

Insteon - (Individual Lighting Loads and Scenes)

Insteon requires a special firmware version in the M1XSP. This firmware must be downloaded from the ELK M1 Dealer Web site and "flash" programmed in the field using Elk-RP. The firmware version can be identified by its unique first two digits being 50, example 50.0.16. This special firmware does not support any other manufacturer or protocol.

Insteon is a form of Powerline Communications "PLC" technology. Devices include Light Switches, Lamp Modules, Appliance Modules, and a Powerline Serial Controller 'PC' Interface. Insteon offers RF signal enhancers to extend the signal range and provide power line signal bridging. A Powerline Serial Controller is required for interfacing with the ELK-M1XSP, and then into the M1 line of controls. The M1 control family supports up to 192 individually addressable Insteon modules and up to 63 scenes or groups. Individual addresses 1-192 are mapped into the M1 architecture as lighting devices 1 to 192. Groups 1-63 are mapped in as lighting devices 193-255. For example, to turn on INSTEON Group 1 it would be necessary to turn on M1 Lighting device 193. An attached chart outlines the M1 Lighting devices and their corresponding Insteon devices.

Components required for Insteon integration:

- An ELK-M1 or ELK-M1EZ8 Controller.
- One (1) ELK-M1XSP Serial Port Expander "flashed" with a special firmware version that ONLY supports Insteon. This firmware must be downloaded from the ELK M1 Dealer Web site. The firmware version can be identified by its unique first two digits being 50, example 50.0.16. This special firmware does not support any other manufacturer or protocol.
- One (1) Insteon Powerline Serial Controller V2, part number 2414S. It is recommended that this unit be REV. 1.6 or greater (as indicated on its label) and have firmware 2.12 or later with the Smarthome SALad program titled "timerCoreApp" loaded. The newest units all have this application pre-loaded.
- One or more Insteon Lighting devices. I.E., Switchline V2, Lamplinc V2, etc. The Insteon Starter Kit is recommended as it includes 2 of the RF signal enhancers.

Limitations:

- Insteon devices can only be "linked" (learned) into the M1XSP starting at the first M1 Lighting device 001 (A1). At the present time there is no way to have the Insteon devices start at another location, they must always start at 001 (A1).
- Insteon devices cannot be removed or re-arranged individually. If it becomes necessary to remove or re-arrange any linked devices the entire memory must be cleared and all devices re-linked (learned) again.
- Once an M1XSP has been linked with Insteon devices, updating the firmware in that M1XSP will cause all memory of linked addresses to be erased, requiring all devices to be re-linked (learned) again.
- Insteon devices do not initiate a report of their dim level status to the M1. However, they can initiate reports of their full ON or full OFF status changes. Refer to the section titled "Load Status Communications".
- The M1XSP is capable of sending commands to Insteon Groups 1 thru 62, but only if you have a way to setup the Insteon groups. I.E. Setting up Insteon Groups requires special "third party" software. Consult Insteon Technical support..

Setting up the M1XSP and the M1 to communicate with Insteon

1. Install the ELK-M1XSP per the instructions on page 3. Be sure to enroll the device into the M1.
2. Connect the RJ45 modular to 9-pin female serial cable supplied with the Smarthome PowerLinc V2 Serial Controller to the male DB9 9 pin serial connector (J2) on the ELK-M1XSP.
3. Plug the PowerLinc controller into a wall outlet.
4. The **BAUD** Jumpers on the M1XSP should initially be set to **111: S1="1" (UP), S2="1" (UP), S3="1" (UP)** These jumpers may optionally be used during installation to select certain functions or options and explained in these instructions.
5. Set **MODE** Jumpers on the M1XSP to **1 0011: S4*="1" (UP), S5="0" (DN), S6="0" (DN), S7="1" (UP), S8="1" (UP)**.
* NOTE: Some units do not have jumper S4. Jumper S5 has an optional function as explained later in the instructions.
6. Set the M1XSP Jumper **JP3="232"**.
7. Use the ElkRP software to program the attributes for M1/EZ8 Lighting device numbers 1 through 192 as: **"Format=Serial Expander" and "Type= Dimmer" (Type may also be programmed as "On/Off Switch" if a device doesn't offer dimming)**. These first 192 M1/EZ8 lighting devices may be "linked" to Insteon individual addresses. Program the attributes for M1/EZ8 Lighting devices 193 through 254 as: **"Format=Serial Expander", "Type=On/Off Switch"**. These 62 M1/EZ8 lighting devices may be used for controlling Insteon Groups.
10. Program M1 Lighting devices 255 and 256 as: **"Format=Serial Expander", "Type=On/Off Switch"**. Device 255 is reserved for future use. Device 256 is reserved for remotely starting and ending the Insteon "linking" mode. We suggest programming the name for device 256 as: **"Insteon LinkMode"**. Device 256 ON starts "linking" mode. Device 256 OFF ends "linking" mode.

