)
Message Type	Direct
Transmitting Device ID	Controller
Receiving Device ID	On/Off Outlet
Flags Byte	Message Type
Command 1	0x20
Command 2	0x06
Data 1 – Data 13	Ignored Value
Data 14	Calculated Checksum (See below in Checksum Information)

Command Name	Load Sense On (Top Outlet) Response
Message Length	Standard Message (SD)
Message Type	Ack
Transmitting Device ID	On/Off Outlet
Receiving Device ID	Controller
Flags Byte	Message Type
Command 1	0x20
Command 2	0x06

Command Example:

Load Sense On (Top Outlet)	**AA BB CC 11 22 33 1F 20 06 00 00 00 00 00 00 00 00 00 00 00 00 00 00 DA**
Load Sense On (Top Outlet) Response	**11 22 33 AA BB CC 2B 20 06**

The above example device 11 22 33 is sent a command that enables Load Sense on the top outlet (0x20 0x06).

Docklight Example:

```
2/5/2014 14:07:46.855 [TX] - 02 62 1A CB 70 1F 20 06 00 00 00 00 00 00 00 00 00 00 00 00 00 00 DA
2/5/2014 14:07:46.877 [RX] - 02 62 1A CB 70 1F 20 06 00 00 00 00 00 00 00 00 00 00 00 00 00 00 DA 06
INSTEON EXT TX

2/5/2014 14:07:47.404 [RX] - 02 50 1A CB 70 AA AA 01 2B 20 06  STD INSTEON RX
```

Load Sense Off (Top Outlet)

This command disables the load sense feature for the top outlet.

Command Name	Load Sense Off (Top Outlet)
Message Length	Extended Message (ED)
Message Type	Direct
Transmitting Device ID	Controller
Receiving Device ID	On/Off Outlet
Flags Byte	Message Type
Command 1	0x20
Command 2	0x07
Data 1 – Data 13	Ignored Value
Data 14	Calculated Checksum (See below in Checksum Information)

Command Name	Load Sense Off (Top Outlet) Response
Message Length	Standard Message (SD)
Message Type	Ack
Transmitting Device ID	On/Off Outlet
Receiving Device ID	Controller
Flags Byte	Message Type
Command 1	0x20
Command 2	0x07

Command Example:

Load Sense Off (Top Outlet) **Load Sense Off (Top Outlet) Response**	**AA BB CC 11 22 33 1F 20 07 00 00 00 00 00 00 00 00 00 00 00 00 00 00 D9** **11 22 33 AA BB CC 2B 20 07**

The above example device 11 22 33 is sent a command that disables Load Sense on the top outlet (0x20 0x07).

Docklight Example:

```
2/5/2014 14:07:48.238 [TX] - 02 62 1A CB 70 1F 20 07 00 00 00 00 00 00 00 00 00 00 00 00 00 00 D9
2/5/2014 14:07:48.252 [RX] - 02 62 1A CB 70 1F 20 07 00 00 00 00 00 00 00 00 00 00 00 00 00 00 D9 06
INSTEON EXT TX

2/5/2014 14:07:48.780 [RX] - 02 50 1A CB 70 AA AA 01 2B 20 07  STD INSTEON RX
```

LED Off

This command disables the LED (except for Linking and Unlinking Mode Status)

Command Name	LED Off
Message Length	Extended Message (ED)
Message Type	Direct
Transmitting Device ID	Controller
Receiving Device ID	On/Off Outlet
Flags Byte	Message Type
Command 1	0x20
Command 2	0x08
Data 1 – Data 13	Ignored Value
Data 14	Calculated Checksum (See below in Checksum Information)

Command Name	LED Off Response
Message Length	Standard Message (SD)
Message Type	Ack
Transmitting Device ID	On/Off Outlet
Receiving Device ID	Controller
Flags Byte	Message Type
Command 1	0x20
Command 2	0x08

Command Example:

LED Off **LED Off Response**	**AA BB CC 11 22 33 1F 20 08 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 D8** **11 22 33 AA BB CC 2B 20 08**

The above example device 11 22 33 is sent a command that disables the LED, except for Linking and UnLinking Mode status (0x20 0x08).

Docklight Example:

```
3/3/2014 10:33:08.798 [TX] - 02 62 00 00 04 1F 20 08 00 00 00 00 00 00 00 00 00 00 00 00 00 D8
3/3/2014 10:33:08.812 [RX] - 02 62 00 00 04 1F 20 08 00 00 00 00 00 00 00 00 00 00 00 00 00 D8 06
INSTEON EXT TX
02 50 00 00 04 AA AA 01 2B 20 08  INSTEON STD RX
 LED Off
```

LED On

This command enables the LED

Command Name	LED On
Message Length	Extended Message (ED)
Message Type	Direct
Transmitting Device ID	Controller
Receiving Device ID	On/Off Outlet
Flags Byte	Message Type
Command 1	0x20
Command 2	0x09
Data 1 – Data 13	Ignored Value
Data 14	Calculated Checksum (See below in Checksum Information)

Command Name	LED On Response
Message Length	Standard Message (SD)
Message Type	Ack
Transmitting Device ID	On/Off Outlet
Receiving Device ID	Controller
Flags Byte	Message Type
Command 1	0x20
Command 2	0x09

Command Example:

LED On **LED On Response**	**AA BB CC 11 22 33 1F 20 09 00 00 00 00 00 00 00 00 00 00 00 00 00 00 D7** **11 22 33 AA BB CC 2B 20 09**

The above example device 11 22 33 is sent a command that enables the LED (0x20 0x09).

