



# UPStart Export File Description

File Format version: 5

Doc Version: 5.2

1-August-2015



19201 Parthenia Street,  
Suite J  
Northridge, CA 91234

P: 818.701.9831

F: 818.701.1506

[pwxsales@pcslighting.com](mailto:pwxsales@pcslighting.com)



## Export file format for UPStart. Export File Version 5

The intent of the export file is to make available to other programs information about the UPB network without having to read and decode the memory from each device. As such not all information is included. And not all device types are included. The goal is to provide the ones most useful to non-commercial installations.

The Export file is in a CSV format.

Each line starts with a code. These are:

- 0 = BOF (begin of file)
- 1 = EOF (end of file)
- 2 = Link
- 3 = Id
- 4 = Preset
- 5 = Rocker
- 6 = Button
- 7 = Input
- 8 = Channel info
- 9 = VHC (Vacuum Handle Controller: An MD Manufacturing product)
- 10 = Installer info
- 11 = Owner info
- 12 = Device memory (hex)
- 13 = Keypad indicator
- 14 = Thermostat line
- 15 = XPW
- 16 = RFI
- 17 = Keypad button names (added with UPStart 8)
- 18 = Room Icon (added with UPStart 8)
- 19 = Device Icon (added with UPStart 8)

Below are the contents of each record with each comma separated field. There are no optional fields.

### **BOF record (0)**

- File Version
- # UPB devices in the network
- # of defined links
- network id
- network password

When reading this record, the most important thing is the file version. **Current versions of UPStart produce version 5 files.**

### **EOF record (1)**

This record has no additional data

### **Installer Info (10)**

This record contains the data entered into the File – Info on the Installer tab.

- Company
- Name
- Address
- City
- State
- Zip
- Phone
- Email
- Fax
- Pager
- Web

### **Owner Info (11)**

This record contains the data entered into the File – Info on the Owner tab. It is in the same order as the data in the Installer Info record

### **Link record (2)**

- Link Id#
- Link Name

When reading the link records you can construct a table of all the links in use in the network.

### **ID record (3)**

- Module id
- Net id
- Manufacturer id
- Product id
- Firmware major version
- Firmware minor version
- Kind (see below)
- # of channels
- # of transmit components
- # of receive components
- Room name
- Device name
- If the device transmits, its packet type: 0 = Direct, 1 = Link

This is the starting record for each device. Note that it doesn't say if the device is dimmable or not. That information is recorded in the Channel record.

The kind is encoded as:

- 1 = Keypad
- 2 = Switch
- 3 = Module
- 4 = Input Module
- 5 = Input-Output Module
- 6 = VPM
- 7 = VHC
- 8 = Thermostat
- 9 = XPW
- 10=RFI
- 0 = Other

The following tables show the export "kind" for most UPB products. You should not rely upon these tables for your implementation! Not all UPB products may be listed. For example, products that export as type "Other" are not listed. Also this list may be out of date. It is here to show you the general thinking used in classifying products into "kinds".

If you have a product that you want to find out its export kind, just add the device to a network (do an offline add if you don't have an actual device) and export. Then look at the export file.

### **For PCS products**

Product id	Product	Kind
1	(WS1) Wall Switch - 1 Channel	Switch
2	(WS1R) Wall switch – Relay	Switch
3	(WMC6) Wall Mount Controller - 6 Button	Keypad
4	(WMC8) Wall Mount Controller - 8 Button	Keypad
6	(OCM2) Output Control Module - 2 Channel	Module
7	(LCM1) Load Control Module 1	Module
9	(LM1) Lamp Module - 1 Channel	Module
10	(LM2) Lamp Module – 2 Channel	Module
11	(ICM2) Input Control Module - 2 Channel	Input
13	(DTC6) Desktop Controller - 6 Button	Keypad
14	(DTC8) Desktop Controller - 8 Button	Keypad
15	(AM1) Appliance Module - 1 Channel	Module
25	(LSM) Load Shedding Module	Module
24	(WS1E) Wall Switch - Electronic Low Voltage	Switch
36	(DCM) Doorbell Control Module	Input
37	(TCM) Telephone Control Module	Input
58	(RM1) Receptacle Module	Module
60	(FMD2) Fixture Module – Dimmer	Module
61	(FMR) Fixture Module - Relay	Module