When a M1 Lighting device is activated from a rule or from the M1 Keypad "Automation" menu, the INSTEON device ID number and command will be transmitted. NOTE: Dimming from the Keypad can only be done using a task.

Factory Defaulting Insteon Devices

In the process of installing and/or troubleshooting an Insteon job it may become necessary to factory default one or more devices. An example would be where multiple devices inadvertently become cross-linked together, making them turn on together when they should be separate. This is caused by accidentally linking one device while another device is still in the link mode. See Option A, step 6 on next page. Please consult the instructions that came with the Insteon instructions for steps to factory default each device, including possibly the Powerline 2414S.

Programming and Linking Insteon Modules to the M1XSP:

The M1XSP needs to acquire the address IDs of the installed Insteon devices. The ID is a unique number hardcoded into each Insteon device (i.e. 00.42.12). The M1XSP receives and stores this data from the PowerLinc ONLY while both units are in the "linking" mode. Each Insteon device becomes mapped to an M1 Lighting Device address in the exact order in which it is linked (stored). The very first linked device will be mapped as M1 Lighting device 1 (A1), the second is 2 (A2), etc. REMINDER: At the present time there is no way to have the Insteon devices initially start at another location, it always starts at 1(A1).

Linking (enrolling) Insteon devices

These steps require a Powerlinc 2414S V2 Controller with firmware ver. 2.12. This Powerlinc must also contain the "timerCoreApp" SALadprogram.

1. To start the linking (enrollment) process, go to the M1 Keypad and press the ELK key followed by the Right arrow key to access Menu 1-View/Control Automation Fncts. Press 2 followed by the right arrow key for the Lighting sub-menu. Advance to M1 Light 256 "Insteon LinkMode" by entering 2 - 5 - 6.
2. Turn Light 256 ON by pressing the # (pound) key. The M1XSP will send a serial command to the PowerLinc instructing it to begin a 4 minute linking period. **You have 4 minutes in which to link the first device, and 4 minutes from that point to link another device. Each time a new device is linked the time period will be reset to 4 minutes. Be prepared to work quickly. If the Powerlinc 4 minute timer expires (or you suspect it has expired), it will be necessary to repeat step 1 to restart linking before proceeding on.**
3. Press and hold the link mechanism (Lamplinc "SET" button / SwitchLinc "PADDLE") on the Insteon device to be learned.
4. The light being controlled "the Load" should flash once or twice indicating that it has become linked.
NOTE: The M1XSP status LED flashes ON 3 times and then OFF for 2 seconds once it receives an Insteon address during the linking process. This blink cadence will continue until the linking process is manually ended by step 6. **
5. Release the link mechanism. At this time an LED on the device will continue to flash indicating that it is in the link mode.
6. This next step is very important! With the LED on the device still flashing, momentarily tap the the link mechanism once more and verify that the LED stops flashing. This stops the link mode for this device. Be sure the LED has stopped flashing or else the device will remain in the link mode causing it to be cross linked with future linked devices.
7. Repeat steps 3 thru 6 for each Insteon device to be learned. Each time this is done, the device will be linked to the next incremental M1 Lighting device number (002, 003, 004, etc.). A written record should be kept for future recall.
8. This next step is very important! To end the linking process, go to the M1 Keypad and access the lighting menu. Turn Lighting device 256 "Insteon LinkMode" OFF. The # (pound) key toggles between On and Off. Ending the linking mode will result in the LED on the M1XSP returning to its normal status blink.
9. Test the operation of each light from the ELK-M1 using the lighting control menu at the keypad

** Optional: Some may elect to end the linking process after each new device (using step 5) just so the next linked device will be visually confirmed by the start of the special blink process of the M1XSP. Keep in mind if you elect to do this, the linking process must then be restarted (using step 2) prior to proceeding to the next device.

Option for manually Linking (enrolling) Insteon devices if the above steps do not work. (This should only be necessary with older model Powerlinc 2414S Interface module.)