Docklight Example:

```
3/3/2014 10:33:13.966 [TX] - 02 62 00 00 04 1F 20 09 00 00 00 00 00 00 00 00 00 00 00 00 D7
3/3/2014 10:33:13.980 [RX] - 02 62 00 00 04 1F 20 09 00 00 00 00 00 00 00 00 00 00 00 00 D7 06
INSTEON EXT TX
02 50 00 00 04 AA AA 01 2B 20 09  INSTEON STD RX
 LED On
```

Keybeep On

This command enables a beep on any key press.

Command Name	Keybeep On
Message Length	Extended Message (ED)
Message Type	Direct
Transmitting Device ID	Controller
Receiving Device ID	On/Off Outlet
Flags Byte	Message Type
Command 1	0x20
Command 2	0x0A
Data 1 – Data 13	Ignored Value
Data 14	Calculated Checksum (See below in Checksum Information)

Command Name	Keybeep On Response
Message Length	Standard Message (SD)
Message Type	Ack
Transmitting Device ID	On/Off Outlet
Receiving Device ID	Controller
Flags Byte	Message Type
Command 1	0x20
Command 2	0x0A

Command Example:

Keybeep On **Keybeep On Response**	**AA BB CC 11 22 33 1F 20 0A 00 00 00 00 00 00 00 00 00 00 00 00 00 00 D6** **11 22 33 AA BB CC 2B 20 0A**

The above example device 11 22 33 is sent a command that enables a beep on any key press (0x20 0x0A).

Docklight Example:

```
3/3/2014 10:46:26.289 [TX] - 02 62 00 00 04 1F 20 0A 00 00 00 00 00 00 00 00 00 00 00 00 D6
3/3/2014 10:46:26.310 [RX] - 02 62 00 00 04 1F 20 0A 00 00 00 00 00 00 00 00 00 00 00 00 D6 06
INSTEON EXT TX
02 50 00 00 04 AA AA 01 2B 20 0A  INSTEON STD RX
 KeyBeep On
```

Keybeep Off

This command disables a beep on any key press.

Command Name	Keybeep Off
Message Length	Extended Message (ED)
Message Type	Direct
Transmitting Device ID	Controller
Receiving Device ID	On/Off Outlet
Flags Byte	Message Type
Command 1	0x20
Command 2	0x0B
Data 1 – Data 13	Ignored Value
Data 14	Calculated Checksum (See below in Checksum Information)

Command Name	Keybeep Off Response
Message Length	Standard Message (SD)
Message Type	Ack
Transmitting Device ID	On/Off Outlet
Receiving Device ID	Controller
Flags Byte	Message Type
Command 1	0x20
Command 2	0x0B

Command Example:

Keybeep Off **Keybeep Off Response**	**AA BB CC 11 22 33 1F 20 0B 00 00 00 00 00 00 00 00 00 00 00 00 00 00 D5** **11 22 33 AA BB CC 2B 20 0B**

The above example device 11 22 33 is sent a command that disables a beep on any keypress (0x20 0x0B).

Docklight Example:

```
3/3/2014 10:46:36.162 [TX] - 02 62 00 00 04 1F 20 0B 00 00 00 00 00 00 00 00 00 00 00 00 D5
3/3/2014 10:46:36.180 [RX] - 02 62 00 00 04 1F 20 0B 00 00 00 00 00 00 00 00 00 00 00 00 D5 06
INSTEON EXT TX
02 50 00 00 04 AA AA 01 2B 20 0B  INSTEON STD RX
 KeyBeep Off
```

RF Off

This command disables all RF capabilities as an originator, device will still hop messages.

Command Name	RF Off
Message Length	Extended Message (ED)
Message Type	Direct
Transmitting Device ID	Controller
Receiving Device ID	On/Off Outlet
Flags Byte	Message Type
Command 1	0x20
Command 2	0x0C
Data 1 – Data 13	Ignored Value
Data 14	Calculated Checksum (See below in Checksum Information)

Command Name	RF Off Response
Message Length	Standard Message (SD)
Message Type	Ack
Transmitting Device ID	On/Off Outlet
Receiving Device ID	Controller
Flags Byte	Message Type
Command 1	0x20
Command 2	0x0C

Command Example:

RF Off **RF Off Response**	**AA BB CC 11 22 33 1F 20 0C 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 D4** **11 22 33 AA BB CC 2B 20 0C**

The above example device 11 22 33 is sent a command that disables RF (0x20 0x0C).

Docklight Example:

```
3/3/2014 10:46:26.289 [TX] - 02 62 00 00 04 1F 20 0C 00 00 00 00 00 00 00 00 00 00 00 00 D4
3/3/2014 10:46:26.310 [RX] - 02 62 00 00 04 1F 20 0C 00 00 00 00 00 00 00 00 00 00 00 00 D4 06
INSTEON EXT TX
02 50 00 00 04 AA AA 01 2B 20 0C  INSTEON STD RX
```

RF On

This command enables RF communication.

Command Name	RF On
Message Length	Extended Message (ED)
Message Type	Direct
Transmitting Device ID	Controller
Receiving Device ID	On/Off Outlet
Flags Byte	Message Type
Command 1	0x20
Command 2	0x0D
Data 1 – Data 13	Ignored Value
Data 14	Calculated Checksum (See below in Checksum Information)

Command Name	RF On Response
Message Length	Standard Message (SD)
Message Type	Ack
Transmitting Device ID	On/Off Outlet
Receiving Device ID	Controller
Flags Byte	Message Type
Command 1	0x20
Command 2	0x0D

Command Example:

RF On **RF On Response**	**AA BB CC 11 22 33 1F 20 0D 00 00 00 00 00 00 00 00 00 00 00 00 00 00 D3** **11 22 33 AA BB CC 2B 20 0D**

The above example device 11 22 33 is sent a command that enables RF (0x20 0x0D).

