

Operation/Reference Guide UPC20+ Universal Power Controller



Control System Accessories

Last Revised: 09/12/2007

AMX Limited Warranty and Disclaimer

AMX Corporation warrants its products to be free of defects in material and workmanship under normal use for three (3) years from the date of purchase from AMX Corporation, with the following exceptions:

- Electroluminescent and LCD Control Panels are warranted for three (3) years, except for the display and touch overlay components that are warranted for a period of one (1) year.
- Disk drive mechanisms, pan/tilt heads, power supplies, MX Series products, and KC Series products are warranted for a period of one (1) year.
- Unless otherwise specified, OEM and custom products are warranted for a period of one (1) year.
- Software is warranted for a period of ninety (90) days.
- · Batteries and incandescent lamps are not covered under the warranty.

This warranty extends only to products purchased directly from AMX Corporation or an Authorized AMX Dealer.

AMX Corporation is not liable for any damages caused by its products or for the failure of its products to perform. This includes any lost profits, lost savings, incidental damages, or consequential damages. AMX Corporation is not liable for any claim made by a third party or by an AMX Dealer for a third party.

This limitation of liability applies whether damages are sought, or a claim is made, under this warranty or as a tort claim (including negligence and strict product liability), a contract claim, or any other claim. This limitation of liability cannot be waived or amended by any person. This limitation of liability will be effective even if AMX Corporation or an authorized representative of AMX Corporation has been advised of the possibility of any such damages. This limitation of liability, however, will not apply to claims for personal injury.

Some states do not allow a limitation of how long an implied warranty last. Some states do not allow the limitation or exclusion of incidental or consequential damages for consumer products. In such states, the limitation or exclusion of the Limited Warranty may not apply. This Limited Warranty gives the owner specific legal rights. The owner may also have other rights that vary from state to state. The owner is advised to consult applicable state laws for full determination of rights.

EXCEPT AS EXPRESSLY SET FORTH IN THIS WARRANTY, AMX CORPORATION MAKES NO OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. AMX CORPORATION EXPRESSLY DISCLAIMS ALL WARRANTIES NOT STATED IN THIS LIMITED WARRANTY. ANY IMPLIED WARRANTIES THAT MAY BE IMPOSED BY LAW ARE LIMITED TO THE TERMS OF THIS LIMITED WARRANTY.

UPC20+ Wiring Requirements



In the United States, the UPC20+ must be wired by an authorized electrician in accordance with the National Electrical Code, ANSI/NFPA 70-1987, as well as all local codes.



In the European community, the UPC20+ unit must be wired by an authorized electrician in accordance with all applicable European codes.

A readily accessible disconnect device shall be incorporated into the fixed wiring.

An insulated earthing conductor that is identical in size, insulation material and thickness to be earthed and unearthed branch circuit supply conductors, except that it is green with or without one or more yellow stripes, is to be installed as part of the branch circuit which supplies the unit or system. The earthing conductor described is to be connected to earth at the service equipment, or supplied by a separately derived system, at the supply transformer or motor generator set.

i

Table of Contents

UPC20+ Wiring Requirements3
Product Information1
Specifications
Control Options Modes 4
Motor Control mode 4
Power Control mode 5
Remote Sensor Control mode 5
Channel codes (Remote Sensor mode) 6
Installation7
P1 Terminal Connections7
P2 Terminal Connections7
Control Mode
High Voltage Wiring Options 10
Single circuit 120/240 VAC 10
Dual circuit 120/240 VAC 10
Dual circuit 277 VAC 11
Wiring The UPC20+ to Either The IRX-DM+ Or IRX-SM+
Wireless IR Sensor Connection 11
Installing the UPC20+ 12

Table of Contents

Product Information

The UPC20+ Universal Power Control is a dual 20 Amp AC power and motor controller designed for conduit installation. The UPC20+ is housed in a compact metal wall-mount enclosure and is configurable for a wide variety of power and motor control modes. Low voltage contact-closures, open collector inputs or serial data from an AMX IR receiver enable control by simple wall panels, remote systems, or hand-held transmitters. A test switch with an LED indicator for each relay is provided for local control and status indication.

Using Motor Control mode, the UPC20+ output alternates between two relays, providing a brief pause in-between relay contacts, to protect the motor. A timing adjustment potentiometer is user adjustable for automatic release of the relays. (The range is 0 to 90 seconds). 1-, 2-, and 3- button control modes are selectable.

In Power Control mode, the UPC20+ provides power control for two independent circuits with a combined total load of 20 Amps. Single-button momentary/latching and 2-button latching modes are selectable.

- Momentary Power Relay contacts are closed only as long as a closure from input to common is maintained.
- Latching Power Relay contacts are toggled (from open to closed and closed to open) each time a closure from input to common is momentarily pulsed.

All functions and capabilities of the UPC20+ (including information on high voltage wiring, low voltage wiring, and DIP switch settings) are described on a sticker installed inside the enclosure. FIG. 1 shows the UPC20+ (inside view).



The UPC20+ will work the NXC-I/O10 input/output control card.

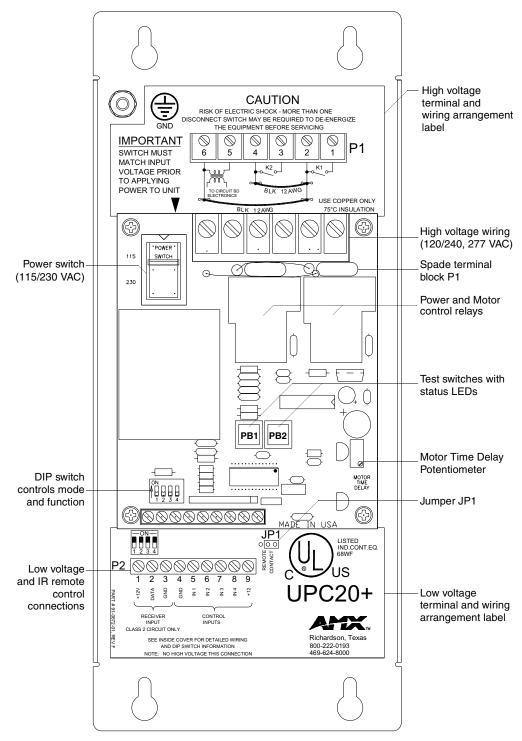


FIG. 1 UPC20+



The UPC+ cover contains information on high voltage wiring, low voltage wiring, and DIP switch settings.

