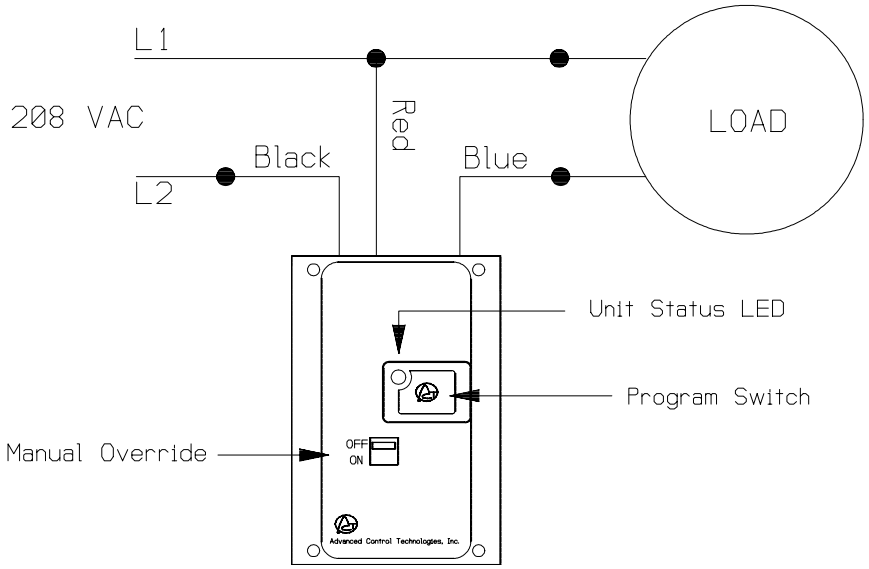
RF224

A10 208 VAC, 20A, Feed-thru Relay Fixture Receiver



BEFORE YOU BEGIN...

READ ALL INSTRUCTIONS

Make sure your installation will conform to all applicable codes and requirements.

TEST FOR SIGNAL STRENGTH AND NOISE...

using appropriate test equipment. It is necessary to test the installation in the actual operating environment. The amount and types of line loads may reduce the strength of the transmitted signal and/or electrical noise may cause interference with the transmitted signal. Proper installation may require additional couplers, filters or repeaters. Special coupling devices are required to allow signal to be distributed to all phases and zero-crossings in multi-phase and multi-transformer distributions.

IF YOU HAVE ANY QUESTIONS...

Consult your nearest Engineered System Center (ESC) for additional information.

There are no field repairable assemblies on this unit. It is covered by a two year limited warranty. If service is needed, the unit must be returned to the ESC where purchased. Contact your ESC for return details.

INSTALLATION

CAUTION! Make all connections with the **POWER OFF** to avoid injury to the installer or damage to the device. WARNING: SHOCK HAZARD. Do not use the manual ON/OFF switch on the RF to disconnect the load for service. Signal can cause it to turn ON.

1. Strip 3/4" of insulation from the ends of the conductors and make connections as shown in the Wiring Diagram. Connect L1 and L2 to the RED and BLACK flying leads. The power is fed through the relay contacts from the BLACK wire to the BLUE LOAD wire. Connect the load between the BLUE and RED wires. When the relay turns on or off, the red override switch lever will move indicating that it is on or off.
2. Check connections to be sure they are tight and no bare conductors are exposed.
3. Make sure the load or installation does not exceed the device rating.
4. Install into any appropriately sized electrical box or the fixture itself. Clean the mounting surface, remove the protective film from the adhesive tape and firmly press the module in place.

NOTE! Do not install within four inches of fluorescent ballast.

NOTE! Use only in fixtures where 49 degree C. wiring is permitted. Do not install in fixtures where ambient temperature exceeds 120 degrees F. (49 degrees C.)