Docklight Example:

```
3/3/2014 10:46:36.162 [TX] - 02 62 00 00 04 1F 20 0D 00 00 00 00 00 00 00 00 00 00 00 00 D3
3/3/2014 10:46:36.180 [RX] - 02 62 00 00 04 1F 20 0D 00 00 00 00 00 00 00 00 00 00 00 00 D3 06
INSTEON EXT TX
02 50 00 00 04 AA AA 01 2B 20 0D  INSTEON STD RX
```

Powerline Off

This command disables powerline communication. On power cycle powerline will turn back On.

Command Name	Powerline Off
Message Length	Extended Message (ED)
Message Type	Direct
Transmitting Device ID	Controller
Receiving Device ID	On/Off Outlet
Flags Byte	Message Type
Command 1	0x20
Command 2	0x0E
Data 1 – Data 13	Ignored Value
Data 14	Calculated Checksum (See below in Checksum Information)

Command Name	Powerline Off Response
Message Length	Standard Message (SD)
Message Type	Ack
Transmitting Device ID	On/Off Outlet
Receiving Device ID	Controller
Flags Byte	Message Type
Command 1	0x20
Command 2	0x0E

Command Example:

Powerline Off **Powerline Off Response**	**AA BB CC 11 22 33 1F 20 0E 00 00 00 00 00 00 00 00 00 00 00 00 00 00 D2** **11 22 33 AA BB CC 2B 20 0E**

The above example device 11 22 33 is sent a command that disables powerline (0x20 0x0E).

Docklight Example:

```
3/3/2014 10:46:26.289 [TX] - 02 62 00 00 04 1F 20 0E 00 00 00 00 00 00 00 00 00 00 00 00 D2
3/3/2014 10:46:26.310 [RX] - 02 62 00 00 04 1F 20 0E 00 00 00 00 00 00 00 00 00 00 00 00 D2 06
INSTEON EXT TX
02 50 00 00 04 AA AA 01 2B 20 0E  INSTEON STD RX
```

Powerline On

This command enables powerline communication.

Command Name	Powerline On
Message Length	Extended Message (ED)
Message Type	Direct
Transmitting Device ID	Controller
Receiving Device ID	On/Off Outlet
Flags Byte	Message Type
Command 1	0x20
Command 2	0x0F
Data 1 – Data 13	Ignored Value
Data 14	Calculated Checksum (See below in Checksum Information)

Command Name	Powerline On Response
Message Length	Standard Message (SD)
Message Type	Ack
Transmitting Device ID	On/Off Outlet
Receiving Device ID	Controller
Flags Byte	Message Type
Command 1	0x20
Command 2	0x0F

Command Example:

Powerline On	**AA BB CC 11 22 33 1F 20 0F 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 D1**
Powerline On Response	**11 22 33 AA BB CC 2B 20 0F**

The above example device 11 22 33 is sent a command that disables a beep on any keypress (0x20 0x0F).

Docklight Example:

```
3/3/2014 10:46:36.162 [TX] - 02 62 00 00 04 1F 20 0F 00 00 00 00 00 00 00 00 00 00 00 00 00 00 D1
3/3/2014 10:46:36.180 [RX] - 02 62 00 00 04 1F 20 0F 00 00 00 00 00 00 00 00 00 00 00 00 00 00 D1 06
INSTEON EXT TX
02 50 00 00 04 AA AA 01 2B 20 0F  INSTEON STD RX
```

Read Configuration Byte 2

This command asks the device for its Configuration Byte 2.

Command Name	Read Configuration Byte 2
Message Length	Standard Message (SD)
Message Type	Direct
Transmitting Device ID	Controller
Receiving Device ID	On/Off Outlet
Flags Byte	Message Type
Command 1	0x1F
Command 2	0x05

Command Name	Read Configuration Byte 2 Response
Message Length	Standard Message (SD)
Message Type	Ack
Transmitting Device ID	On/Off Outlet
Receiving Device ID	Controller
Configuration Byte	Message Type
Command 1	0x1F
Command 2	Configuration Byte: bit 0 = Reserved for Internal Use bit 1 = No X10 On/**Off** bit 2 = Error Blink **On**/Off bit 3 = Cleanup Report **On**/Off bit 4 = Lock Buttons On/**Off** bit 5 = Reserved for Internal Use bit 6 = Smart Hops **On**/Off bit 7 = Reserved for Internal Use (0x0D is the default Config Byte. Default settings are in Bold.)

Command Example:

Read Configuration Byte 2	`AA BB CC 11 22 33 0F 1F 05`
Read Configuration Byte 2 Response	`11 22 33 AA BB CC 2B 1F 0D`

The above example device 11 22 33 is sent a command that asks it for its Configuration Byte 2(Command 1 = 0x1F, Command 2 = 0x05). Device 11 22 33 then responds back with its Configuration Byte (0x0D). This means that device 11 22 33 has Error Blink On, Cleanup Report On, Lock Buttons Off, and Smart Hops On.

Docklight Example:

```
5/6/2014 11:07:15.931 [TX] - 02 62 00 00 04 0F 1F 05
5/6/2014 11:07:15.950 [RX] - 02 62 00 00 04 0F 1F 05 06  INSTEON STD TX
 Read Operating Flags 2
02 50 00 00 04 1A 77 7B 2B 1F 0D  INSTEON STD RX
```

X10 Off

This command disables X10 communication

Command Name	X10 Off
Message Length	Extended Message (ED)
Message Type	Direct
Transmitting Device ID	Controller
Receiving Device ID	On/Off Outlet
Flags Byte	Message Type
Command 1	0x20
Command 2	0x12
Data 1 – Data 13	Ignored Value
Data 14	Calculated Checksum (See below in Checksum Information)

Command Name	X10 Off Response
Message Length	Standard Message (SD)
Message Type	Ack
Transmitting Device ID	On/Off Outlet
Receiving Device ID	Controller
Flags Byte	Message Type
Command 1	0x20
Command 2	0x12

Command Example:

X10 Off **X10 Off Response**	**AA BB CC 11 22 33 1F 20 12 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 CE** **11 22 33 AA BB CC 2B 20 12**

The above example device 11 22 33 is sent a command that disables X10 communication (0x20 0x12).