Specifications

Power Self-powered when used with 110/220 VAC Power input (for control board) 120/240V ⁻⁷ , 50-60 Hz, 0.05/0.025A -or- 12 VDC, 0.2A max Power output per relay 20A @ 120/240V ⁻⁷ , 50-60 Hz (RESISTIVE LOAD) - 6A @ 277V ⁻⁷ , 50-60 Hz (INDUCTIVE LOAD) - 6A @ 277V ⁻⁷ , 50-60 Hz (INDUCTIVE LOAD) - 1 HP @ 240V ⁻⁷ , 50-60 Hz (INDUCTIVE LOAD) - 2 HP @ 240V ⁻⁷ , 50-60 Hz (INDUCTIVE LOAD) - 70+1 2 U20V ⁻⁷ , 50-60 Hz (INDUCTIVE LOAD) - 2 HP @ 240V ⁻⁷ , 50-60 Hz (INDUCTIVE LOAD) - 70+2 U20V ⁻⁷ , 50-60 Hz (INDUCTIVE LOAD) - 2 HP @ 240V ⁻⁷ , 50-60 Hz (INDUCTIVE LOAD) - 70+2 U20V ⁻⁷ , 50-60 Hz (INDUCTIVE LOAD) - 2 HP @ 240V ⁻⁷ , 50-60 Hz (INDUCTIVE LOAD) - 70+2 U20V ⁻⁷ , 50-60 Hz (INDUCTIVE LOAD) - 2 HP @ 240V ⁻⁷ , 50-60 Hz (INDUCTIVE LOAD) - 70+2 U20V ⁻⁷ , 50-60 Hz (INDUCTIVE LOAD) - 2 HP @ 240V ⁻⁷ , 50-60 Hz (INDUCTIVE LOAD) - 70+2 U20V ⁻⁷ , 50-60 Hz (INDUCTIVE LOAD) - 2 HP @ 240V ⁻⁷ , 50-60 Hz (INDUCTIVE LOAD) - 70+2 U20V ⁻⁷ , 50-60 Hz (INDUCTIVE LOAD) - 2 HP @ 240V ⁻⁷ , 50-60 Hz (INDUCTIVE LOAD) - 10 - 0 Hz ensots ensor input. - 1 Control rode atternates between the time operation of the two power relays. - 100 - 0 Control mode atlemates between the time operation of the two power relays. - 0 Power Control mode atlemates b	UPC20+ Specifications			
-or- 12 VDC, 0.2A max Power output per relay 20A @ 120/240V ~, 50-60 Hz (RESISTIVE LOAD) • 6A @ 277V ~, 50-60 Hz (INDUCTIVE LOAD) • 1 HP @ 120V ~, 50-60 Hz (INDUCTIVE LOAD) • 2 HP @ 240V ~, 50-60 Hz (INDUCTIVE LOAD) • Total Current through both relays CAN NOT exceed 20 amp. Maximum operating ambient temperature 55°C Approvals UL / C-UL / CE Includes • 1-, 2-, and 3-button logic modes • 1.0.2. and 3-button logic modes • 1.0.2. and 3-button logic modes • 1.0.2. and 3-button logic modes • 1.0.2. and 277 VAC control capability Inputs • 4 closure inputs, operation defined by mode. • One IR remote sensor input. • Motor Control mode alternates between the timed operation of the two power relays. Power Control mode allows independent control of both power relays is 20 Amps. Two 2400 W power relays. Total combined current through both relays is 20 Amps. Input Power Switch (S1) • Set this switch according to the high voltage wiring that will be connected to terminals 5 and 6 on P1. Refer to the/P1 Terminal Connections section on page 7. • Set subits St to the line input voltage value used before applying power to the UPC20+. Theigh voltage remone connection wiring. Inputs 5- 8 are referenceed to the common connection wiring. Inputs 5- 8 are referenceed to the common connectonton wiring. Inputs 5- 8 are referenceed to the c	Power	Self-powered when used with 110/220 VAC		
12 VDC, 0.2A max Power output per relay 20A @ 120/240V ⁷ , 50-60 Hz (RESISTIVE LOAD) 6 A @ 277V ⁷ , 50-60 Hz (INDUCTIVE LOAD) 1 HP @ 120V ⁷ , 50-60 Hz (INDUCTIVE LOAD) 7 Construct through both relays CAN NOT exceed 20 amp. Maximum operating ambient 55°C Approvals UL / C-UL / CE Includes 1-, 2-, and 3-button logic modes · Local test switches with status LEDs · 120, 240, and 277 VAC control capability Inputs -4 closure inputs, operation defined by mode. · One IR remote sensor input. · Motor Control mode alternates between the timed operation of the two power relays. Power Control mode alternates between the timed operation of the two power relays. Control Ports Two 2400 W power relays. Total combined current through both relays is 20 Amps. Input Power Switch (S1) • Set this switch according to the high voltage wiring that will be connected to terminals 5 and 6 on P1. Refer to the P1 Terminal Connections section on page 7. · Set switch S1 to the line input voltage value used before applying power to the UPC20+. High Voltage Terminal Block (P1) High voltage input and output wiring for motor or power control. Low voltage and Control Contact closure, open-collector or CMOS logic level remote control wiring. Inputs 5 - 8 are referenc	Power input (for control board)	120/240V ~, 50-60 Hz, 0.05/0.025A		
Power output per relay • 20A @ 120/240V ^, 50-60 Hz (RESISTIVE LOAD) • 6A @ 277V ^, 50-60 Hz (RUDUCTIVE LOAD) • 2 HP @ 240V ^, 50-60 Hz (INDUCTIVE LOAD) • 1 HP @ 120V ^, 50-60 Hz (INDUCTIVE LOAD) • 2 HP @ 240V ^, 50-60 Hz (INDUCTIVE LOAD) Total Current through both relays CAN NOT exceed 20 amp. Maximum operating ambient temperature 55°C Approvals UL / C-UL / CE Includes • 1-, 2-, and 3-button logic modes • Local test switches with status LEDs • 100, 240, and 277 VAC control capability Inputs • 4 closure inputs, operation defined by mode. • One IR remote sensor input. • Motor Control mode allows independent control of both power relays. Control Ports Two 2400 W power relays. Total combined current through both relays is 20 Amps. Input Power Switch (S1) • Set this switch according to the high voltage wiring that will be connected to terminals 5 and 6 on P1. Refer to the P1 Terminal Connections section on page 7. • Set switch S1 to to the line input voltage value used before applying power to the UPC20+. High voltage Terminal Block (P1) High voltage input and output wiring for motor or power control. Low voltage and Control Contract closure, open-collector or CMOS logic level remote control wiring. Inputs 5-8 are referenced to the common connection at pin 4. Jumper JP1 Sets con		-or-		
• 6A @ 277V ~, 50-60 Hz (FLUORESCENT BALLAST) • 1 HP @ 120V ~, 50-60 Hz (INDUCTIVE LOAD) • 2 HP @ 240V ~, 50-60 Hz (INDUCTIVE LOAD) Total Current through both relays CAN NOT exceed 20 amp. Maximum operating ambient temperature Approvals UL / C-UL / CE Includes • 1, -2, and 3-button logic modes • Local test switches with status LEDs • 120, 240, and 277 VAC control capability Inputs • 4 closure inputs, operation defined by mode. • One IR remote sensor input. • Motor Control mode alternates between the timed operation of the two power relays. Control Ports Two 2400 W power relays. Total combined current through both relays is 20 Amps. Input Power Switch (S1) • Set this switch according to the high voltage wiring that will be connected to terminals 5 and 6 on P1. Refer to the P1 Terminal Connections section on page 7. • Set switch S1 to the line input voltage value used before applying power to the UPC20+. High Voltage Terminal Block (P1) High voltage input and output wiring for motor or power control. Low voltage and Control Contact closure, open-collector or CMOS logic level remote control wiring. Inputs 5 - 8 are referenced to the common connection at pin 4. Jumper JP1 Sets control mode of the unit to contact closure or remote sensor serial data. Test Switches (PB1 and PB2) Provides loc		12 VDC, 0.2A max		
+ 1 HP @ 120V ~, 50-60 Hz (INDUCTIVE LOAD) • 2 HP @ 240V ~, 50-60 Hz (INDUCTIVE LOAD) Total Current through both relays CAN NOT exceed 20 amp. Maximum operating ambient temperature Approvals UL / C-UL / CE Includes • 1, 2-, and 3-button logic modes • Local test switches with status LEDs • Local test switches with status LEDs • 120, 240, and 277 VAC control capability Inputs • 4 closure inputs, operation defined by mode. • One IR remote sensor input. • Motor Control mode allows independent control of both power relays. Control Ports Two 2400 W power relays. Total combined current through both relays is 20 Amps. Input Power Switch (S1) • Set this switch according to the high voltage wiring that will be connected to terminals 5 and 6 on P1. Refer to the P1 Terminal Connections section on page 7. • Set switch S1 to the line input voltage value used before applying power to the UPC20+. High Voltage Terminal Block (P2) High voltage input and output wiring for motor or power control. Low voltage and Control Contact closure, open-collector or CMOS logic level remote control wiring. Inputs 5-8 are referenced to the common connection at pin 4. Jumper JP1 Sets control mode of the unit to contact closure or remote sensor serial data. Test Switches (PB1 and PB2) <t< td=""><td>Power output per relay</td><td>• 20A @ 120/240V ~, 50-60 Hz (RESISTIVE LOAD)</td></t<>	Power output per relay	• 20A @ 120/240V ~, 50-60 Hz (RESISTIVE LOAD)		
• 2 HP @ 240V *, 50-60 Hz (INDUCTIVE LOAD) Total Current through both relays CAN NOT exceed 20 amp. Maximum operating ambient imperature 55°C Approvals UL / C-UL / CE Includes • 1-, 2-, and 3-button logic modes • Local test switches with status LEDs • 120, 240, and 277 VAC control capability Inputs • 4 closure inputs, operation defined by mode. • One IR remote sensor input. • Motor Control mode alternates between the timed operation of the two power relays. • Power Control mode allows independent control of both power relays. • Power Control mode allows independent control of both power relays is 20 Amps. Input Power Switch (S1) • Set this switch according to the high voltage wiring that will be connected to the UPC20+. • Set switch S1 to the line input voltage value used before applying power to the UPC20+. • Set switch S1 to the line input voltage value used before applying power to the UPC20+. High Voltage Terminal Block (P2) High voltage input and output wiring for motor or power control. Low voltage and Control Control mode of the unit to contact closure or remote sensor serial data. Test Switches (PB1 and PB2) Provides local operation of relays K1 and K2 for testing power circuits or motors connected to the relay terminals. An LED indicates relay power applied. DIP Switch (S2) Provides sold operation of control mode		• 6A @ 277V ~, 50-60 Hz (FLUORESCENT BALLAST)		
