NOISE FILTERS

Using Upstart software, PIM and a bit of detective work you can find AC NOISE SOURCE problems and add filters to reduce the noise so UPB can work at reliably.

The AC noise can be from either coming INTO the fuse box from outside lines or be after fuse box form internally wired or plug in appliances. These filters will help you find faulty, NON EMC compliant appliances that generate noise into 240VAC power lines.

Note: Moving PIM to different GPO and circuits while using Upstart communications test and help you find noise source buy increasing or decreasing noise levels.

1: Plug in GPO 10amp EMC filter. Plugs into GPO and any appliance up to 10amps.

Part Number FP10A.

2: Fuse box wired of directly wired to hard wired single phase appliance. Finds faulty, NON EMC compliant appliances that generate noise into 240VAC power line.

Part Number FS30A
Part Number F3P30A

4: Determine if noise is coming into fuse box from outside lines.

A: Run communications test on Upstart and note the noise level and transmit and receive values.

B: Set up Upstart and PIM and 1 UPB device on one power circuit with GPO closest to the FUSE box or add temporary GPO. Switch off all other fuses and unplug any other appliances on the powered circuit. 
**Note if 3 Phase DO NOT wire 3 phase repeater and check on each phase.**

C: Run communications test again on Upstart and see if noise level and transmit and receive values have improved. If they have improved then noise is coming from inside the house on another circuit. Switch on other circuits one at a time until the noise returns, use plug in filter in power circuit if coming from GPO. 
**Note: Noise might be intermittent or only on power up of an appliance. Wire filter to input of appliance that is making the noise (Not at fuse box)**

D: If noise is still there and one circuit is powered up then noise is coming into fuse box. Wire single or 3 phase filter from main switch to all other circuits. 
**Note: The filters are rated at 30 amps you might have put 2 or more in if fuse box is rated at more**
than 30 amps. If 3 phase make sure that 3 phase repeater is wired on load side going to house circuits.

**Recommended Tools for UPB installation.**

1: Good Auto Range True RMS Multimeter with min, Cat4, 0.5% accuracy, AC Voltage 100mV to 1KV, AC current 100mA to 10 amps, Frequency 50HZ to 4 MHz + %, Hold, resistance 0 ohm to 40M, Capacitance 1nF to 100uf and NON contact AC present e.g. Jaycar NO. QM1571 cost around $120.00

2: Inline Mains meter with Power Factor Correction (PFC) measures the same amount of power consumption as your FUSE BOX METER. If PFC not correct then something wrong with device and can also be used to determine power consumption WATTAGE for HCA software. Jaycar No.ms6118

3: Recommended but not Essential. Hand held Oscilloscope must be battery operated (must be battery operated to be isolated form mains when reading mains), 1:10 (divide by 10) CRO probe lead to measure up to 450VAC RMS. This device will show you the AC voltage and noise and UPB data, used to track down problems that Upstart and multimeter can not show you. Cost around $200.00

Computer tools.

4: Laptop computer with Window XP to Windows7, RS232 serial port or USB, optional Wi-Fi to connect to external

5: Wireless N Router + USB SERVER. This unit allows Long range 300m USB to RS232 converter, for wireless UPB Powerline Interface Module connection. e.g: Jaycar YN8300 $70 + YN8406 $60
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