62	(WS2D) LED Wall Switch	Switch
63	(KPLD6) Keypad Light Dimmer	Keypad
65	(KPC6) Controller – 6 Button	Keypad
66	(KPC8) Controller – 8 Button	Keypad
69	(KPLD8) Keypad Load Dimmer – 8 Button	Keypad
70	(KPLR6) Keypad Load Relay – 6 Button	Keypad
71	(KPLR8) Keypad Load Relay – 8 Button	Keypad
72	(WS1L) Wall Switch – LED/CFL Dimmer	Keypad
73	(KPC7) Controller – 7 Button	Keypad
74	(KPLR7) Keypad Load Relay – 7 Button	Keypad
75	(KPLD7) Keypad Load Dimmer – 7 Button	Keypad

**For HAI Products**

Product id	Product	Kind
1	35A00-1 600W Dimming Switch	Switch
2	35A00-2 1000W Dimming Switch	Switch
16	35A00-3 600W Non-Dimming Switch	Switch
17	35A00-4 1000W Non-Dimming Switch	Switch
18	40A00-1 15A Relay Switch	Switch
3	55A00-1 1000W Dimming Switch	Switch
4	55A00-2 1500W Dimming Switch	Switch
5	55A00-3 2400W Dimming Switch	Switch
32	59A00-1 300W Lamp Module	Module
48	60A00-1 15A Appliance Module	Module
80	38A00-1 6-Button Room Controller	Keypad
96	38A00-2 8-Button House Controller"	Keypad

**For common SAI / WMT / OEM Products**

Product id	Product	Kind
1	UML Lamp Module	Module
5	UMA Appliance Module	Module
12	UML Lamp Module – Timer	Module
9	UMA Appliance Module – Timer	Module
7	UFR Fixture Relay / URD Receptacle	Switch or Module *
13	UFR Fixture / URD Receptacle – Timer	Switch or Module *
10	UFD Fixture Dimmer	Switch or Module *
14	UFD Fixture Dimmer – Timer	Switch or Module *
15	UCT Tabletop Controller	Keypad
20	USM1 Switch Motorized	Switch
22	US1 / US2 Series Dimming Switch	Switch
26	UCQ / UCQT Quad Output Module	Module
36	UCQTX Quad Output Module	Module
27	US4 Series Quad Dimming Switch	Switch
62	US22-40T Series Dimming Switch	Switch
29	US2-40 Series Dimming Switch	Switch

28	US1-40 Series Dimming Switch	Switch
34	US1-40 Series Dimming Switch – Timer	Switch
44	USM1R	Switch
45	USM2R	Switch
40	UMI-32 3-Input / 2-Output Module	Input-Output Module

\* If the device has an attached remote switch, it is exported as a Switch Kind. Without the attached remote switch it is exported as a Module kind.

**WMT: In addition to the common products, these are also WMT products**

Product id	Product	Kind
88	CLSW-01 Classic series single dimmer wall switch	Switch
89	CL6-01 Classic series wall mount 6 button controller	Keypad

**SAI/OEM: In addition to the common products, these are also SAI/OEM products**

Product id	Product	Kind
201	Lamp Module (UML-E)	Module
205	Appliance Module (UMA-E)	Module
222	Retail Dimming Switch (RS101)	Switch
240	Retail I/O 32 Module	Input-Output Module

**For MD Products**

Product id	Product	Kind
32	(VHC) Vacuum Handle Controller	VHC
33	(VPM) Vacuum Power Module	VPM
35	(VIM) Vacuum Input Module	Input
36	(DSM) Doorbell Sense Module	Input
37	(TSM) Telephone Sense Module	Input

Note:

- After the ID and channel records, subsequent records depend upon the kind of device.
- For kind "other" there are no other records.