1. Manually instruct the Powerlinc 2424S V2 Controller to start the linking mode by pressing and holding its "SET" button for 10 seconds, or until the LED begins to flash.
2. Press and hold the link mechanism (Lamplinc "SET" button / SwitchLinc "PADDLE") on the Insteon device to be learned.
3. The light being controlled "the Load" should flash once or twice indicating that it has become linked.
NOTE: The M1XSP status LED flashes ON 3 times and then OFF for 2 seconds once it receives an Insteon address during the linking process. This blink cadence will continue until the linking process is manually ended by step 7.
4. Release the link mechanism.
5. The LED on the Powerlinc Controller should stop flashing (on solid).
6. Repeat steps 1 thru 4 for each Insteon device to be learned. Each time this is done, the device will be linked to the next incremental M1 Lighting device number (002, 003, 004, etc.). A written record should be kept for future recall.
7. This next step is very important! To complete the linking process and store the linked devices in the M1XSP memory, fo , go to the M1 Keypad and access the lighting menu. Turn Lighting device 256 "Insteon LinkMode" OFF. The # (pound) key toggles between On and Off. This will cause the M1XSP LED to return to its normal status blink.
8. Test the operation of each light from the ELK-M1 using the lighting control menu at the keypad

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Linking additional Insteon devices in the future:

Additional Insteon devices can be added "linked" at any time by performing either procedure A or B above. The newly linked device(s) will be associated with the first empty location(s). The maximum individual Insteon devices is 192.

Permanently erasing "Unlinking" all Insteon devices from the M1XSP - (Jumper S1)

At the present time it is not possible to erase or "unlink" Insteon devices individually. The only option is to clear all the linked devices at once, erasing all the memory, making it necessary to re-enroll all devices again.

To erase all the linked devices from memory in the ELK-M1XSP:

1. Power down the M1XSP and move the S1 jumper to the 0 position.
2. After 5 seconds move the S1 jumper back to the 1 position. All devices addresses are now erased in the M1XSP.

Grouping:

M1/EZ8 Lighting devices 193 through 254 are mapped to control Insteon "Groups". The M1XSP can send commands to Insteon Groups 1 thru 62, provided there is a way to setup the Insteon groups. Setting up Insteon Groups requires special "third party" software. Without the software only group 1 can be utilized. To setup Group 1 you must manually place the Powerlinc 2414S V2 into the linking mode and then press the Link mode on the Insteon device, repeating the whole process for each device to be included into Group 1. Controlling the Group 1 is done by simply turning lighting device 193 On or Off.

Operating BOTH Insteon and X-10 devices with a Powerlinc 2414S and M1XSP: (M1XSP Jumper S5)

The M1XSP can communicate with Insteon and traditional X-10 devices through the Powerlinc 2414S Serial Controller. It works as follows: Upon activation of a Lighting device the M1XSP (with Insteon Firmware) will send Insteon commands for the lighting devices number that have an Insteon "linked" address. It sends X-10 commands for the lighting devices that do not have an Insteon "linked" address. This eliminates the need for a separate X-10 PSC05 or TW523 Interface. However, there are tradeoffs and limitations that must be accepted. For example: No X-10 devices can have a House/Unit code that conflicts with any present or future linked Insteon device locations. M1/EZ8 Lighting devices are numbered 1 (A01) to 256 (P16). See the chart on the next page. Insteon device linking BEGINS at Lighting device 1 (A01) and ENDS at 192 (L16). For this reason, avoid X-10 House/Unit codes in the extreme low numbers. Furthermore, no X-10 House/Unit codes can be assigned to light device addresses 193 (M1) through 256 (P16), as these are reserved for Insteon Groups and special commands. There is an option to eliminate Groups and free up addresses 193 (M1) to 254 (P14). See note N2 below.

- N1. With the M1XSP **S5** Jumper set to **"0" (DN)** (factory setting), the M1XSP supports a total of 192 individual Insteon or X-10 Lights and 63 Insteon Groups. It **cannot** support X-10 devices with a House/Unit code of M1 or above in this setting.
- N2. With the M1XSP **S5** Jumper set to **"1" (UP)**, Insteon groups will be disabled and X-10 devices at addresses 193 (M01) through 254 (P14) will be allowed. **Insteon Groups are disabled with S5 in the "1" (UP) position.**
- N3. It is important to note that the optional Insteon RF Signal Enhancers DO NOT provide phase bridging or enhance/extend traditional X-10 transmissions. An X-10 bridge/coupler will still be required for this purpose.
- N4. Use the ElkRP software to program the format for any X-10 devices to **"Serial Expander"**. Assign a name, type, and set the "show" options. This should also be done for any Insteon devices, at least on Light devices 1 to 192.
- N5. Transmitted X-10 commands are limited to On, Off, and Preset Dim (provided the X-10 devices support preset). Received X-10 commands passed from the Powerlinc to the M1XSP are limited to On and Off states ONLY.

