

SECURITRON RELAY LOGIC PACK MODEL RLP-12 AND RLP-24 INSTALLATION AND OPERATING INSTRUCTIONS

1. DESCRIPTION

The relay logic pack accomplishes multiple functions needed in the access control and security industry: It permits integration of lock status reporting electric locks with card reader systems. It supplies logic for lock status reporting electric locks used in man trap type interlocks. It functions as a relay interlock latch and finally, it can be used as a DPDT relay.

2. ELECTRICAL CHARACTERISTICS

Two different versions are available for operation on respectively 12 or 24 VDC. Supply voltage need not be regulated; a transformer plus full wave bridge rectifier is adequate. The pack will draw a maximum of 30 mA at 12 VDC or 15 mA at 24 VDC. Contacts are rated at 2 Amps.

3. INTEGRATION OF LOCK STATUS SENSING WITH ACCESS CONTROL

When electric locks such as Securitron's Magnalock are integrated with many brands of access control equipment, certain problems can arise which are overcome by the use of the relay logic pack. First, most access control systems monitor the door and will annunciate an alarm condition if the door is not reporting secure when it should be. When "legal" entry is granted by the card reader (or digital keypad), this alarm condition is automatically suppressed. In similar fashion, when legal exit is granted (REX) the alarm condition is also suppressed.

If the door is monitored by a door switch, this function will work properly. However, if a lock status sensor is employed to yield higher security, a timing problem can develop. As soon as the lock is released, a lock status sensor (such as Securitron's Senstat feature) will change state. A door switch is much slower. It will only change state when the door is actually opened. Because of the high speed of the lock status sensor, the access control system may report an alarm because it will read the lock status sensor changing state before it internally recognizes that monitoring should be suppressed during legal entry or egress.

Another problem can arise with legal egress. The access control system has to be informed that legal egress (REX) is being performed. Therefore a switch equipped exit device such as a push button, a detector, Securitron's Touch Sense Bar, or a switch equipped panic bar must be employed. Such devices may be wired into the REX input of the access control system. This will release the lock for a selectable period of time permitting egress, but there is a reliability problem. Egress is a safety function and if a failure occurs with the access control system, people can become trapped. It is therefore better to wire the exit device directly to the lock and also to the REX input of the access control system. If the REX input fails, the lock can still be released. The problem is that this requires two poles for the exit device switch and the typical exit device does not have this feature.

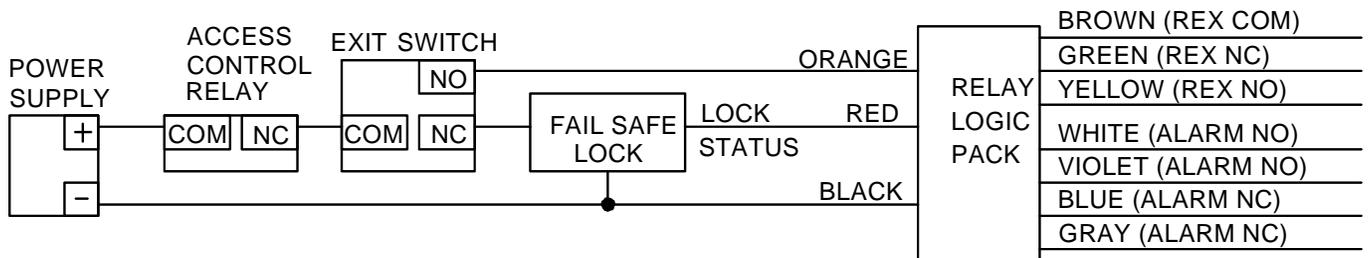
The relay logic pack overcomes these problems by providing dry outputs, normally open or normally closed, to the access control system for REX and lock/door monitoring alarm. The REX signal occurs whenever the exit switch is used. The alarm signal occurs when the lock is not reporting secure although the relay logic pack doesn't output this signal while the exit switch is depressed. The fact that use of the exit switch suppresses the alarm output is particularly valuable if the lock is to be released via an alternate action switch for a period of time. Also, the alarm signal is delayed by 150 milliseconds so that internal suppression of this signal in the access control system, triggered by either legal entry or exit, will have time to become effective.