Docklight Example:

```
3/3/2014 10:46:26.289 [TX] - 02 62 00 00 04 1F 20 12 00 00 00 00 00 00 00 00 00 00 00 00 CE
3/3/2014 10:46:26.310 [RX] - 02 62 00 00 04 1F 20 12 00 00 00 00 00 00 00 00 00 00 00 00 CE 06
INSTEON EXT TX
02 50 00 00 04 AA AA 01 2B 20 12  INSTEON STD RX
```

X10 On

This command enables X10 communication

Command Name	X10 On
Message Length	Extended Message (ED)
Message Type	Direct
Transmitting Device ID	Controller
Receiving Device ID	On/Off Outlet
Flags Byte	Message Type
Command 1	0x20
Command 2	0x13
Data 1 – Data 13	Ignored Value
Data 14	Calculated Checksum (See below in Checksum Information)

Command Name	X10 On Response
Message Length	Standard Message (SD)
Message Type	Ack
Transmitting Device ID	On/Off Outlet
Receiving Device ID	Controller
Flags Byte	Message Type
Command 1	0x20
Command 2	0x13

Command Example:

X10 On **X10 On Response**	**AA BB CC 11 22 33 1F 20 13 00 00 00 00 00 00 00 00 00 00 00 00 00 00 CD** **11 22 33 AA BB CC 2B 20 13**

The above example device 11 22 33 is sent a command that enables X10 communication (0x20 0x13).

Docklight Example:

```
3/3/2014 10:46:36.162 [TX] - 02 62 00 00 04 1F 20 13 00 00 00 00 00 00 00 00 00 00 00 00 CD
3/3/2014 10:46:36.180 [RX] - 02 62 00 00 04 1F 20 13 00 00 00 00 00 00 00 00 00 00 00 00 CD 06
INSTEON EXT TX
02 50 00 00 04 AA AA 01 2B 20 13  INSTEON STD RX
```

Error Blink Off

This command disables the Error Blink feature.

Command Name	Error Blink Off
Message Length	Extended Message (ED)
Message Type	Direct
Transmitting Device ID	Controller
Receiving Device ID	On/Off Outlet
Flags Byte	Message Type
Command 1	0x20
Command 2	0x14
Data 1 – Data 13	Ignored Value
Data 14	Calculated Checksum (See below in Checksum Information)

Command Name	Error Blink Off Response
Message Length	Standard Message (SD)
Message Type	Ack
Transmitting Device ID	On/Off Outlet
Receiving Device ID	Controller
Flags Byte	Message Type
Command 1	0x20
Command 2	0x14

Command Example:

Error Blink Off **Error Blink Off Response**	**AA BB CC 11 22 33 1F 20 14 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 CC** **11 22 33 AA BB CC 2B 20 14**

The above example device 11 22 33 is sent a command that disables Error Blink (0x20 0x14).

Docklight Example:

```
3/3/2014 10:46:26.289 [TX] - 02 62 00 00 04 1F 20 14 00 00 00 00 00 00 00 00 00 00 00 00 CC
3/3/2014 10:46:26.310 [RX] - 02 62 00 00 04 1F 20 14 00 00 00 00 00 00 00 00 00 00 00 00 CC 06
INSTEON EXT TX
02 50 00 00 04 AA AA 01 2B 20 14  INSTEON STD RX
```

Error Blink On

This command enables the Error Blink feature.

Command Name	Error Blink On
Message Length	Extended Message (ED)
Message Type	Direct
Transmitting Device ID	Controller
Receiving Device ID	On/Off Outlet
Flags Byte	Message Type
Command 1	0x20
Command 2	0x15
Data 1 – Data 13	Ignored Value
Data 14	Calculated Checksum (See below in Checksum Information)

Command Name	Error Blink On Response
Message Length	Standard Message (SD)
Message Type	Ack
Transmitting Device ID	On/Off Outlet
Receiving Device ID	Controller
Flags Byte	Message Type
Command 1	0x20
Command 2	0x15

Command Example:

Error Blink On **Error Blink On Response**	**AA BB CC 11 22 33 1F 20 15 00 00 00 00 00 00 00 00 00 00 00 00 00 00 CB** **11 22 33 AA BB CC 2B 20 15**

The above example device 11 22 33 is sent a command that enables Error Blink (0x20 0x15).

Docklight Example:

```
3/3/2014 10:46:36.162 [TX] - 02 62 00 00 04 1F 20 15 00 00 00 00 00 00 00 00 00 00 00 00 CB
3/3/2014 10:46:36.180 [RX] - 02 62 00 00 04 1F 20 15 00 00 00 00 00 00 00 00 00 00 00 00 CB 06
INSTEON EXT TX
02 50 00 00 04 AA AA 01 2B 20 15  INSTEON STD RX
```

Cleanup Report Off

This command tells the device to disable Cleanup Reports.