Total Current through both relays CAN NOT exceed 20 amp. Maximum operating ambient temperature 55°C Approvals UL / C-UL / CE Includes 1-, 2-, and 3-button logic modes + Local test switches with status LEDs + 120, 240, and 277 VAC control capability Inputs 4 closure inputs, operation defined by mode. • One IR remote sensor input. • Motor Control mode alternates between the timed operation of the two power relays. • Power Control mode allows independent control of both power relays. Control Ports Two 2400 W power relays. Total combined current through both relays is 20 Amps. Input Power Switch (S1) • Set this switch according to the high voltage wiring that will be connected to terminals 5 and 6 on P1. Refer to the <i>P1 Terminal Connections</i> section on page 7. • Set switch S1 to the line input voltage value used before applying power to the UPC20+. High Voltage Terminal Block (P1) High voltage input and output wiring for motor or power control. Low voltage and Control Terminal Block (P2) Provides local operation of relays S1 and K2 for testing power directs data. Test Switches (PB1 and PB2) Provides local operation of relays S1 and K2 for testing relay release time between 0 and 90 seconds. DIP Switch (S2) Provides selection of control mode settings. Enclosure Metal with black matte finish, knockouts for conduit. Dimension (HWD) 8.5° (10.5° including flange) x 4.5° x 2		• 1 HP @ 120V ~, 50-60 Hz (INDUCTIVE LOAD)		
Maximum operating ambient temperature 55°C Approvals UL / C-UL / CE Includes 1-, 2, and 3-button logic modes • Local test switches with status LEDs • 120, 240, and 277 VAC control capability Inputs 4 closure inputs, operation defined by mode. • One IR remote sensor input. • Motor Control mode alternates between the timed operation of the two power relays. • Power Control mode allews independent control of both power relays. • Power Control mode allows independent control of both power relays. Control Ports Two 2400 W power relays. Total combined current through both relays is 20 Amps. Input Power Switch (S1) • Set this switch according to the high voltage wiring that will be connected to the UPC20+. High Voltage Terminal Block (P1) High voltage input and output wiring for motor or power control. Low voltage and Control Contact closure, open-collector or CMOS logic level remote control wiring. Jumper JP1 Sets control mode of the unit to contact closure or remote sensor serial data. Motor Time Delay Potentiometer (R8) Only used in motor control modes. User adjusted for setting relay release time between 0 and 90 seconds. DIP Switch (S2) Provides selection of control mode options. See Motor Control Mode DIP Switch S2 Positions table on page 4 and Control Input Wiring to Connector P2 Terminals table		• 2 HP @ 240V ~, 50-60 Hz (INDUCTIVE LOAD)		
temperature Approvals UL / C-UL / CE Includes 1-, 2-, and 3-button logic modes . Local test switches with status LEDs . Local test switches with status LEDs . 120, 240, and 277 VAC control capability Inputs 4 closure inputs, operation defined by mode. . One IR remote sensor input. . Motor Control mode alternates between the timed operation of the two power relays. . Power Control mode allows independent control of both power relays. . Power Control mode allows independent control of both power relays is 20 Amps. Input Power Switch (S1) . Set this switch according to the high voltage wiring that will be connected to terminals 5 and 6 on P1. Refer to the <i>P1 Terminal Connections</i> section on page 7. . Set switch S1 to the line input voltage value used before applying power to the UPC204. High Voltage Terminal Block (P1) High voltage input and output wiring for motor or power control. Low voltage and Control Contact closure, open-collector or CMOS logic level remote control wiring. Inputs 5 - 8 are referenced to the common connection at pin 4. Jumper JP1 Sets control mode of the unit to contact closure or remote sensor serial data. Motor Time Delay Potentiometer (R8) Only used in motor control modes. User adjusted for setting relay release time between 0 and 90 seconds. DIP Switch (S2) Provides selection of control mode options. See Motor Control Mode DIP Switch S2 Positions tabl		Total Current through both relays CAN NOT exceed 20 amp.		
Includes • 1-, 2-, and 3-button logic modes • Local test switches with status LEDs • 120, 240, and 277 VAC control capability Inputs • 4 closure inputs, operation defined by mode. • One IR remote sensor input. • Motor Control mode alternates between the timed operation of the two power relays. • Power Control mode alternates between the timed operation of the two power relays. • Power Control mode allows independent control of both power relays is 20 Amps. Input Power Switch (S1) • Set this switch according to the high voltage wiring that will be connected to terminals 5 and 6 on P1. Refer to the <i>P1 Terminal Connections</i> section on page 7. • Set switch S1 to the line input voltage value used before applying power to the UPC20+. High Voltage Terminal Block (P1) High voltage input and output wiring for motor or power control. Low voltage and Control Terminal Block (P2) Contact closure, open-collector or CMOS logic level remote control wiring. Inputs 5 - 8 are referenced to the common connection at pin 4. Jumper JP1 Sets control mode of the unit to contact closure or remote sensor serial data. Test Switches (PB1 and PB2) Provides local operation of relays K1 and K2 for testing power circuits or motors connected to the relay terminals. An LED indicates relay power applied. DIP Switch (S2) Provides selection of control mode options. See Motor Control Mode DIP Switch S2 Positions table on page 4 and Control Input Wiring to Connector P2 Terminals table on pag		55°C		
• Local test switches with status LEDs • 120, 240, and 277 VAC control capabilityInputs• 4 closure inputs, operation defined by mode. • One IR remote sensor input. • Motor Control mode alternates between the timed operation of the two power relays.Control PortsTwo 2400 W power relays. Total combined current through both relays is 20 Amps.Input Power Switch (S1)• Set this switch according to the high voltage wiring that will be connected to terminals 5 and 6 on P1. Refer to the <i>P1 Terminal Connections</i> section on page 7. • Set switch S1 to the line input voltage value used before applying power to the UPC20+.High Voltage Terminal Block (P1)High voltage input and output wiring for motor or power control. Contact closure, open-collector or CMOS logic level remote control wiring. Inputs 5 - 8 are referenced to the common connection at pin 4.Jumper JP1Sets control mode of the unit to contact closure or remote sensor serial data.Test Switches (PB1 and PB2) DIP Switch (S2)Provides local operation of relays K1 and K2 for testing power circuits or motors connected to the relay terminals. An LED indicates relay power applied.DIP Switch (S2)Provides selection of control mode options. See Motor Control Mode DIP Switch S2 Positions table on page 4 for control Input Wiring to Connector P2 Terminals table on page 4 for control Input Wiring to Connector P2 Terminals table on page 4 for control indoe settings.EnclosureMetal with black matte finish, knockouts for conduit.Dimension (HWD) weight8.5" (10.5" including flange) x 4.5" x 2.2" • (220 mm (270 including flange) x 110 mm x 60 mm)Weight3.0 lbs. (1.4 kg) with flange	Approvals	UL / C-UL / CE		
• 120, 240, and 277 VAC control capabilityInputs• 4 closure inputs, operation defined by mode. • One IR remote sensor input. • Motor Control mode alternates between the timed operation of the two power relays. • Power Control mode allows independent control of both power relays.Control PortsTwo 2400 W power relays. Total combined current through both relays is 20 Amps.Input Power Switch (S1)• Set this switch according to the high voltage wiring that will be connected to terminals 5 and 6 on P1. Refer to the <i>P1 Terminal Connections</i> section on page 7. • Set switch S1 to the line input voltage value used before applying power to the UPC20+.High Voltage Terminal Block (P1)High voltage input and output wiring for motor or power control.Low voltage and Control Terminal Block (P2)Contact closure, open-collector or CMOS logic level remote control wiring. Inputs 5 - 8 are referenced to the common connection at pin 4.Jumper JP1Sets control mode of the unit to contact closure or remote sensor serial data.Test Switches (PB1 and PB2)Provides local operation of relays K1 and K2 for testing power circuits or motors connected to the relay terminals. An LED indicates relay power applied.DIP Switch (S2)Provides selection of control mode options. See Motor Control Mode DIP Svitch S2 Positions table on page 4 and Control Input Wiring to Connector P2 Terminals table on page 4 for control indue settings.EnclosureMetal with black matte finish, knockouts for conduit.Dimension (HWD)• 8.5" (10.5" including flange) x 4.5" x 2.2" • (220 mm (270 including flange) x 110 mm x 60 mm)Weight3.0 lbs. (1.4 kg) with flange	Includes	• 1-, 2-, and 3-button logic modes		
