

## Hyperlink 2.4 GHz Bi-Directional Amplifier With AGC

The Hyperlink bi-directional amplifier utilizes Automatic Gain Control, AGC, to compensate for cable length differences encountered during installation. The amplifier uses a variation of AGC called Forward AGC, FAGC, to control the gain of the transmit path so as to provide a constant amplifier power output. FAGC is a well known technique utilized in many professional and consumer products to normalize signal levels.

The amplifier uses its input RF pulse detector to provide a DC level proportional to the amplitude of the RF pulse. This DC pulse is fed to a high speed differential amplifier, which in turn drives a Voltage Controlled Attenuator, VCA, in the transmit signal path. The VCA adjusts the transmit power on a burst to burst basis, so as to provide a constant amplifier output power even if the RF bursts vary in amplitude. The RF detector and VCA are both linearized over a 20 dB range. This allows the input level to vary over 20 dB in level, and the output power will stay constant.