**Channel Info Record (8)**

- Channel # (0 = channel 1, 1 = channel 2, etc)
- Module id
- Is dim enabled on this channel?
- Default fade rate for this channel is dim enabled or zero if not

**Preset record (4)**

- Channel # (0 = channel 1, 1 = channel 2, etc)
- Component # (First component is zero)

- Module id
- Link id
- Preset dim level
- Preset dim fade rate

The rate is the actual rate for this preset. If the table shows “default” in the receive components table in UPStart, the default fade rate for the device – set on the UPStart options tab – is saved as the rate.

### **Rocker record (5)**

- Channel #
- Component # (always zero)
- Module id
- Top rocker transmit link id
- Top rocker single click action
- Top rocker double click action
- Top rocker hold action
- Top rocker release action
- Bottom rocker transmit link id
- Bottom rocker single click action
- Bottom rocker double click action
- Bottom rocker hold action
- Bottom rocker release action

All the command actions are encoded as described in the PCS UPB documentation and are in the same order as they appear in the UPStart dropdown controls for commands.

### **Button record (6)**

- Channel #
- Component #
- Module id
- Button link id
- Single click action
- Double click action
- Hold action
- Release action
- Single click toggle action
- Double click toggle action
- Hold toggle action
- Release toggle action
- Indicator link
- Indicator byte (\* see below)

The indicator byte depends upon the keypad firmware.

For firmware which supports indicator groups, what is saved in the record is the byte from the indicator table for this component. Its format and structure is defined in the PCS documentation.

For firmware which supports indicator “by mask”, what is saved in the record is always 0xff for the “Indicator byte”. The button record is then followed by “Keypad indicator” records.

For earlier firmware what is saved in this record is a 0 or a 1. 1 says that the indicator is exclusive. That is, when the indicator link is received all other indicators turn off.

For more info on indicator operation, see the PCS keypad documentation.

### **Input record (7)**

- Channel #
- Component #
- Module id
- Open link id
- Open command id
- Open toggle command id
- Close link id
- Close command id
- Close toggle command id

### **VHC Record (9)**

- Channel #
- Component #
- Module id
- Transmit command

### **Memory Contents (12)**

This record contains the bytes of the device configuration memory expressed in hex. The number of bytes shown in the export file is the number of bytes returned by the Get Device Signature command when sent to the device. See the UPB protocol document for information on the Get Device Signature command. Each record contains data in this format:

- Address
- Data bytes. A max of 16 are given in each memory record

### **Keypad Indicator (13)**

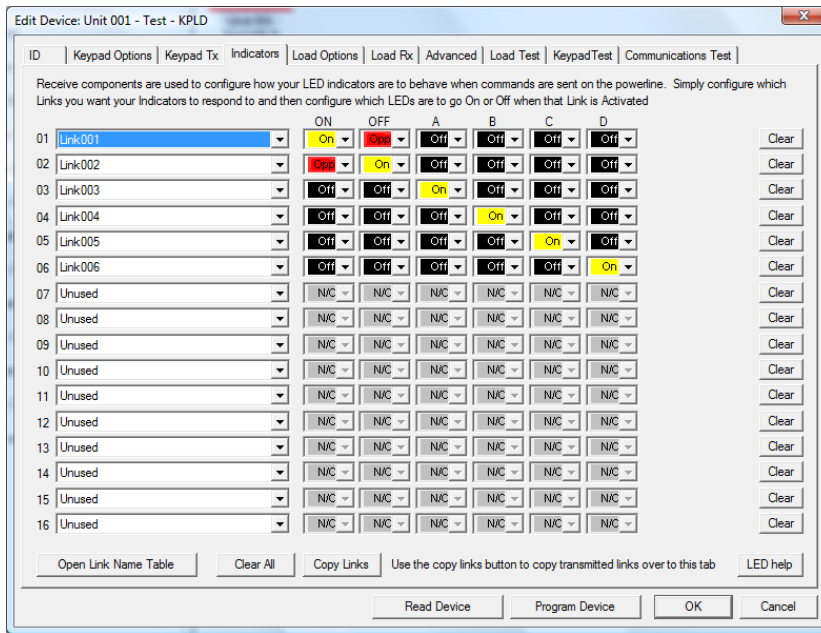
For PCS keypads product id 65 & 66 (KPC6 and KPC8) additional lines are added after all the other lines for the keypad. These lines detail the information on the keypad indicators – what is set up on the Receive Components tab. Each line is formatted as:

- Channel # (always 1)
- Component number (First component is zero, there are 16 components)
- Module id
- Link id



- Mask1
- Mask2

The masks are used to control the indicator action when the link is received. Here is a brief discussion on how these masks are used.



Here are the indicator records from the export:

```

13,0,0,1,1,193,252
13,0,1,1,2,194,252
13,0,2,1,3,4,251
13,0,3,1,4,8,247
13,0,4,1,5,16,239
13,0,5,1,6,32,223
13,0,6,1,255,255,255
13,0,7,1,255,255,255
13,0,8,1,255,255,255
13,0,9,1,255,255,255
13,0,10,1,255,255,255
13,0,11,1,255,255,255
13,0,12,1,255,255,255
13,0,13,1,255,255,255
13,0,14,1,255,255,255
13,0,15,1,255,255,255
    
```

Decode of 1st line:

- 13 = Indicator record
- 0 = Channel
- 0 = Component number (goes from 0 for 1st record to 15 for the last)
- 1 = module id
- 1 = link id

Mask 1 = 193

Mask 2 = 252

Change the two mask values to hex. You get C1 and FC. Change them to binary and write one over the other.

1100 0001

1111 1100

You get eight 2 bit numbers – one bit from the first line and one bit from the second. Like this

11

11

01

01

01

01

00

10

Convert to decimal

11 = 3

11 = 3

01 = 1

01 = 1

01 = 1

01 = 1

00 = 0

10 = 2

Use this key to assign names: 0 = opp, 1 = off, 2 = on, 3 = nop

11 = 3 = nop

11 = 3 = nop

01 = 1 = off

01 = 1 = off

01 = 1 = off

01 = 1 = off

00 = 0 = opp

10 = 2 = on

Note that the “on, opp, off, off, off, off” agrees with the above picture for the 1st indicator

That’s how you do it. Do the next line yourself and you will see it is so.

### **Thermostat (14)**

For thermostats each line is formatted as:

- Channel # (always 1)
- Always 0
- Module id
- String showing Model and Version
- String showing Model and Version
- Units
- Inhibit Link
- Link base
- Setpoint Delta

All this is the same as seen in the properties dialog for thermostats.

For more information on the last 3 items, see the RCS UPB Thermostat specification.

### **XPW (15)**

For the PCS XPW-713 and PW-513 devices that translate X10 and UPB. Each line contains the information on one part of the 16 element map. The encodings are the same as shown on the property dialogs for these device types.

- Channel # (always 1)
- Component
- Module id
- Housecode map
- Command map

### **RFI (16)**

For PCS RFI devices, in addition to the ID line there are eight RFI lines that provide information about each remote that is being managed by the RFI base unit.

- Remote id (0 to 8)
- Module id
- Remote type
- Room name
- Remote name

Each RFI line is followed by one or more rocker or button lines appropriate for the remote type.

### **Keypad Button Name (17)**

The text on keypad buttons for the PulseWorx 6, 7, and 8 button keypads. This is as entered in UPStart on the "Button Engraving" info.

- Device channel
- Device component ( )button number)
- Device module id
- Button name

The button name text is given in the order of the button components. For example the PulseWorx 6 button keypad has as component 1 to ON button,. Component 2 is the OFF button, component 3 is button A, etc.

The keypad button name lines appear after the keypad device specific lines and are only in the file if engraving information for the keypad has been entered in UPStart.