Load Status Communications:

With a Powerlinc 2414S Serial Controller containing firmware 2.12 and the SALad program "timerCoreApp", Insteon devices can send their On or OFF status to the M1 whenever a User turns the load On or Off. In order for Load Status "On or Off" tracking to be enabled, the LampLinc or SwitchLinc devices must have the Powerlinc 2414S Serial Controller's address linked into their database. To do this, activate linking mode at the LampLinc or SwitchLinc by pressing and holding the set button or paddle for 10 seconds. The LED will blink on the LampLinc or SwitchLinc. Now press and hold the set button on the PowerLinc 2414S Serial Controller for 10 seconds. The LED on the LampLinc or SwitchLinc should go solid to indicate that the PowerLinc 2414S Serial Controller's address has been linked into the lighting device's database.

NOTE: Insteon devices CANNOT initiate a report of their dim level status to the M1 when a device is changed by the User to a level other than On or Off (eg:50%). An alternate is to have the M1 poll the devices periodically (see section titled Polling).

Optional Polling for Insteon devices status: - (M1XSP Jumper S3)

The M1XSP can be set to periodically poll and retrieve the On, Off, and Dim level status of each linked Insteon device as a workaround to the limitation of Insteon devices not initiating reports of their dim level status. The interval is one device polled every 15 seconds, with the next device polled 15 seconds later and so on. **NOTE: The added traffic associated with polling every 15 seconds may cause problems with other powerline transmissions and/or devices. Other than the use of polling, the M1 cannot maintain or trace Dim level states initiated by the User.**

1. To enable polling by the M1XSP, move Jumper S3 to the "0" (DN) position. This option will not work unless the Powerlinc 2414S Serial Controller contains firmware 2.12 and has the SALad program "timerCoreApp" loaded.

