

Operational Description: HA03 – 300W Plug-in dimmer module

Power is supplied to the HA03 power Printed Circuit Board (PCB) via a NEUTRAL blade contact and a LINE VOLTAGE blade contact. The 125VAC input voltage is reduced, rectified, and regulated to supply 3.3VDC to the RF module. The LINE input is monitored for zero-cross with isolation circuitry feeding directly into the Z-wave ASIC. The triac for varying the dimming of the light load plugged into the device is controlled by the ASIC triac control output, further isolated by transistor circuitry and an optocoupler.

The RF module PCB is a separate PCB that houses the Z-wave ASIC, crystal, EEPROM, various supporting components, and the RF front end. This entire PCB is completely enclosed by a metal shield connected directly to circuit ground. The RF module PCB is attached to a second mounting PCB via headers. A green LED is soldered to the RF module mounting PCB, which is outside the RF shield. This single LED provides feedback function for displaying ON, OFF, dimming, or receiving transmission (FLASHING). The 908.42MHz antenna measuring approximately 3.25" in length, exits the metal shield via a small hole. Local control of the device is achieved via a single pushbutton input directly into the Z-wave ASIC. The pushbutton trace is printed on the bottom side of the RF module mounting PCB. The RF module mounting PCB interfaces with the power PCB via a 6-wire ribbon cable.

Other interfaces to the power PCB include the 2-prong plug receptacle used for connecting lamp loads to the dimmer output, and the 2-prong plug blades used for plugging the dimmer module into a 125VAC receptacle.

The basic functions of the HA03 include turn ON, turn OFF, dim-up, and dim-down. A momentary press and release of the pushbutton will toggle the state of the device ON or OFF. A press and hold of the button will toggle either a dim-up or dim-down. Releasing the button and executing a press and hold a second time will toggle the opposite dim function (either dim-down or dim-up).