Inputs • 4 closure inputs, operation defined by mode. • One IR remote sensor input. • Motor Control mode allernates between the timed operation of the two power relays. • Power Control mode allows independent control of both power relays. • Power Control mode allows independent control of both power relays. Control Ports Two 2400 W power relays. Total combined current through both relays is 20 Amps. Input Power Switch (S1) • Set this switch according to the high voltage wiring that will be connected to terminals 5 and 6 on P1. Refer to the <i>P1 Terminal Connections</i> section on page 7. • Set switch S1 to the line input voltage value used before applying power to the UPC20+. High Voltage Terminal Block (P1) High voltage and Control Contact closure, open-collector or CMOS logic level remote control wiring. Inputs 5 - 8 are referenced to the common connection at pin 4. Jumper JP1 Sets control mode of the unit to contact closure or remote sensor serial data. Test Switches (PB1 and PB2) Provides local operation of relays K1 and K2 for testing power circuits or motors connected to the relay terminals. An LED indicates relay power applied. DIP Switch (S2) Provides selection of control mode options. See Motor Control Mode DIP Switch S2 Positions table on page 4 and Control Input Wiring to Connector P2 Terminals table on page 4 and Control Input Wiring to Connector P2 Terminals table on page 4 and Control Mode DIP Switch S2 Positions table on page 4 and Control Mode DIP Switch S2 inclusing flange) x 4.5" x 2.2"		Local test switches with status LEDs		
• One IR remote sensor input.• Motor Control mode alternates between the timed operation of the two power relays.• Power Control mode allows independent control of both power relays.Control PortsTwo 2400 W power relays. Total combined current through both relays is 20 Amps.Input Power Switch (S1)• Set this switch according to the high voltage wiring that will be connected to terminals 5 and 6 on P1. Refer to the <i>P1 Terminal Connections</i> section on page 7. • Set switch S1 to the line input voltage value used before applying power to the UPC20+.High Voltage Terminal Block (P1)High voltage input and output wiring for motor or power control.Low voltage and Control Terminal Block (P2)Control closure, open-collector or CMOS logic level remote control wiring. Inputs 5 - 8 are referenced to the common connection at pin 4.Jumper JP1Sets control mode of the unit to contact closure or remote sensor serial data.Test Switches (PB1 and PB2)Provides local operation of relays K1 and K2 for testing power circuits or motors connected to the relay terminals. An LED indicates relay power applied.DIP Switch (S2)Provides selection of control modes. User adjusted for setting relay release time between 0 and 90 seconds.DIP Switch (S2)Provides selection of control mode settings.EnclosureMetal with black matte finish, knockouts for conduit.Dimension (HWD)* 8.5" (10.5" including flange) x 4.5" x 2.2" (220 mm (270 including flange) x 110 mm x 60 mm)Weight3.0 lbs. (1.4 kg) with flange		 120, 240, and 277 VAC control capability 		
• Motor Control mode alternates between the timed operation of the two power relays. • Power Control mode allows independent control of both power relays.Control PortsTwo 2400 W power relays. Total combined current through both relays is 20 Amps.Input Power Switch (S1)• Set this switch according to the high voltage wiring that will be connected to terminals 5 and 6 on P1. Refer to the <i>P1 Terminal Connections</i> section on page 7. • Set switch S1 to the line input voltage value used before applying power to the UPC20+.High Voltage Terminal Block (P1)High voltage input and output wiring for motor or power control.Low voltage and Control Terminal Block (P2)Contact closure, open-collector or CMOS logic level remote control wiring. Inputs 5 - 8 are referenced to the common connection at pin 4.Jumper JP1Sets control mode of the unit to contact closure or remote sensor serial data.Test Switches (PB1 and PB2) (R8)Provides local operation of relays K1 and K2 for testing power circuits or motors connected to the relay terminals. An LED indicates relay power applied.DIP Switch (S2)Provides selection of control modes. User adjusted for setting relay release time between 0 and 90 seconds.DIP Switch (S2)Provides selection of control mode settings.EnclosureMetal with black matte finish, knockouts for conduit.Dimension (HWD) $* 8.5" (10.5" including flange) x 4.5" x 2.2"• (220 mm (270 including flange) x 110 mm x 60 mm)Weight3.0 lbs. (1.4 kg) with flange$	Inputs	4 closure inputs, operation defined by mode.		
power relays. • Power Control mode allows independent control of both power relays.Control PortsTwo 2400 W power relays. Total combined current through both relays is 20 Amps.Input Power Switch (S1)• Set this switch according to the high voltage wiring that will be connected to terminals 5 and 6 on P1. Refer to the <i>P1 Terminal Connections</i> section on page 7. • Set switch S1 to the line input voltage value used before applying power to the UPC20+.High Voltage Terminal Block (P1)High voltage input and output wiring for motor or power control.Low voltage and Control Terminal Block (P2)Contact closure, open-collector or CMOS logic level remote control wiring. Inputs 5 - 8 are referenced to the common connection at pin 4.Jumper JP1Sets control mode of the unit to contact closure or remote sensor serial data.Test Switches (PB1 and PB2) (R8)Provides local operation of relays K1 and K2 for testing power circuits or motors connected to the relay terminals. An LED indicates relay power ime between 0 and 90 seconds.DIP Switch (S2)Provides selection of control mode options. See Motor Control Mode DIP Switch S2 Positions table on page 4 for control mode settings.EnclosureMetal with black matte finish, knockouts for conduit.Dimension (HWD) * 8.5" (10.5" including flange) x 4.5" x 2.2" * (220 mm (270 including flange) x 110 mm x 60 mm)Weight3.0 lbs. (1.4 kg) with flange		One IR remote sensor input.		
Control PortsTwo 2400 W power relays. Total combined current through both relays is 20 Amps.Input Power Switch (S1)• Set this switch according to the high voltage wiring that will be connected to terminals 5 and 6 on P1. Refer to the <i>P1 Terminal Connections</i> section on page 7. • Set switch S1 to the line input voltage value used before applying power to the UPC20+.High Voltage Terminal Block (P1)High voltage input and output wiring for motor or power control.Low voltage and Control Terminal Block (P2)Contact closure, open-collector or CMOS logic level remote control wiring. Inputs 5 - 8 are referenced to the common connection at pin 4.Jumper JP1Sets control mode of the unit to contact closure or remote sensor serial data.Test Switches (PB1 and PB2) (R8)Provides local operation of relays K1 and K2 for testing power circuits or motors connected to the relay terminals. An LED indicates relay power applied.DIP Switch (S2)Provides selection of control modes. User adjusted for setting relay release time between 0 and 90 seconds.DIP Switch (S2)Provides selection of control mode options. See Motor Control Mode DIP Switch S2 Positions table on page 4 for control Input Wiring to Connector P2 Terminals table on page 4 for control Input Wiring to Connector P2 Terminals table on page 4 for control inde settings.EnclosureMetal with black matte finish, knockouts for conduit.Dimension (HWD)• 8.5" (10.5" including flange) x 4.5" x 2.2" • (220 mm (270 including flange) x 110 mm x 60 mm)Weight3.0 lbs. (1.4 kg) with flange		· ·		