Command Name	Cleanup Report Off
Message Length	Extended Message (ED)
Message Type	Direct
Transmitting Device ID	Controller
Receiving Device ID	On/Off Outlet
Flags Byte	Message Type
Command 1	0x20
Command 2	0x16
Data 1 – Data 13	Ignored Value
Data 14	Calculated Checksum (See below in Checksum Information)

Command Name	Cleanup Report Off Response
Message Length	Standard Message (SD)
Message Type	Ack
Transmitting Device ID	On/Off Outlet
Receiving Device ID	Controller
Flags Byte	Message Type
Command 1	0x20
Command 2	0x16

Command Example:

Cleanup Report Off **Cleanup Report Off Response**	**AA BB CC 11 22 33 1F 20 16 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 CA** **11 22 33 AA BB CC 2B 20 16**

The above example device 11 22 33 is sent a command that disables Cleanup Reports (0x20 0x16).

Docklight Example:

```
2/5/2014 16:43:43.860 [TX] - 02 62 1A CB 70 1F 20 16 00 00 00 00 00 00 00 00 00 00 00 00 00 CA
2/5/2014 16:43:43.888 [RX] - 02 62 1A CB 70 1F 20 16 00 00 00 00 00 00 00 00 00 00 00 00 00 CA 06
INSTEON EXT TX

2/5/2014 16:43:44.416 [RX] - 02 50 1A CB 70 AA AA 01 2B 20 16  STD INSTEON RX
```

Cleanup Report On

This command tells the device to enable Cleanup Reports.

Command Name	Cleanup Report On
Message Length	Extended Message (ED)
Message Type	Direct
Transmitting Device ID	Controller
Receiving Device ID	On/Off Outlet
Flags Byte	Message Type
Command 1	0x20
Command 2	0x17
Data 1 – Data 13	Ignored Value
Data 14	Calculated Checksum (See below in Checksum Information)

Command Name	Cleanup Report On Response
Message Length	Standard Message (SD)
Message Type	Ack
Transmitting Device ID	On/Off Outlet
Receiving Device ID	Controller
Flags Byte	Message Type
Command 1	0x20
Command 2	0x17

Command Example:

Cleanup Report On **Cleanup Report On Response**	**AA BB CC 11 22 33 1F 20 17 00 00 00 00 00 00 00 00 00 00 00 00 00 00 C9** **11 22 33 AA BB CC 2B 20 17**

The above example device 11 22 33 is sent a command that enables Cleanup Reports (0x20 0x17).

Docklight Example:

```
2/5/2014 16:43:45.070 [TX] - 02 62 1A CB 70 1F 20 17 00 00 00 00 00 00 00 00 00 00 00 00 00 C9
2/5/2014 16:43:45.088 [RX] - 02 62 1A CB 70 1F 20 17 00 00 00 00 00 00 00 00 00 00 00 00 00 C9 06
INSTEON EXT TX

2/5/2014 16:43:45.615 [RX] - 02 50 1A CB 70 AA AA 01 2B 20 17  STD INSTEON RX
```

Smart Hops On

This command Enables Smart Hops

Command Name	Smart Hops On
Message Length	Extended Message (ED)
Message Type	Direct
Transmitting Device ID	Controller
Receiving Device ID	On/Off Outlet
Flags Byte	Message Type
Command 1	0x20
Command 2	0x1C
Data 1 – Data 13	Ignored Value
Data 14	Calculated Checksum (See below in Checksum Information)

Command Name	Smart Hops On Response
Message Length	Standard Message (SD)
Message Type	Ack
Transmitting Device ID	On/Off Outlet
Receiving Device ID	Controller
Flags Byte	Message Type
Command 1	0x20
Command 2	0x1C

Command Example:

Smart Hops On **Smart Hops On Response**	**AA BB CC 11 22 33 1F 20 1C 00 00 00 00 00 00 00 00 00 00 00 00 00 00 C4** **11 22 33 AA BB CC 2B 20 1C**

The above example device 11 22 33 is sent a command that enables Smart Hops, which will start the hops at the last received Ack (0x20 0x1C).

Docklight Example:

```
3/3/2014 10:46:26.289 [TX] - 02 62 00 00 04 1F 20 1C 00 00 00 00 00 00 00 00 00 00 00 00 C4
3/3/2014 10:46:26.310 [RX] - 02 62 00 00 04 1F 20 1C 00 00 00 00 00 00 00 00 00 00 00 00 C4 06
INSTEON EXT TX
02 50 00 00 04 AA AA 01 2B 20 1C INSTEON STD RX
```

Smart Hops Off

This command disables Smart Hops

Command Name	Smart Hops Off
Message Length	Extended Message (ED)
Message Type	Direct
Transmitting Device ID	Controller
Receiving Device ID	On/Off Outlet
Flags Byte	Message Type
Command 1	0x20
Command 2	0x1D
Data 1 – Data 13	Ignored Value
Data 14	Calculated Checksum (See below in Checksum Information)

Command Name	Smart Hops Off Response
Message Length	Standard Message (SD)
Message Type	Ack
Transmitting Device ID	On/Off Outlet
Receiving Device ID	Controller
Flags Byte	Message Type
Command 1	0x20
Command 2	0x1D

Command Example:

Smart Hops Off	**AA BB CC 11 22 33 1F 20 1D 00 00 00 00 00 00 00 00 00 00 00 00 00 00 C3**
Smart Hops Off Response	**11 22 33 AA BB CC 2B 20 1D**

The above example device 11 22 33 is sent a command that disables Smart Hops, which means the start hops will always be 1 (0x20 0x1D).