CHECKOUT AND OPERATING PROCEDURE

1. Restore the power.
2. Set the address as follows :

   Connect a PCC transmitter such as the AT004 or any X10 compatible desktop transmitter to the same power line as the RF224 test setup. Select the desired letter code. Press and hold the PROGRAM push button on the RF224 for just over three seconds and release. The STATUS LED should be ON solid. The RF224 is now in PROGRAM mode. Press the desired number code on the transmitter two times with a half second pause between transmissions to allow six zero crossings to occur. The RF224 STATUS LED should blink two times and come back ON solid, indicating that it is still in program mode. **NOTE:** When a new address is programmed into the device, all the ADDITIONAL PROGRAMMING FEATURES are reset to their default values.

ADDITIONAL PROGRAMMING FEATURES:

RUDE/POLITE PROGRAMMING. The RF224 receivers close and open their relay contacts with standard X10 ON and OFF commands, respectively. They also may be programmed to respond to other commands. By default, the device operates in polite mode (waits for other powerline transmissions to cease before transmitting and will monitor the powerline for collisions), but may be configured to operate in rude mode (ignores other powerline transmissions when transmitting). To disable Polite mode, after programming the base address, send the address two additional times with a half second pause between transmissions to allow six zero crossings to occur. The Status LED will blink four times to signal the operator that the device will now operate in Rude mode.

Also, the device may be programmed to respond to other commands which may close the relay (AllLightsON), or open the relay (AllUnitsOFF, or AllLightsOFF). These commands are disabled by default when the base address of the device is programmed. To enable these commands, press their respective command button two additional times with a half second pause between transmissions to allow six zero crossings to occur. The Status LED on the RF224 will flash to indicate that the command has been accepted. The table below illustrates the flashing pattern of the Status LED.

Flashing Pattern	Interpretation
¼ second ON, 3 seconds OFF	Normal Operation
Continuous Rapid Flash	EEPROM Error
Two Flashes	Valid base address accepted
Four Flashes	Polite mode disabled
Six Flashes	All Lights ON command enabled
Eight Flashes	All Units OFF command enabled
Ten Flashes	All Lights OFF command enabled

Upon receiving a valid Status Request command, the device will transmit the current relay status, either ON (closed) or OFF (open). Note that there is no feedback from the relay. If the relay is switched manually, this will not be reflected in the software, nor in the Status Reply to the controller.

To exit the PROGRAM mode press the PROGRAM switch on the RF224 briefly. The STATUS LED will go off. The RF224 will now respond to the programmed letter and number code and any other programmed features. NOTE: It will also automatically exit PROGRAM one (1) minute after the last AT004 or X10 compatible desktop transmitter transmission.

3. Operation (Normal Mode)
   a. To close the contact of the relay:
      i. Send an ON command set to the base address of the unit.
      ii. If the All Lights ON command is enabled, send an All Lights ON command.
   b. To open the contact of the relay:
      i. Send an OFF command set to the base address of the unit.
      ii. If the All Units OFF command is enabled, send an All Units OFF command.
      iii. If the All Lights OFF command is enabled, send an All Lights OFF command.

c. To obtain the status of the relay (closed/ON or open/OFF), send a Status Request command.

d. The RF224 will perform its line access algorithm at 0 degrees and at 150 degrees when it is responding to a Status Request if in polite mode.

e. The RF224 will monitor the 150 degree location for any collisions while it is transmitting at 150 degrees, if in polite mode. Note that the RF224 only transmit at 150 degrees.

Using the transmitter, transmit the address and any programmed commands to ensure the module controls the load in response to remote control.

4. Test for Signal Strength and Noise once again using appropriate PCC test equipment.

Supply Voltage	208 VAC, +/-10%, 60 Hz	Signal Output (Status)	6V peak to peak @ 5 ohms
Power Consumption	Less than 4.5W		**Note:** Transmits only at 150^{O}
Signal Input	120 KHz +/- 4 KHz, sensitive to 25 millivolts	Maximum switching capacity	20 Amps or 5000 VA
	Note: Receives only at 0^{O}	Maximum switching voltage	305 VAC