Amps.Input Power Switch (S1)• Set this switch according to the high voltage wiring that will be connected to terminals 5 and 6 on P1. Refer to the <i>P1 Terminal Connections</i> section on page 7. • Set switch S1 to the line input voltage value used before applying power to the UPC20+.High Voltage Terminal Block (P1)High voltage input and output wiring for motor or power control.Low voltage and Control Terminal Block (P2)Contact closure, open-collector or CMOS logic level remote control wiring. Inputs 5 - 8 are referenced to the common connection at pin 4.Jumper JP1Sets control mode of the unit to contact closure or remote sensor serial data.Test Switches (PB1 and PB2)Provides local operation of relays K1 and K2 for testing power circuits or motors connected to the relay terminals. An LED indicates relay power applied.Motor Time Delay Potentiometer (R8)Only used in motor control modes. User adjusted for setting relay release time between 0 and 90 seconds.DIP Switch (S2)Provides selection of control mode options. See Motor Control Mode DIP Switch S2 Positions table on page 4 and Control Input Wiring to Connector P2 Terminals table on page 4 and Control Input Wiring to Connector P2 Terminals table on page 4 and Control Input Wiring to Connector P2 Terminals table on page 4 and Control Input Wiring to Connector P2 Terminals table on page 4 and Control Input Wiring to Connector P2 Terminals table on page 4 and Control Input Wiring to Connector P2 Terminals table on page 4 and Control Input Wiring to Connector P2 Terminals table on page 4 and Control Input Wiring to Connector P2 Terminals table on page 4 and Control Input Wiring to Connector P2 Terminals table on page 4 and Control Input Wiring to Connector P2 Terminals table on page		Power Control mode allows independent control of both power relays.		
to terminals 5 and 6 on P1. Refer to the P1 Terminal Connections section on page 7.• Set switch S1 to the line input voltage value used before applying power to the UPC20+.High Voltage Terminal Block (P1)High voltage input and output wiring for motor or power control.Low voltage and Control Terminal Block (P2)Contact closure, open-collector or CMOS logic level remote control wiring. Inputs 5 - 8 are referenced to the common connection at pin 4.Jumper JP1Sets control mode of the unit to contact closure or remote sensor serial data.Test Switches (PB1 and PB2) Motor Time Delay Potentiometer (R8)Provides local operation of relays K1 and K2 for testing power circuits or motors connected to the relay terminals. An LED indicates relay power applied.DIP Switch (S2)Only used in motor control modes. User adjusted for setting relay release time between 0 and 90 seconds.DIP Switch (S2)Provides selection of control mode options. See Motor Control Mode DIP Switch S2 Positions table on page 4 for control mode settings.EnclosureMetal with black matte finish, knockouts for conduit.Dimension (HWD)• 8.5" (10.5" including flange) x 4.5" x 2.2" • (220 mm (270 including flange) x 110 mm x 60 mm)Weight3.0 lbs. (1.4 kg) with flange	Control Ports			
the UPC20+.High Voltage Terminal Block (P1)High voltage input and output wiring for motor or power control.Low voltage and ControlContact closure, open-collector or CMOS logic level remote control wiring. Inputs 5 - 8 are referenced to the common connection at pin 4.Jumper JP1Sets control mode of the unit to contact closure or remote sensor serial data.Test Switches (PB1 and PB2)Provides local operation of relays K1 and K2 for testing power circuits or motors connected to the relay terminals. An LED indicates relay power applied.Motor Time Delay Potentiometer (R8)Only used in motor control modes. User adjusted for setting relay release time between 0 and 90 seconds.DIP Switch (S2)Provides selection of control mode options. See Motor Control Mode DIP Switch S2 Positions table on page 4 and Control Input Wiring to Connector P2 Terminals table on page 4 for control mode settings.EnclosureMetal with black matte finish, knockouts for conduit.Dimension (HWD)• 8.5" (10.5" including flange) x 4.5" x 2.2" • (220 mm (270 including flange) x 110 mm x 60 mm)Weight3.0 lbs. (1.4 kg) with flange	Input Power Switch (S1)	to terminals 5 and 6 on P1. Refer to the P1 Terminal Connections section		
Low voltage and Control Terminal Block (P2)Contact closure, open-collector or CMOS logic level remote control wiring. Inputs 5 - 8 are referenced to the common connection at pin 4.Jumper JP1Sets control mode of the unit to contact closure or remote sensor serial data.Test Switches (PB1 and PB2)Provides local operation of relays K1 and K2 for testing power circuits or motors connected to the relay terminals. An LED indicates relay power applied.Motor Time Delay Potentiometer (R8)Only used in motor control modes. User adjusted for setting relay release time between 0 and 90 seconds.DIP Switch (S2)Provides selection of control mode options. See Motor Control Mode DIP Switch S2 Positions table on page 4 and Control Input Wiring to Connector P2 Terminals table on page 4 for control mode settings.EnclosureMetal with black matte finish, knockouts for conduit.Dimension (HWD)• 8.5" (10.5" including flange) x 4.5" x 2.2" • (220 mm (270 including flange) x 110 mm x 60 mm)Weight3.0 lbs. (1.4 kg) with flange				
Terminal Block (P2)Inputs 5 - 8 are referenced to the common connection at pin 4.Jumper JP1Sets control mode of the unit to contact closure or remote sensor serial data.Test Switches (PB1 and PB2)Provides local operation of relays K1 and K2 for testing power circuits or motors connected to the relay terminals. An LED indicates relay power applied.Motor Time Delay Potentiometer (R8)Only used in motor control modes. User adjusted for setting relay release time between 0 and 90 seconds.DIP Switch (S2)Provides selection of control mode options. See Motor Control Mode DIP Switch S2 Positions table on page 4 and Control Input Wiring to Connector P2 Terminals table on page 4 for control mode settings.EnclosureMetal with black matte finish, knockouts for conduit.Dimension (HWD)• 8.5" (10.5" including flange) x 4.5" x 2.2" • (220 mm (270 including flange) x 110 mm x 60 mm)Weight3.0 lbs. (1.4 kg) with flange	High Voltage Terminal Block (P1)	High voltage input and output wiring for motor or power control.		
data.Test Switches (PB1 and PB2)Provides local operation of relays K1 and K2 for testing power circuits or motors connected to the relay terminals. An LED indicates relay power applied.Motor Time Delay Potentiometer (R8)Only used in motor control modes. User adjusted for setting relay release time between 0 and 90 seconds.DIP Switch (S2)Provides selection of control mode options. See Motor Control Mode DIP Switch S2 Positions table on page 4 and Control Input Wiring to Connector P2 Terminals table on page 4 for control mode settings.EnclosureMetal with black matte finish, knockouts for conduit.Dimension (HWD)• 8.5" (10.5" including flange) x 4.5" x 2.2" • (220 mm (270 including flange) x 110 mm x 60 mm)Weight3.0 lbs. (1.4 kg) with flange		· · · · · ·		
motors connected to the relay terminals. An LED indicates relay power applied.Motor Time Delay Potentiometer (R8)Only used in motor control modes. User adjusted for setting relay release time between 0 and 90 seconds.DIP Switch (S2)Provides selection of control mode options. See Motor Control Mode DIP Switch S2 Positions table on page 4 and Control Input Wiring to Connector P2 Terminals table on page 4 for control mode settings.EnclosureMetal with black matte finish, knockouts for conduit.Dimension (HWD)• 8.5" (10.5" including flange) x 4.5" x 2.2" • (220 mm (270 including flange) x 110 mm x 60 mm)Weight3.0 lbs. (1.4 kg) with flange	Jumper JP1			
(R8)time between 0 and 90 seconds.DIP Switch (S2)Provides selection of control mode options. See Motor Control Mode DIP Switch S2 Positions table on page 4 and Control Input Wiring to Connector P2 Terminals table on page 4 for control mode settings.EnclosureMetal with black matte finish, knockouts for conduit.Dimension (HWD)• 8.5" (10.5" including flange) x 4.5" x 2.2" • (220 mm (270 including flange) x 110 mm x 60 mm)Weight3.0 lbs. (1.4 kg) with flange	Test Switches (PB1 and PB2)	motors connected to the relay terminals. An LED indicates relay power		
Switch S2 Positions table on page 4 and Control Input Wiring to Connector P2 Terminals table on page 4 for control mode settings.EnclosureMetal with black matte finish, knockouts for conduit.Dimension (HWD)• 8.5" (10.5" including flange) x 4.5" x 2.2" • (220 mm (270 including flange) x 110 mm x 60 mm)Weight3.0 lbs. (1.4 kg) with flange				
Dimension (HWD)• 8.5" (10.5" including flange) x 4.5" x 2.2" • (220 mm (270 including flange) x 110 mm x 60 mm)Weight3.0 lbs. (1.4 kg) with flange	DIP Switch (S2)	Switch S2 Positions table on page 4 and Control Input Wiring to Connector		
• (220 mm (270 including flange) x 110 mm x 60 mm)Weight3.0 lbs. (1.4 kg) with flange	Enclosure	Metal with black matte finish, knockouts for conduit.		
Weight 3.0 lbs. (1.4 kg) with flange	Dimension (HWD)	• 8.5" (10.5" including flange) x 4.5" x 2.2"		
		• (220 mm (270 including flange) x 110 mm x 60 mm)		
Options 12 VDC power supply (for 277 VAC applications)	Weight	3.0 lbs. (1.4 kg) with flange		
	Options	12 VDC power supply (for 277 VAC applications)		

