CONNECT A MAINTAIN SWITCH ACROSS TERMINALS 7 AND 8 OF TERMINAL BLOCK TB3. CLOSING THIS SWITCH MOMENTARILY WILL RETRACT THE LATCHES SEQUENTIALLY, FOLLOWED BY A SIGNAL TO ACTIVATE THE AUTOMATIC DOOR OPERATOR. THIS SYSTEM WILL WORK FOR SINGLE DOOR APPLICATIONS OR ON A PAIR OF DOORS USING A DEVICE ON ONE OR BOTH ENTS.

THE 2902 CAN BE WIRING TO THE FIRE ALARM RELAY NORMALLY CLOSED CONTACTS. WHEN A FIRE ALARM OCCURS, ANY DOOR THAT IS CURRENTLY UNLATCHED, WHETHER BY MOMENTARY TIME DELAY OR BY MAINTAINED SWITCH, WILL INSTRUCTED TO RETURN TO THE “FAIL SECURE” POSITION. (SEE NOTE 2 ON PAGE 3.) THE DEVICE CONTAINS A FUSE TO PROTECT THE ELR CIRCUIT IN THE EVENT OF A REVERSED POLARITY WIRE CONNECTION.

ELR DEVICE WITH POLARIZED LEADS
This device contains a pulse module which delivers a pulse at 24VDC to a high current coil inside the exit device every 6 seconds until the latch is finally pulled back all the way. At this point, a control rod passes over a reflective sensor and signals the module to stop pulsing. There is always an initial pulse that occurs at the moment the system is activated. During the period the system remains activated, output voltage is applied to a low current secondary coil. This coil is responsible for holding the latch in the retracted position until instructed to return to the “fail secure” position. (See Note 2 on page 3.) The device contains a fuse to protect the ELR circuit in the event of a reversed polarity wire connection.

ELR DEVICE WITH NON-POLARIZED LEADS
This device contains a powerful solenoid that performs both pulling and holding functions. An initial high current pulse occurs each time output over to a “holding” state by way of frequency modulation which reduces the current to allow the solenoid to run at a cooler temperature. Because of its non-polar design, the device contains no fuse.

OPERATION WITH FIRE ALARM
The 2902 can be wired to the fire alarm relay normally closed contacts. When a fire alarm occurs, any door that is currently unlatched, whether by momentary time delay or by maintained switch, will immediately latch secure. During the time that the fire alarm is active, electronic control of the automatic door opening system by wall switch, card reader, keypad, etc., is disabled. The door then can only be opened manually.
The 2902 comes from the factory set up for use without fire alarm interface. If the fire alarm is to be used with this controller, move the program jumper PJ2 from between the middle post and the end post marked “FA DIS” (Fire Alarm Disabled), to between the middle post and the end post marked “FA EN” (Fire Alarm Enabled).

Note: The current drawn through fire alarm relay contacts will be 120mA @ 24VDC

**AUXILIARY POWER SOURCE OUTPUTS**

Two constant, power limited auxiliary outputs are provided for powering keypads, motion sensors, annunciator panels, electromagnetic door holders, relays, LEDs, etc. Choose between auxiliary output #1 or auxiliary output #2.

- **Auxiliary Output #1 Range:** 26.7V - 28.0V, Nominal
- **Auxiliary Output #2 Range:** 12.6V - 16.5V, Nominal

Note: Both auxiliary outputs can be used at the same time for loads requiring different voltages (for a combined maximum load current of 500mA). However, do not tie the aux. output #2 ground (TB3, terminal 18) common to the aux. output #1 ground (TB3, terminal 16). Both of these power sources must be isolated from each other.

Caution: It is recommended to use output #2 with equipment that has inputs rated for 12-24 volts, AC or DO. Check with the Manufacturer before connecting 24 VDC rated equipment across output #1 to ensure the higher voltage will not cause any damage.

**TYPICAL 2902 APPLICATION**

A pair of doors is to be controlled by a computerized time system where it is to be unlatched during business hours from 8:00 AM to 5:00 PM. During this time, a handicapped wall switch located on the exterior and interior sides of the door can be used to activate the automatic door operator.

After business hours, the computer locks the pair of doors and disables use of the exterior handicapped wall switch. The inside wall switch remains enabled after business hours and, when actuated, will momentarily retract the latches and activate the automatic door operator. To gain entry, a card reader located on the exterior side of the door momentarily retracts the latches and simultaneously enables the outside wall switch to be activated by the handicapped.