Docklight Example:

```
3/3/2014 10:46:36.162 [TX] - 02 62 00 00 04 1F 20 1D 00 00 00 00 00 00 00 00 00 00 00 00 00 C3
3/3/2014 10:46:36.180 [RX] - 02 62 00 00 04 1F 20 1D 00 00 00 00 00 00 00 00 00 00 00 00 00 C3 06
INSTEON EXT TX
02 50 00 00 04 AA AA 01 2B 20 1D  INSTEON STD RX
```

Get for Group/Button

This command asks the device for its Group/Button Data

Command Name	Get for Group/Button
Message Length	Extended Message (ED)
Message Type	Direct
Transmitting Device ID	Controller
Receiving Device ID	LED Bulb
Flags Byte	Message Type
Command 1	0x2E
Command 2	0x00
Data 1	0x00 -> 0xFF (Group/Button)
Data 2 – Data 14	0x00

Command Name	Get for Group/Button Response
Message Length	Standard Message (SD)
Message Type	Ack
Transmitting Device ID	LED Bulb
Receiving Device ID	Controller
Flags Byte	Message Type
Command 1	0x2E
Command 2	0x00

Command Name	Get for Group/Button Data
Message Length	Extended Message (ED)
Message Type	Broadcast
Transmitting Device ID	LED Bulb
Receiving Device ID	Controller
Flags Byte	Message Type
Command 1	0x2E
Command 2	0x00
Data 1	Same as what was received in Data 1
Data 2	0x01
Data 3 – Data 4	N/A
Data 5	X10 House Code
Data 6	X10 Unit Code
Data 7 – Data 8	N/A
Data 9	LED Brightness
Data 10 – Data 14	N/A

Command Example:

Get for Group/Button **Get for Group/Button Response** **Get for Group/Button Data**	**AA BB CC 11 22 33 1F 2E 00 01 00 00 00 00 00 00 00 00 00 00 00 00** **11 22 33 AA BB CC 2B 2E 00** **11 22 33 AA BB CC 11 2E 00 01 01 00 00 20 20 1F FF 3F 00 01 00 00 00**

The above example, device 11 22 33 is sent a command that asks for its Get for Group/Button Data for Group 1(0x2E 0x00 0x01). Device 11 22 33 responds back with no X10 Address (Data 5 = 0x20 and Data 6 = 0x20) and a bright LED brightness level (Data 9 = 0x3F).

Docklight Example:

```
5/6/2014 10:28:33.346 [TX] - 02 62 00 00 04 1F 2E 00 01 00 00 00 00 00 00 00 00 00 00 00 00 00
5/6/2014 10:28:33.372 [RX] - 02 62 00 00 04 1F 2E 00 01 00 00 00 00 00 00 00 00 00 00 00 00 06
INSTEON EXT TX
02 50 00 00 04 1A 77 7B 2B 2E 00  INSTEON STD RX
02 51 00 00 04 1A 77 7B 11 2E 00 01 01 00 00 20 20 1C FE 11 00 00 00 9D 01  INSTEON EXT RX
                                Get for Group/Button
```

Set X10 Address

This command sets the device's X10 Address

Command Name	Set X10 Address
Message Length	Extended Message (ED)
Message Type	Direct
Transmitting Device ID	Controller
Receiving Device ID	LED Bulb
Flags Byte	Message Type
Command 1	0x2E
Command 2	0x00
Data 1	Group (0x01 = Top Outlet, 0x02 = Bottom Outlet)
Data 2	0x04
Data 3	House Code (0x20 = No X10 Address)
Data 4	Unit Code
Data 5 – Data 13	0x00
Data 14	Calculated Checksum (See below in Checksum Information)

Command Name	Set X10 Address Response
Message Length	Standard Message (SD)
Message Type	Ack
Transmitting Device ID	LED Bulb
Receiving Device ID	Controller
Flags Byte	Message Type
Command 1	0x2E
Command 2	0x00

Command Example:

Set X10 Address **Set X10 Address Response**	`AA BB CC 11 22 33 1F 2E 00 01 04 06 0C 00 00 00 00 00 00 00 00 00 BB` `11 22 33 AA BB CC 2B 2E 00`

The above example, device 11 22 33 is sent a command that sets the X10 Address for the top outlet to A1 (Command 1 = 0x2E, Command 2 = 0x00, Data 1 = 0x01 for Group 1, Data 2 = 0x04 which indicates we're setting the X10 Address, Data 3 = 0x06 which sets the House Code to A, and Data 4 = 0x0C which sets the Unit Code to 1).

Docklight Example:

```
5/6/2014 10:44:22.304 [TX] - 02 62 00 00 04 1F 2E 00 01 04 06 0C 00 00 00 00 00 00 00 00 BB
5/6/2014 10:44:22.328 [RX] - 02 62 00 00 04 1F 2E 00 01 04 06 0C 00 00 00 00 00 00 00 00 BB 06
INSTEON EXT TX
02 50 00 00 04 1A 77 7B 2B 2E 00  INSTEON STD RX
```

Set LED Brightness

This command sets the device's LED Brightness

Command Name	Set LED Brightness
Message Length	Extended Message (ED)
Message Type	Direct
Transmitting Device ID	Controller
Receiving Device ID	LED Bulb
Flags Byte	Message Type
Command 1	0x2E
Command 2	0x00
Data 1	0x00
Data 2	0x07
Data 3	0x11 -> 0x7F (dimmest -> brightest)
Data 4 – Data 13	0x00
Data 14	Calculated Checksum (See below in Checksum Information)

Command Name	Set LED Brightness Response
Message Length	Standard Message (SD)
Message Type	Ack
Transmitting Device ID	LED Bulb
Receiving Device ID	Controller
Flags Byte	Message Type
Command 1	0x2E
Command 2	0x00

Command Example:

Set LED Brightnes **Set LED Brightness Response**	**AA BB CC 11 22 33 1F 2E 00 00 07 7F 00 00 00 00 00 00 00 00 00 4C** **11 22 33 AA BB CC 2B 2E 00**