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M1 Lighting Devices Mapped to Insteon											
ELK Light Device #	PLC (X-10) Ref.	Insteon	ELK Light Device #	PLC (X-10) Ref.	Insteon	ELK Light Device #	PLC (X-10) Ref.	Insteon	ELK Light Device #	PLC (X-10) Ref.	Insteon
1	A01	Device 1	65	E01	Device 65	129	I01	Device 129	193	M01	Group 01
2	A02	Device 2	66	E02	Device 66	130	I02	Device 130	194	M02	Group 02
3	A03	Device 3	67	E03	Device 67	131	I03	Device 131	195	M03	Group 03
4	A04	Device 4	68	E04	Device 68	132	I04	Device 132	196	M04	Group 04
5	A05	Device 5	69	E05	Device 69	133	I05	Device 133	197	M05	Group 05
6	A06	Device 6	70	E06	Device 70	134	I06	Device 134	198	M06	Group 06
7	A07	Device 7	71	E07	Device 71	135	I07	Device 135	199	M07	Group 07
8	A08	Device 8	72	E08	Device 72	136	I08	Device 136	200	M08	Group 08
9	A09	Device 9	73	E09	Device 73	137	I09	Device 137	201	M09	Group 09
10	A10	Device 10	74	E10	Device 74	138	I10	Device 138	202	M10	Group 10
11	A11	Device 11	75	E11	Device 75	139	I11	Device 139	203	M11	Group 11
12	A12	Device 12	76	E12	Device 76	140	I12	Device 140	204	M12	Group 12
13	A13	Device 13	77	E13	Device 77	141	I13	Device 141	205	M13	Group 13
14	A14	Device 14	78	E14	Device 78	142	I14	Device 142	206	M14	Group 14
15	A15	Device 15	79	E15	Device 79	143	I15	Device 143	207	M15	Group 15
16	A16	Device 16	80	E16	Device 80	144	I16	Device 144	208	M16	Group 16
17	B01	Device 17	81	F01	Device 81	145	J01	Device 145	209	N01	Group 17
18	B02	Device 18	82	F02	Device 82	146	J02	Device 146	210	N02	Group 18
19	B03	Device 19	83	F03	Device 83	147	J03	Device 147	211	N03	Group 19
20	B04	Device 20	84	F04	Device 84	148	J04	Device 148	212	N04	Group 20
21	B05	Device 21	85	F05	Device 85	149	J05	Device 149	213	N05	Group 21
22	B06	Device 22	86	F06	Device 86	150	J06	Device 150	214	N06	Group 22
23	B07	Device 23	87	F07	Device 87	151	J07	Device 151	215	N07	Group 23
24	B08	Device 24	88	F08	Device 88	152	J08	Device 152	216	N08	Group 24
25	B09	Device 25	89	F09	Device 89	153	J09	Device 153	217	N09	Group 25
26	B10	Device 26	90	F10	Device 90	154	J10	Device 154	218	N10	Group 26
27	B11	Device 27	91	F11	Device 91	155	J11	Device 155	219	N11	Group 27
28	B12	Device 28	92	F12	Device 92	156	J12	Device 156	220	N12	Group 28
29	B13	Device 29	93	F13	Device 93	157	J13	Device 157	221	N13	Group 29
30	B14	Device 30	94	F14	Device 94	158	J14	Device 158	222	N14	Group 30
31	B15	Device 31	95	F15	Device 95	159	J15	Device 159	223	N15	Group 31
32	B16	Device 32	96	F16	Device 96	160	J16	Device 160	224	N16	Group 32
33	C01	Device 33	97	G01	Device 97	161	K01	Device 161	225	O01	Group 33
34	C02	Device 34	98	G02	Device 98	162	K02	Device 162	226	O02	Group 34
35	C03	Device 35	99	G03	Device 99	163	K03	Device 163	227	O03	Group 35
36	C04	Device 36	100	G04	Device 100	164	K04	Device 164	228	O04	Group 36
37	C05	Device 37	101	G05	Device 101	165	K05	Device 165	229	O05	Group 37
38	C06	Device 38	102	G06	Device 102	166	K06	Device 166	230	O06	Group 38
39	C07	Device 39	103	G07	Device 103	167	K07	Device 167	231	O07	Group 39
40	C08	Device 40	104	G08	Device 104	168	K08	Device 168	232	O08	Group 40
41	C09	Device 41	105	G09	Device 105	169	K09	Device 169	233	O09	Group 41
42	C10	Device 42	106	G10	Device 106	170	K10	Device 170	234	O10	Group 42
43	C11	Device 43	107	G11	Device 107	171	K11	Device 171	235	O11	Group 43
44	C12	Device 44	108	G12	Device 108	172	K12	Device 172	236	O12	Group 44
45	C13	Device 45	109	G13	Device 109	173	K13	Device 173	237	O13	Group 45
46	C14	Device 46	110	G14	Device 110	174	K14	Device 174	238	O14	Group 46
47	C15	Device 47	111	G15	Device 111	175	K15	Device 175	239	O15	Group 47
48	C16	Device 48	112	G16	Device 112	176	K16	Device 176	240	O16	Group 48
49	D01	Device 49	113	H01	Device 113	177	L01	Device 177	241	P01	Group 49
50	D02	Device 50	114	H02	Device 114	178	L02	Device 178	242	P02	Group 50
51	D03	Device 51	115	H03	Device 115	179	L03	Device 179	243	P03	Group 51
52	D04	Device 52	116	H04	Device 116	180	L04	Device 180	244	P04	Group 52
53	D05	Device 53	117	H05	Device 117	181	L05	Device 181	245	P05	Group 53
54	D06	Device 54	118	H06	Device 118	182	L06	Device 182	246	P06	Group 54
55	D07	Device 55	119	H07	Device 119	183	L07	Device 183	247	P07	Group 55
56	D08	Device 56	120	H08	Device 120	184	L08	Device 184	248	P08	Group 56
57	D09	Device 57	121	H09	Device 121	185	L09	Device 185	249	P09	Group 57
58	D10	Device 58	122	H10	Device 122	186	L10	Device 186	250	P10	Group 58
59	D11	Device 59	123	H11	Device 123	187	L11	Device 187	251	P11	Group 59
60	D12	Device 60	124	H12	Device 124	188	L12	Device 188	252	P12	Group 60
61	D13	Device 61	125	H13	Device 125	189	L13	Device 189	253	P13	Group 61
62	D14	Device 62	126	H14	Device 126	190	L14	Device 190	254	P14	Group 62
63	D15	Device 63	127	H15	Device 127	191	L15	Device 191	255	P15	Reserved for future use
64	D16	Device 64	128	H16	Device 128	192	L16	Device 192	256	P16	Linking Mode (On/Off)

The PLC column is for reference only.