

# Universal Powerline Bus



## UPStart Export File Description

Version 5 files

26-September-2007

## 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 line
- 14 = Thermostat line

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
- 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
60	(FMD2) Fixture Module – Dimmer	Module
61	(FMR) Fixture Module - Relay	Module
62	(WS2D) LED Wall Switch	Switch
65	(KPC6) Controller – 6 Button	Keypad
66	(KPC8) Controller – 8 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

<b>Product id</b>	<b>Product</b>	<b>Kind</b>
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

<b>Product id</b>	<b>Product</b>	<b>Kind</b>
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

<b>Product id</b>	<b>Product</b>	<b>Kind</b>
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

<b>Product id</b>	<b>Product</b>	<b>Kind</b>
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 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)
- Link id
- Mask1
- Mask2

The masks are used to control the indicator action when the link is received. See the PCS keypad documentation for how these masks work.

### **Thermostat (14)**

For RCS UPB thermostat one line is present after the channel info line. This line is formatted as:

- Channel # (always 1)
- Component number (always 0)
- Module id
- String showing the firmware version
- String showing the WDU version
- Units (0 = C, 1 = F)
- Inhibit Link
- Link base
- Setpoint Delta

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

## **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. Should be BOF. 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 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.