### **Room Icon (18)**

When UPStart is connected to the PulseWorx Gateway then on the Gateway ribbon are facilities for assigning icons to devices and rooms. These icons are the ones shown in applications remotely connected to the Gateway.

- Room name
- Icon name

The icon name is the filename – less the state suffix (\_On, \_Off) and the file type – of the image file.

If present in the export file the room icon lines occur at the end of the file directly before the EOF line.

### **Device Icon (19)**

When UPStart is connected to the PulseWorx Gateway then on the Gateway ribbon are facilities for assigning icons to devices and rooms. These icons are the ones shown in applications remotely connected to the Gateway.

- Device module id
- Icon name

The icon name is the filename – less the state suffix (\_On, \_Off) and the file type – of the image file.

If present in the file the device icon line appears after the device specific information ..

## How to read the file

This is the general procedure. Note that there are many checks built in to the format. You can add tests to make sure you are reading the file correctly.

Read the first line. It should be a BOF record. Check to make sure that the version # matches what you can read. Extract the # of devices and # of links.

Read link lines. You know the # of them from the BOF record.

Loop for # of devices. You know the # from the BOF record

Read line. It should be an ID line. Take note of the kind, the number of channels and the number of transmit and receive components.

If the kind is not one you expect (or is type other) then read subsequent lines until you get a new Id line. Then process that ID line. This allows you to skip any records for kinds of devices that you don't expect.

Loop for the # of channels

Read channel info line

If kind is keypad then

Loop for # transmit components

Read Button line

End loop

If a KPC keypad read keypad indicator lines

End If

If kind is Input then

Loop for # transmit components

Read Input lines

End Loop

End If

If kind is VHC then

Loop for # receive components

Read Preset lines

End Loop

Loop for # transmit components

Read VHC lines

End Loop

End If

If kind is switch or module or InputOutput or VPM then

Loop for # receive components

Read Preset lines

End Loop

Loop for # transmit components

Read Rocker or Input or Button line

End Loop

End If

If kind is thermostat then

Read thermostat line

End If

End channel loop

End device count loop

Read line: It should be an EOF line

In looking over this reading procedure you can see how you can always know what record type you should be reading. You should test for that. Also note how the module id is coded in the records. That should match the module id in the ID record and you should test that also.

#### Notes:

1. When reading SAI devices that have removable face plates that contain buttons and/or rockers, what is output in the export file depends upon the face plate chosen for the device in UPStart. After the receive component lines, there are rocker and button lines appropriate for the variant. For example, you will see 2 rockers and 4 button lines if the “US26 Two Rockers + 4 Buttons” variant is exported.
2. When the PCS Input Control Module (product id 11), Doorbell control module (product id 36) or Telephone control module (product id 37) is exported, it is done such that it looks like a single device with one channel and two components.
3. The SAI / WMT I/O Module (product id 40) is a hard one to handle. Anything that has more than one set of receive components gets put out as multiple channels. But the input side really applies to both. So the inputs are duplicated for each exported channel.
4. Make sure that you ignore lines that you don't expect. In the above reader example, don't use simple for-next loops as there may be more records in a section than the number of components would seem to imply. For example, the device may have 16 receive components but that doesn't mean that you may only encounter exactly 16 records when reading the receive components. The other records may be newer additions than shown in this specification. Always try and create your reader so that it will read newer format but backward compatible files.

### **Special note for Export files stored in the PIM-IP**

When UPStart exports to the PIM-IP memory it makes some small changes to the format to reduce the memory needed. The format as documented above has these changes.

1. There are no Device Memory records in the file.
2. In the receive components table for switches, modules, and keypads, and the indicator tables for keypads, table entries that are unused – link id is 0xff – are not exported. This means that you may not get 16 table entries in these cases. Also you need to pay attention to the “Component number” field in the record. They records will appear in increasing component number order but not always without skipped records.



19201 Parthenia Street,  
Suite J  
Northridge, CA 91234

P: 818.701.9831  
F: 818.701.1506

[pwxsales@pcslighting.com](mailto:pwxsales@pcslighting.com)