Control Options Modes

ATTENTION INSTALLER

FACTORY SET TO INOPERATIVE MODE (UNIT WILL NOT WORK UNTIL DIP SWITCHES ARE SET) SEE CHART ON LID TO SET DIP SWITCHES FOR ACTIVE MODE

FIG. 2 UPC20+ inoperative mode warning label



If UPC20+ is powered up when changes are made to Dip Switch settings, then power must be cycled before changes can take effect.

Motor Control mode

The table list options and connections for motor control. DIP switch settings provide 1, 2 or 3 button remote control contact arrangements. This mode is typically used for screen and drape motor control.

In motor control mode, only one power relay (motor) can be energized at a time. When switching from one direction to another, the first motor is automatically turned off and a half-second delay is inserted before the other motor will turn on.

Once a motor is turned on, it will automatically be turned off after the amount of time determined by the motor time delay potentiometer, R8. Delay time can range from 0 to 90 seconds. It is typically set to allow direction limit switches to operate, or to reach the desired position.

Moto	Motor Control Mode DIP Switch S2 Positions						
1	1 2 3 4 Control Mode						
On	On	Off	On	Single button			
Off	Off	Off	On	2-button			
Off	On	Off	On	Momentary On/Off			

- **Single Button Mode** operates with one pushbutton in a sequence: Up, Stop, Down, Stop and so on for each successive button press.
- Two/Three Button Mode operates with two pushbuttons, one for Up and one for Down.
- Momentary On/Off operates only when the button is pressed.

Control Inp	Control Input Wiring to Connector P2 Terminals						
4	5 6 7 8 Control Mode						
Common	Up Down Stop N/A Two, three button						
Common	Common Up/Stop/Down N/A N/A N/A Single button						

Power Control mode

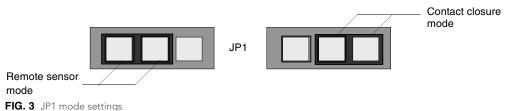
The tables below specify the DIP switch settings for momentary, latching, 2-button On/Off, and (momentary or latching) operation of K1 and K2.