The above example, device 11 22 33 is sent a command that sets its LED Brightness to Very Bright (Command 1 = 0x2E, Command 2 = 0x00, Data 1 = 0x00, Data 2 = 0x07 which indicates we're setting the LED Brightness, Data 3 = 0x7F which is the highest it can be set to).

```
5/6/2014 10:59:47.304 [TX] - 02 62 00 00 04 1F 2E 00 00 07 7F 00 00 00 00 00 00 00 00 00 00 4C
5/6/2014 10:59:47.324 [RX] - 02 62 00 00 04 1F 2E 00 00 07 7F 00 00 00 00 00 00 00 00 00 00 4C 06
INSTEON EXT TX
 Set LED Brightness (High)
02 50 00 00 04 1A 77 7B 2B 2E 00  INSTEON STD RX
```

Appendix

Checksum Information

For Set Database, Set Properties and 0x20, Data14 will contain a 2s compliment of cmd1 through 2nd to last data record in the last data record.

Example of Checksum:

Message for Checksum Example	**AA BB CC 11 22 33 1F 2E 00 01 05 FF 00 00 00 00 00 00 00 00 00 00 DD**

The above example, device 11 22 33 is sent a command that requires a checksum in Data 14. The checksum is calculated by summing all the values from Command 1 to Data 13(0x2E + 0x01 + 0x05 + 0xFF = 0x133). We then calculate the compliment of the last byte(0x33 compliment = 0xCC). Then we add 1(0x01) to find the checksum for Data 14(0xCC + 0x01 = checksum = 0xCD).

Memory Map

All-Link Database (AL /L) Overview

The AL /L starts at the top of external (serial) EEPROM and grows downward. In the INSTEON On/Off Outlet, top of memory is 0x0FFF. Each AL /L Record is 8 bytes long, so the first record starts at 0x0FF8, the second record starts at 0x0FF0, and so on down to 0x0300 for a total of 416 links. In what follows, the 3-byte INSTEON Address contained in a record is called the *Device ID* or sometimes just the *ID*. The high byte (MSB) of the Device ID is *ID2*, the middle byte is *ID1*, and the low byte (LSB) is *ID0*.

EEPROM Structure Overview

Location	Comments
0x0FF8	All-Link Database Record
0x0FF0	Ack
0x0FD8	On/Off Outlet
.....	Controller
0x0300	Last Record, 416 total links allowed
0x02xx	Addressing below 0x0300 is ignored by the database

AL /L Record Format

INSTEON On/Off Outlet AL Record Format

Database entries with Record Control Bit 6: 0 = Responder and Group 1 will control the local load.

Field	Description
Record Control	Record Control Flag Bits: Bit7: 1 = Record is in use, 0 = Record is available Bit 6: 0 = Responder to (Slave of) Device ID Bit 5: Not Used Bit 4 & Bit 3: SmartHops (Keeps track of what the start hop should be) Bit 2: Not Used Bit 1: 1 = Record has been used before, 0 = High Water Mark Bit 0: Not Used
Group	All-Link Group Number this Device ID belongs to
ID	Device ID
Data 1	On Level
Data 2	Ramp Rate
Data 3	Not Used

To add a record to an AL /L, you search for an existing record that is marked available. (Available means the same as empty, unused or deleted.) If none is available, you create a new record at the end of the AL /L.

An unused record will have bit 7 of the *Record Control* byte set to zero. The last record in an AL /L will have bit 1 of the *Record Control* byte set to zero.

Overwriting an Empty AL /L Record

If you found an empty record, you simply overwrite it with your new record data.

Change bit 7 of the *Record Control* byte from zero to one to show that the record is now in use.

Set bit 6 of the *Record Control* byte to one if the device containing the AL /L is an INSTEON Controller of the INSTEON Responder Device whose *ID* is in the record. If instead the device containing the AL /L is an INSTEON Responder to the INSTEON Controller Device whose *ID* is in the record, then clear bit 6 of the *Record Control* byte to zero. In other words, within an AL /L, setting bit 6 means “I’m a Controller,” and clearing bit 6 means “I’m a Responder.”

Put the ALL-Link Group number in the *Group* field, and put the *Device ID* in the *ID* field. Finally, set the *Data 1*, *Data 2*, and *Data 3* fields appropriately for the *Record Class* you are storing.

Creating a New AL /L Record

To create a new record at the end of the AL /T, find the record with bit 1 of the *Record Control* byte set to zero, indicating that it is the last record in the AL /L. Flip that bit to one.

Get Database

This command asks the device for a record in its database or the entire database.

Command Name	Get Database
Message Length	Extended Message (ED)
Message Type	Direct
Transmitting Device ID	Controller
Receiving Device ID	On/Off Outlet
Flags Byte	Message Type
Command 1	0x2F
Command 2	0x00
Data 1	Ignored Value
Data 2	0x00
Data 3	0x00 -> 0xFF (Hi Byte Address)
Data 4	0x00 -> 0xFF (Lo Byte Address)
Data 5	0x00 -> 0xFF (# of Records, 0x00 dumps all records)
Data 6 – Data 14	Ignored Value

Command Name	Get Database Response
Message Length	Standard Message (SD)
Message Type	Ack
Transmitting Device ID	On/Off Outlet
Receiving Device ID	Controller
Flags Byte	Message Type
Command 1	0x2F
Command 2	0x00