**TROUBLESHOOTING**

Before proceeding through the troubleshooting section, ensure that all device latches are not binding against their corresponding strikes. A bound latch can cause sluggish electric retraction or prevent retraction entirely.

**Power Limited Outputs**

All outputs to the 1426 are power limited. Depending on the output, if a short circuit or an over load condition should occur, the output will either shut off entirely or go into a safe current limiting state.

Important: The maximum rated load for all outputs combined is 2.0 AMPs, including 250mA (max) for each auxiliary output.

The outputs to ELR DEVICE ONE (TB3, terminals 5 & 6) and ELR DEVICE TWO (TB3, terminals 11 & 12) will completely shut down to 0 volts when a short circuit across the output occurs or when the load exceeds 5 amps. To reset the output, the short circuit or overload must first be located and removed. Next, momentarily switch off the outputs by opening the contacts across input terminals 1 & 2 or 7 & 8, whichever is used. Before switching outputs back on, ensure the load does not exceed the maximum current ratings.

Both auxiliary outputs will go into a current limiting state when the load exceeds approximately 2.0 amps or in the event of a short circuit. The current is reduced to a safe level when either of these conditions occur. The output voltage will automatically return to its normal level when the short circuit or overload condition is removed and replaced by a load falling under the maximum current rating.

Symptom: Neither DEVICE ONE nor DEVICE TWO retracts after the control switch is activated.

Possible Causes:

1. The power limited output to Device 1 or Device 2 (or both) may have shut down. When this happens, the field wires that are run to the exit device are probably shorted together against the conduit, door frame or electric hinge.
2. If using the ELR device with polarized leads, the slow blow 4 amp fuse (Littelfuse #239.004) inside the exit device has blown. The most likely cause would be reversed polarity of the exit device red and black leads. RED = "+"; BLACK = "-". (Refer to the wiring diagram for proper connection.) Other possible causes may be shorted wires in the solenoid assembly or a defective pulse module.
3. An open connection in the field wiring between the power supply and control switch used for activating latch retraction.
4. A defective control switch.
5. An open connection in the field wiring between the power supply and exit device.
6. There may be no pulse. To check for pulses, prop the door open and connect a voltmeter across the red and black leads coming from the exit device (red lead is positive), or across the blue leads to the exit device are probably shorted together against the conduit, door frame or electric hinge.
7. The power limited output to Device 1 or Device 2 (or both) may have shut down. When this happens, the field wires that are run to the exit device are probably shorted together against the conduit, door frame or electric hinge.
8. A defective control switch.
9. An open connection in the field wiring between the power supply and exit device.
10. There may be no pulse. To check for pulses, prop the door open and connect a voltmeter across the red and black leads coming from the exit device (red lead is positive), or across the blue leads to the exit device are probably shorted together against the conduit, door frame or electric hinge.
11. A defective control switch.
12. An open connection in the field wiring between the power supply and exit device.
13. There may be no pulse. To check for pulses, prop the door open and connect a voltmeter across the red and black leads coming from the exit device (red lead is positive), or across the blue leads to the exit device are probably shorted together against the conduit, door frame or electric hinge.
15. An open connection in the field wiring between the power supply and exit device.
16. There may be no pulse. To check for pulses, prop the door open and connect a voltmeter across the red and black leads coming from the exit device (red lead is positive), or across the blue leads to the exit device are probably shorted together against the conduit, door frame or electric hinge.
17. A defective control switch.
18. An open connection in the field wiring between the power supply and exit device.
INSTALLATION INSTRUCTIONS (cont)

Symptom:
When 120 volts is applied to TB1, the exit devices will momentarily retract; but if they remain retracted for longer than 20 seconds, then it signals a problem.

Possible Causes:
1. Field wiring between the power supply and control switch are shorted together against the conduit or switch mounting box.
2. A maintain switch is being used and is in the closed position.
3. A defective control switch.

Symptom (for polarized ELR devices only):
A noticeable buzzing sound at equal intervals is coming from inside the exit device while in its fully retracted state.

Possible Causes:
1. The latch is binding against its corresponding strike and preventing it from fully retracting, due to misalignment between the latch and strike opening.
2. A defective pulse module

NOTES
1. This unit is listed as an exit device control unit to UL924 requirements.
2. The power output of the controller is of a fail secure design. The exit device remains latched during a complete power failure, but always allows free mechanical egress. Listed panic hardware may be required to allow emergency exit. Consult local authority having jurisdiction.