HP Dimmer

Dimmer racks

TBJLT063.doc

Date: 22/3/1999

HP Dimmer Mains Tone Interference

Mains tones present on the power supplying an HP Dimmer can cause connected lamps to flicker. Usually this occurs at certain times of day or evening when off-peak hot water systems are switched by the electricity supply company, however similar results can be seen when running an HP Dimmer from a mobile generator. This Tech Note describes modifications to improve the performance under these conditions.

PRODUCTS AFFECTED

- HP12-TR rack-mount and wall-mount dimmers
- HP12-SC rack-mount and wall-mount dimmers
- HP6-SC dimmers

MODIFICATIONS

1/ Replace any low-voltage transformers suspected of high primary magnetising current.
2/ Connect a series "snubber network" across the AC secondary of each of the three transformers. The snubber consists of a 33uF 50V bipolar electrolytic in series with a 4.7 ohm resistor.

DISCUSSION

Dimmers using 375v:23v transformers are not affected. The effectiveness of the mains-tone filtering networks in HP dimmers was reduced when 240v:14v transformers were brought into use. The additional snubbers (described above) bring mains tone rejection up to specification.

Some 240v:14v transformers had manufacturing defects which increase idle magnetising currents and spoils their frequency response. These may be identified physically (by gaps between "E" and "I" laminations in excess of 0.5mm) or by measurement of idle current (greater than 20mA).

If 33uF bipolar electrolytics are not available, 47uF 50V bipolar electrolytics may be used.

The snubber networks may be soldered across the outside secondary pins of the transformers. In HP-TR dimmers, the snubbers may alternatively be soldered across the AC terminals of bridge rectifiers BR13, BR14 and BR15.

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