Command Name	Get Database Data
Message Length	Extended Message (ED)
Message Type	Broadcast
Transmitting Device ID	On/Off Outlet
Receiving Device ID	Controller
Flags Byte	Message Type
Command 1	0x2F
Command 2	0x00
Data 1	0x00
Data 2	0x01
Data 3	0x00 -> 0xFF (Hi Byte Address)
Data 4	0x00 -> 0xFF (Lo Byte Address)
Data 5	0x00
Data 6	Link Type Byte: Bit 0 = 0 Bit 1 = High Water (Marks the highest record used in the database) Bit 2 = 0 Bit 3 & Bit 4 = SmartHop (Keeps track of what the start hop should be) Bit 5 = 1 Bit 6 = Controls Me=0; I Control=1 Bit 7 = Inactive=0; Active=1
Data 7	Group Number of Link
Data 8	Linked Device ID (Hi Byte)
Data 9	Linked Device ID (Mid Byte)
Data 10	Linked Device ID (Lo Byte)
Data 11	On-Level of Link
Data 12	Ramp Rate of Link
Data 13	Ignored Value
Data 14	Calculated Checksum (See below in Checksum Information)

Command Name	Empty Record
Message Length	Extended Message (ED)
Message Type	Broadcast
Transmitting Device ID	On/Off Outlet
Receiving Device ID	Controller
Flags Byte	Message Type
Command 1	0x2F
Command 2	0x00
Data 1	0x00
Data 2	0x01
Data 3	0x00 -> 0xFF (Hi Byte Address)
Data 4	0x00 -> 0xFF (Lo Byte Address)
Data 5	0x00
Data 6	0x00
Data 7	0x00
Data 8	0x00
Data 9	0x00
Data 10	0x00
Data 11	0x00
Data 12	0x00
Data 13	0x00
Data 14	Calculated Checksum (See below in Checksum Information)

Command Example:

Get Database **Get Database Response** **Get Database Data** **Empty Record**	**AA BB CC 11 22 33 1F 2F 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00** **11 22 33 AA BB CC 2B 2F 00** **11 22 33 AA BB CC 11 2F 00 00 01 0F FF 00 A2 00 11 CC AB FF 1F 01 79** **11 22 33 AA BB CC 11 2F 00 00 01 0F F7 00 00 00 00 00 00 00 00 00 CA**

The above example, device 11 22 33 is sent a command that asks it for its entire database (0x2F 0x00 0x00 0x00 0x00 0x00 0x00). Device 11 22 33 Acks the command then sends out its first database record (0x0F 0xFF). The next spot is an empty record so the device stops sending out its database (0x0F 0xF7).

Docklight Example:

```
9/23/2013 16:29:24.266 [TX] - 02 62 29 70 02 1F 2F 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
9/23/2013 16:29:24.279 [RX] - 02 62 29 70 02 1F 2F 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
                              06  INSTEON EXT TX Get Database
                              02 50 29 70 02 1A 77 7B 2B 2F 00  INSTEON STD RX
                              02 51 29 70 02 1A 77 7B 11 2F 00 00 01 0F FF 00 A2 00 11 CC AB FF
                              1F 01 79  INSTEON EXT RX
                              02 51 29 70 02 1A 77 7B 11 2F 00 00 01 0F F7 00 AA 00 1C 30 B4 00
                              1C 00 04  INSTEON EXT RX
                              02 51 29 70 02 1A 77 7B 11 2F 00 00 01 0F EF 00 AA 01 18 94 F1 00
                              1F 00 6B  INSTEON EXT RX
                              02 51 29 70 02 1A 77 7B 11 2F 00 00 01 0F E7 00 AA 01 1A 77 7B 00
                              00 00 23  INSTEON EXT RX
                              02 51 29 70 02 1A 77 7B 11 2F 00 00 01 0F DF 00 00 00 00 00 00 00
                              00 00 E2  INSTEON EXT RX
```

Set Database

This command writes a record to the device's database.

Command Name	Set Database
Message Length	Extended Message (ED)
Message Type	Direct
Transmitting Device ID	Controller
Receiving Device ID	On/Off Outlet
Flags Byte	Message Type
Command 1	0x2F
Command 2	0x00
Data 1	Ignored Value
Data 2	0x02
Data 3	0x00 -> 0xFF (Hi Byte Address)
Data 4	0x00 -> 0xFF (Lo Byte Address)
Data 5	0x01 -> 0x08 (# of bytes to write, over 0x08 is an error and ignored)
Data 6	
Data 7	Group Number of Link
Data 8	Linked Device ID (Hi Byte)
Data 9	Linked Device ID (Mid Byte)
Data 10	Linked Device ID (Lo Byte)
Data 11	On-Level of Link
Data 12	Ramp Rate of Link
Data 13	Ignored Value
Data 14	Calculated Checksum (See below in Checksum Information)

Command Name	Set Database Response
Message Length	Standard Message (SD)
Message Type	Ack
Transmitting Device ID	On/Off Outlet
Receiving Device ID	Controller
Flags Byte	Message Type
Command 1	0x2F
Command 2	0x00

Command Example:

Set Database **Set Database Response**	**AA BB CC 11 22 33 1F 2F 00 00 02 0F F7 08 AA 00 18 A1 C5 00 1C 00 7D** **11 22 33 AA BB CC 2B 2F 00**

The above example, device 11 22 33 is sent a command that writes a record to its database at location 0x0F 0xF7 (0x2F 0x00 0x00 0x02 0x0F 0xF7)

Docklight Example:

```
9/24/2013 09:41:43.127 [TX] - 02 62 29 70 02 1F 2F 00 00 02 0F F7 08 AA 00 18 A1 C5 00 1C 00 7D
9/24/2013 09:41:43.146 [RX] - 02 62 29 70 02 1F 2F 00 00 02 0F F7 08 AA 00 18 A1 C5 00 1C 00 7D
                              06  INSTEON EXT TX Set Database
                              02 50 29 70 02 1A 77 7B 2B 2F 00  INSTEON STD RX
```