Power Con	Power Control Mode DIP Switch Positions S2						
1	2	3	4	Control Mode			
On	On	On	On	Momentary On/Off			
Off	On	On	On	Latching On/Off			
On	Off	Off	On	Two-Button On, Off			
On	Off	On	On	#1 Momentary, #2 Latching			
Off	Off	On	On	#1 Latching, #2 Momentary			

Control I	Control Input Wiring to P2 Terminals							
4	4 5 6 7 8 Control Mode							
Common	#1 On/Off	#2 On/Off	N/A	N/A	Momentary, Latch On/Off			
Common #1 On #2 On #1 Off #2 Off Two-Button On/Off								

Remote Sensor Control mode

The UPC20+ can also be controlled via the serial output from an AMX IR sensor. Remote sensor mode is selected by setting jumper JP1 to the "Remote" position (jumper on the left 2 pins), as shown in FIG. 3. (The jumper must be in position when power is applied to the UPC20+).





If motors of any kind are used, do not set to a Power Control mode. When a Power Control mode is selected, both relays can be on at the same time. Motors can be severely damaged if this happens.

When controlled by a remote sensor, the UPC20+ is in 2, 3-button timer motor control mode. When the timing potentiometer R8 adjusted to zero ohms (no time delay), the remote sensor provides momentary control.

A 3-bit code (radio code) set on DIP switch S2 associates an AMX handheld remote control with a UPC20+. This allows up to 8 UPC20+ and IR sensors to be used in the same room without interfering with one another. It is possible to control 2 separate UPC20+'s with one handheld remote control. The 4th switch of DIP switch S2 on the PCB selects between the two UPC20+'s. The table below lists the results of the 16 possible DIP switch selections in remote sensor mode.

DIP Switcl	DIP Switch Settings for Remote Sensor Mode						
Sw. 1	Sw. 2	Sw. 3	Sw. 4	Radio Code	UPC20+		
Off	Off	Off	Off	0	First		
On	Off	Off	Off	1	First		
Off	On	Off	Off	2	First		
On	On	Off	Off	3	First		
Off	Off	On	Off	4	First		
On	Off	On	Off	5	First		
Off	On	On	Off	6	First		
On	On	On	Off	7	First		
Off	Off	Off	On	0	Second		
On	Off	Off	On	1	Second		
Off	On	Off	On	2	Second		
On	On	Off	On	3	Second		
Off	Off	On	On	4	Second		
On	Off	On	On	5	Second		
Off	On	On	On	6	Second		
On	On	On	On	7	Second		

The following table lists the DIP switch settings for Remote Sensor Mode.

Channel codes (Remote Sensor mode)

The table below lists the 5 AMX channel codes and their function in the UPC20+ when in Remote Sensor mode.

Channel C	Channel Codes and Functions			
Channel	Function			
6	Stop (K1 and K2)			
0	#1 up (K1)			
1	#1 down (K2)			
7	#2 up (K1)			
2	#2 down (K2)			

Installation

P1 Terminal Connections

Low voltage power (see the table below) for internal circuitry is provided from an on-board transformer, powered by an external 120 or 240 VAC source. An onboard switch is used to select input voltage. When using the UPC20+ for 277 VAC control, the on-board internal circuitry is powered by a separate 120/240 VAC line, or from an optional 12 VDC power supply.

P1 Term	P1 Terminal Connections				
Terminal	Input/Output	Function			
1	Output	Load 1 out			
2	Input	Line 1 in			
3	Output	Load 2 out			
4	Input	Line 2 in			
5	Input	Neutral to transformer on PCB which supplies low voltage			
6	Input	Line to transformer on PCB which supplies low voltage			

K1 and K2 are the power and motor control relay connections to P1 terminals 1 and 2, 3 and 4, respectively. Each relay is capable of switching the following loads:

- Resistive Load 20 Amps at 120/240 VAC
- Fluorescent Ballast 6 Amps at 277 VAC
- Inductive Load 1 HP

The maximum total combined current through both relays is 20 Amps. There are two 12-gauge jumpers that are wired to supply board power at 120/240 VAC, and to connect the common terminals of the relays. The jumpers are removed as needed according to the wiring options selected.

P2 Terminal Connections

The table below defines the inputs and outputs for Terminal P2.

P2 Low Vo	oltage Terminal Inputs/Outputs
Terminal	Input/Output
1	+12 VDC out
2	Serial data in (IR sensor)
3	Ground
4	Ground (common)
5	Input 1
6	Input 2
7	Input 3
8	Input 4
9	+12 VDC in

Control Mode

The table below defines the control mode functions for Inputs 1 and 2. TheUPC20+ Control Mode Functions for Inputs 3 and 4 table on page 9 defines the control mode functions for Inputs 3 and 4.

UPC20+ Co	UPC20+ Control Mode Functions for Inputs 1 and 2					
Control Mode	S2 Switch Setting	R8 Motor Time Delay Pot	Input 1 (P2, pin 5-to GND)	Input 2 (P2, pin-6 to GND)		
Motor, Sin- gle Button	On, On, Off, On	Minimum	Push 1 = load 1 "on" Release 1 = load 1 "off"	Not used		
		Minimum	Push 1 again = load 2 "off"Push 1 = load 1 "on"	Not used		
			Release 1 = load 1 "off after delay time out"			
			Push 1 again = load 2 "on" Release 1 again = load 2			
			"off after time out" Note: pushing again restarts cycle.			
Motor, 2/3 Button	Off, Off, Off, On	Minimum	Push 1 = load 1 "on" Release 1 = load 1 "off"	Push 2 = load 2 "on" Release 2 = load 2 "off"		
		Maximum	Push 1 = load 1 "on" Release 1 = load 1 "off after time out"	Push 2 = load 2 "on" Release 2 = load 2 "off after time out"		
			Note: both loads cannot be On at the same time.			
Motor, Momentary	Off, On, Off, On	Minimum	Push 1 = load 1 "on" Release 1 = load 1 "off"	Push 2 = load 2 "on" Release 2 = load 2 "off"		
		Maximum	Push 1 = load 1 "on" Release 1 = load 1 "off" Note: No delay on release.	Push 2 = load 2 "on" Release 2 = load 2 "off"		
Power, Momentary	On, On, On, On	Minimum	Push 1 = load 1 "on" Release 1 = load 1 "off"	Push 2 = load 2 "on" Release 2 = load 2 "off"		
		Maximum	Push 1 = load 1 "on" Release 1 = load 1 "off"	Push 2 = load 2 "on" Release 2 = load 2 "off"		
Power, Latching	Off, On, On, On	Minimum	Push 1 = load 1 "on" Release 1 = load 1 "still on" Push 1 again = load "off" Release 1 again = load "still off"	Push 2 = load 2 "on" Release 2 = load 2 "still on" Push 2 again = load "off" Release 2 again = load "still off"		
		Maximum	Push 1 = load 1 "on" Release 1 = load 1 "still on" Push 1 again = load "off" Release 1 again = load "still off" Note: Both loads can be On at the same time (time	Push 2 = load 2 "on" Release 2 = load 2 "still on' Push 2 again = load "off" Release 2 again = load "still off"		

