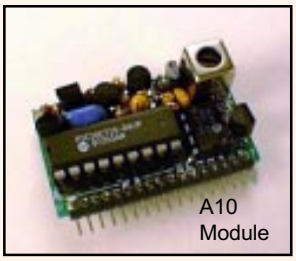
Overview of New A10 Enhancements to ACT Powerline Control Products


A10 Module

Advanced Control Technologies announces A10, a modular chip set that greatly enhances the performance of powerline control products. A10 technology provides increased signal to noise response in ACT's coupler/repeaters and powerline control receivers, allowing operation with a signal level only 35% greater than the electrical line noise.

ACT's powerline control transmitters use existing electrical wiring to transmit ON/OFF signals to powerline receivers controlling electrical loads in commercial and industrial buildings. A10 technology can be utilized on any 50 or 60 Hz power system, with voltages ranging from 120 VAC up to 480 VAC.

A10 circuitry provides the following performance enhancements:

1. **Signal Strength -** A10 increases the signal strength of powerline transmitters from 3 VPP (volts peak to peak) to 6 VPP, effectively doubling the performance of ACT transmitters over competitive products.
2. **Receive Sensitivity -** The A10 module also improves the performance of powerline receivers by reducing the required signal level to 25 mV from the 100 mV requirement of competitive receivers.
3. **Two Way Communication -** A10 modules provide both receive and transmit capability, providing user confidence in their proper operation.
4. **Signal to Noise Ratio -** Current competitive products have an AGC circuit that helps to overcome noisy environments. That AGC circuit requires a 2:1 ratio of signal to noise to operate properly. The A10 circuit requires only a 1.35:1 ratio.
5. **Noise Threshold -** The A10 circuit can operate in powerline environments with as much as 3 volts of noise. Competitive products quit operating if the noise level exceeds 1 volt.

A10 circuitry provides the following new features:

1. **Automatic Acknowledgment (Yes / No) -** Allows ACT to enable the device to automatically send its status after reception of a valid command.
2. **Respond to Status Request (Yes / No) -** Allows ACT to enable the receiver to respond to a Status Request command, e.g. ON, OFF. The user can enable/disable this function and also allows for the addition of additional status to be added to the command structure (e.g. Dim Level) by software changes.
3. **Device address (Standard) -** A10 receivers incorporate the use of external "push button" programming of the unit's address and operating characteristics. This eliminates the need for costly on-board rotary switches and affords better security for the address setting. The user programs the receiver to a standard code address by pushing a program button on the receiver and sending it an address twice on the power line. The address is stored in the Configuration Memory. Available codes sets are the 256 X-10 codes, the X-10 extended code, or the "ACT Code" set of 4,096 addresses.

4. **Respond to Hail Request (Yes / No) -** Similar to the Status Request command and allows the device to respond back with a Hail Acknowledge. This command is used specifically by a controller to determine if another controller is in range and using the same address space.
5. **Respond to All Units Off (Yes / No) -** Allows the user to selectively set individual devices to respond/ignore an All Units Off command. In some cases, the user may not want a particular end device to turn OFF (e.g. a computer, or heater) when this command is issued.
6. **Respond to All Lights Off (Yes / No) -** Allows the user to selectively set individual devices to respond/ignore an All Lights Off command. The user may not want certain lights to respond to this command (e.g. security light).
7. **Handle Line Collisions (Yes / No) -** Sets collision detection strategy. The transmitter monitors the power line during transmissions. If another transmission is seen, the transmitter will halt it's current transmission and retry at the next available zero crossing.
8. **Respond to All Lights On (Yes / No) -** This feature is similar to the All Lights Off command. This feature allows the user to set an individual device to respond/ignore an All Lights On command.
9. **Polite? (Yes / No) -** Allows the user to enable the transmitter to wait for 8, 9 or 10 zero crossings of silence on the power line before attempting to transmit its data.
10. **Allow Changing the Packet Redundancy (1, 2, 3, or 4) -** This feature allows ACT to adjust the packet redundancy transmission. If the user is in a noisy environment or wants to ensure that the signal has a better than average chance of getting through to the receivers, ACT can increase the number of redundant packages sent.
11. **Enable Priority Queuing (Yes / No) -** Allows ACT to enable the product for TX priority queuing based on the device's number code. A delay corresponding to zero crossings is determined by the device's number code (e.g. If the device's address code is D1 then the device would transmit at the first available zero crossing, D2 would transmit at the second available zero crossing, etc.)
12. **50Hz Line Frequency (Yes / No) -** Sets the device to operate on a 50Hz power line system. If enabled, the device will time all signals at a 50Hz rate. If this feature is disabled the device will time all signals at a 60Hz rate.
13. **Transmission locations (0°, 30°, 60°, 90°, 120°, 150°) -** Allows ACT to set how the device sends data on the power line. This does not affect the receive side.

CURRENT A10 PRODUCTS

1. **TB134/334 -** 120/277 VAC, Maintained/Momentary, 6 Channel Transmitter.
2. **RI104/304 -** 1230/277 VAC, 20A, 4 Relay output Receiver.
3. **RB104/RB304 -** 120/277 VAC, 30A, SPDT electrically held Relay Receiver.
4. **CR134 -** 120/208 VAC, 3 Phase Coupler Repeater.
5. **CR334 -** 277 VAC, 3 Phase Coupler Repeater.
6. **TI103 -** 120 VAC, Serial Interface to Powerline, RS232/RS485 (IBM PC) to Powerline (Two Way) Interface.
7. **TH104 -** 120 VAC, Hotel Room Unitary HVAC Control, Key Card Transmitter.
8. **DC000/MB000 -** 120 VAC, Hotel Minibar Refrigerator Door Switch Transmitter.

To discuss the use of these products in an installation, or the use of the A10 modular chip set in an OEM application, contact Gary Colip or Phil Kingery at 800-886-2281. A detailed specification on the A10 modular chip set is available (click here).