Control Mode	S2 Switch Setting	R8 Motor Time Delay Pot	Input 1 (P2, pin 5-to GND)	Input 2 (P2, pin-6 to GND)
Power, 2 Button	On, Off, Off, On	Minimum	Push 1 = load 1 "on" Release 1 = load 1 "still on"	Push 2 = load 2 "on" Release 2 = load 2 "still on"
		Maximum	Push 1 = load 1 "on" Release 1 = load 1 "still on" Note: Both loads can be On at the same time.	Push 2 = load 2 "on" Release 2 = load 2 "still on"
Power, Momentary #1, Latch- ing #2	On, Off, On, On	Minimum	Push 1 = load 1 "on" Release 1 = load 1 "off"	Push 2 = load 2 = "on" Release 2 = load 2 "still on" Push 2 again = load 2 "off" Release 2 again = load 2 "still off"
		Maximum	Push 1 = load 1 "on" Release 1 = load 1 "off" Note: Delay time does not effect loads.	Push 2 = load 2 = "on" Release 2 = load 2 "still on" Push 2 again = load 2 "off" Release 2 again = load 2 "still off"
Power, Momentary #1, Latch- ing #2		Minimum	Push 1 = load 1 "on" Release 1 = load 1 "still on" Push 1 again = load 1 "off" Release 1 again = load 1 "still off"	Push 2 = load 2 "on" Release 2 = load 2 "off"
		Maximum	Push 1 = load 1 "on" Release 1 = load 1 "still on" Push 1 again = load 1 "off" Release 1 again = load 1 "still off" Note: Delay time does not affect loads.	Push 2 = load 2 "on" Release 2 = load 2 "off"

UPC20+ Control Mode Functions for Inputs 3 and 4						
Control Mode	S2 Switch Setting	R8 Motor Time Delay Pot	Input 1 (P2, pin 5-to GND)	Input 2 (P2, pin-6 to GND)		
Motor, Single But- ton	On, On, Off, On	Minimum	Not used	Not used		
		Minimum	Not used	Not used		
Motor, 2/3 Button	Off, Off, Off, On	Minimum	Not used	Not used		
		Maximum	Not used	Not used		
Motor, Momentary	Off, On, Off, On	Minimum	Not used	Not used		
		Maximum	Not used	Not used		
Power, Momentary	On, On, On, On	Minimum	Not used	Not used		
		Maximum	Not used	Not used		
Power, Latching	Off, On, On, On	Minimum	Not used	Not used		
		Maximum	Not used	Not used		

UPC20+ Control Mode Functions for Inputs 3 and 4 (Cont.)						
Control Mode	S2 Switch Setting	R8 Motor Time Delay Pot	Input 1 (P2, pin 5-to GND)	Input 2 (P2, pin-6 to GND)		
Power, Two Button	On, Off, Off, On	Minimum	Push 3 = load 1 "off"	Push 4 = load 2 "off"		
			Release 3 = load 1 "still off"	Release 4 = load 2 "off"		
		Maximum	Push 3 = load 1 "off"	Push 4 = load 2 "off"		
			Release 3 = load 1 "still off"	Release 4 = load 2 "off"		
Power, Momen- tary #1, Latching #2	On, Off, On, On	Minimum	Not used	Not used		
		Maximum	Not used	Not used		
Power, Latching #1, Momentary #2	On, Off, On, On	Minimum	Not used	Not used		
		Maximum	Not used	Not used		

High Voltage Wiring Options

Single circuit 120/240 VAC

Single circuit connections (FIG. 4) are for most motor and screen control applications.

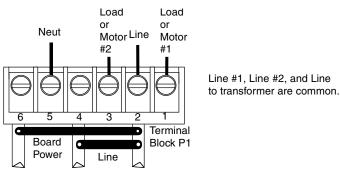


FIG. 4 Single circuit 120/240 VAC power wiring

Dual circuit 120/240 VAC

Dual circuit connections provide power from two 120/240 VAC supply systems. FIG. 5 shows a dual circuit 120/240 VAC power wiring. Refer to FIG. 1 on page 2 for the location of the Terminal Block P1 on the circuit board.

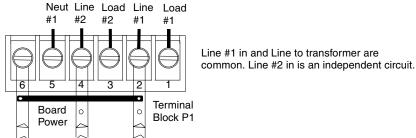


FIG. 5 Dual circuit 120/240 VAC power wiring

Dual circuit 277 VAC

Dual circuit connections provide power from 277 VAC for fluorescent ballasts (FIG. 6). Circuit board power is provided by a separate 120/240 VAC high voltage circuit, or 12 VDC connected to terminals 1 and 6 on the low voltage terminal block. For dual circuit 120/240 VAC operation, remove the short 12 AWG wire jumper.

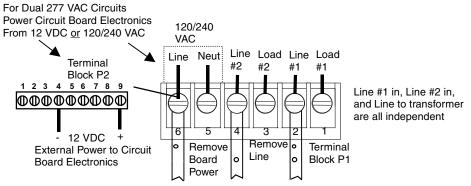
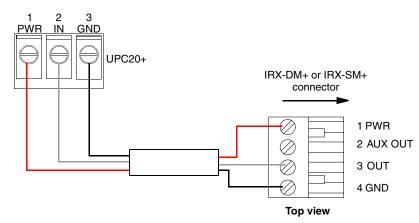


FIG. 6 Low voltage and 277 VAC high voltage wiring



If motors of any kind are used, do not set to a power control mode. When a power control mode is selected, both relays can be on at the same time. Motors can be severely damaged if this happens.

Wiring The UPC20+ to Either The IRX-DM+ Or IRX-SM+



Wire the UPC20+ to the sensor as shown in FIG. 7. .

FIG. 7 Wiring diagram for UPC20+ to IRX-DM+ or IRX-SM+

Wireless IR Sensor Connection

The wireless IR sensor connections are located on P2, terminals 1 - 3. Terminal 1 is +12 VDC out, terminal 2 is serial data in, and terminal 3 is GND. The +12 VDC is short circuit protected, and the output supplies up to 25 mA for the remote sensor.

For dual circuit 277 VAC operation, remove both 12 AWG wire jumpers.

Installing the UPC20+

To install the UPC20+ unit:

- **1.** Mount the UPC20+ on a wall or solid surface in the location where it will be used; it can be mounted either horizontally or vertically.
- **2.** Remove the cover.
- **3.** Prepare terminal block P1.
 - **a.** Set power switch S1.
 - **b.** Configure jumpers according to high voltage wiring requirements.
- **4.** Install conduit. Provide conduit for high voltage, low voltage and control wiring requirements using the 0.5 inch or 0.75 inch conduit connector knockouts.
- 5. Connect high voltage wiring to the terminal block P1.
- **6.** Connect control wiring.
 - **a.** Set control mode DIP switch S2 and control jumper JP1. Refer to the *Control Options Modes* section on page 4 for more detailed information.
 - **b.** Install wiring for contact closure or remote control mode.
- **7.** Test low voltage and high voltage wiring. Conduct tests to confirm proper installation and functions of desired control modes.

Installation



AMX reserves the right to alter specifications without notice at any time.

ARGENTINA • AUSTRALIA • BELGIUM • BRAZIL • CANADA • CHINA • ENGLAND • FRANCE • GERMANY • GREECE • HONG KONG • INDIA • INDONESIA • ITALY • JAPAN LEBANON • MALAYSIA • MEXICO • NETHERLANDS • NEW ZEALAND • PHILIPPINES • PORTUGAL • RUSSIA • SINGAPORE • SPAIN • SWITZERLAND • THAILAND • TURKEY • USA ATLANTA • BOSTON • CHICAGO • CLEVELAND • DALLAS • DENVER • INDIANAPOLIS • LOS ANGELES • MINNEAPOLIS • PHILADELPHIA • PHOENIX • PORTLAND • SPOKANE • TAMPA 3000 RESEARCH DRIVE, RICHARDSON, TX 75082 USA • 800.222.0193 • 469.624.8000 • 469-624-7153 fax • 800.932.6993 technical support • www.amx.com