3.1 WIRING

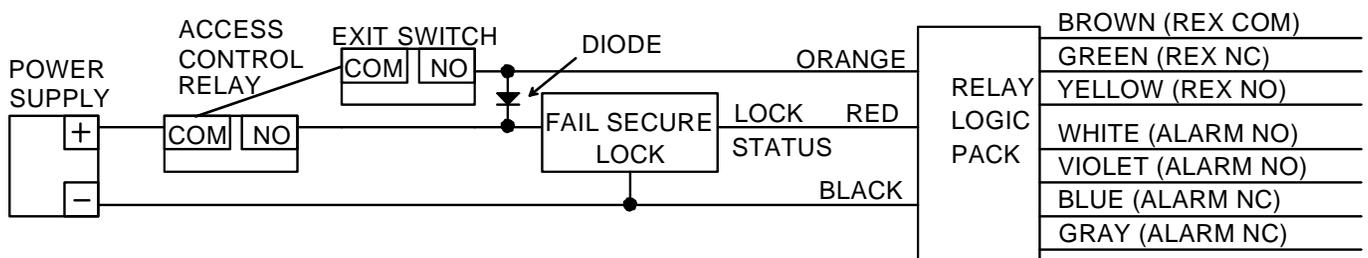
Refer to the drawings below for respectively fail safe (secure when powered) or fail secure (secure when released) locks. Note the diode that must be used with fail secure locks. If it is not there, the access control relay will trip the REX input. The drawings show local wiring at each door and outputs from the relay logic pack to the access control system. Reporting request to exit (REX) is from the brown, green and yellow wires which are SPDT dry contacts. Two more wires report the alarm condition. **Use white and violet if you want to alarm on a closed condition. Use blue and gray if you want to alarm on an open condition.**

Note that the "Lock Status" line which connects to red on the relay logic pack has a special meaning. **This line must supply +V to red of the relay logic pack whenever the lock is reporting secure.** It is the equivalent of the white wire on an "S" Senstat Magnalock. If your lock status sensor is a dry closure when secure, **+V from the power supply** (this connection is not shown on the drawings) must be input to lock status common with lock status NC going to red of the relay logic pack.

FIG. 1: ACCESS CONTROL WIRING: FAIL SAFE AND FAIL SECURE LOCKS



"LOCK STATUS" WIRE MUST OUTPUT +V WHEN LOCK IS SECURE

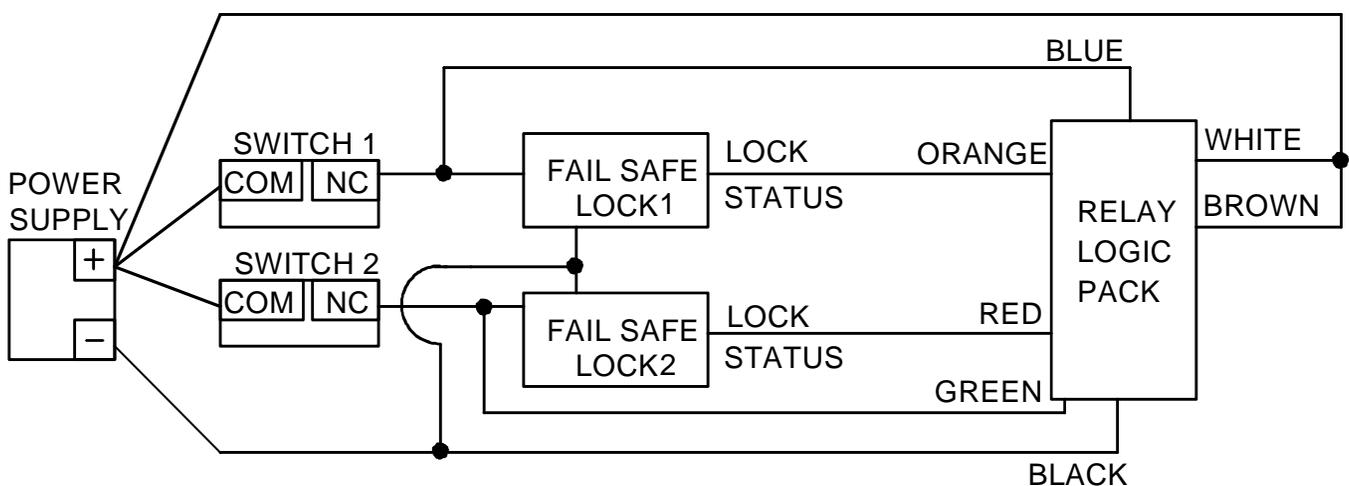


4. MAN TRAP INTERLOCKING

In this application, 2 electric locks with lock status sensors which **are closed when secure**, are interlocked such that only one can be released at a time. The relay logic pack supplies outputs which keep the second lock engaged when the first is not reporting secure and visa versa. The circuit shown in the drawing below is valid **for fail safe locks only when the normal condition of the trap is locks secure.** The effect of the relay logic pack is to bypass the respective control switch when the alternate lock is not reporting secure. For definition of the "Lock Status" wires which connect to relay logic pack red and orange, **read the second paragraph in section 3.1 above**

Note that traps where the locks are normally released and traps using fail secure locks can directly interlock via door switches or closed lock status switches and therefore do not require the relay logic pack.

FIG 2: NORMALLY SECURE MAN TRAP INTERLOCK WITH FAIL SAFE LOCKS



"LOCK STATUS" WIRE MUST OUTPUT +V WHEN LOCK IS SECURE

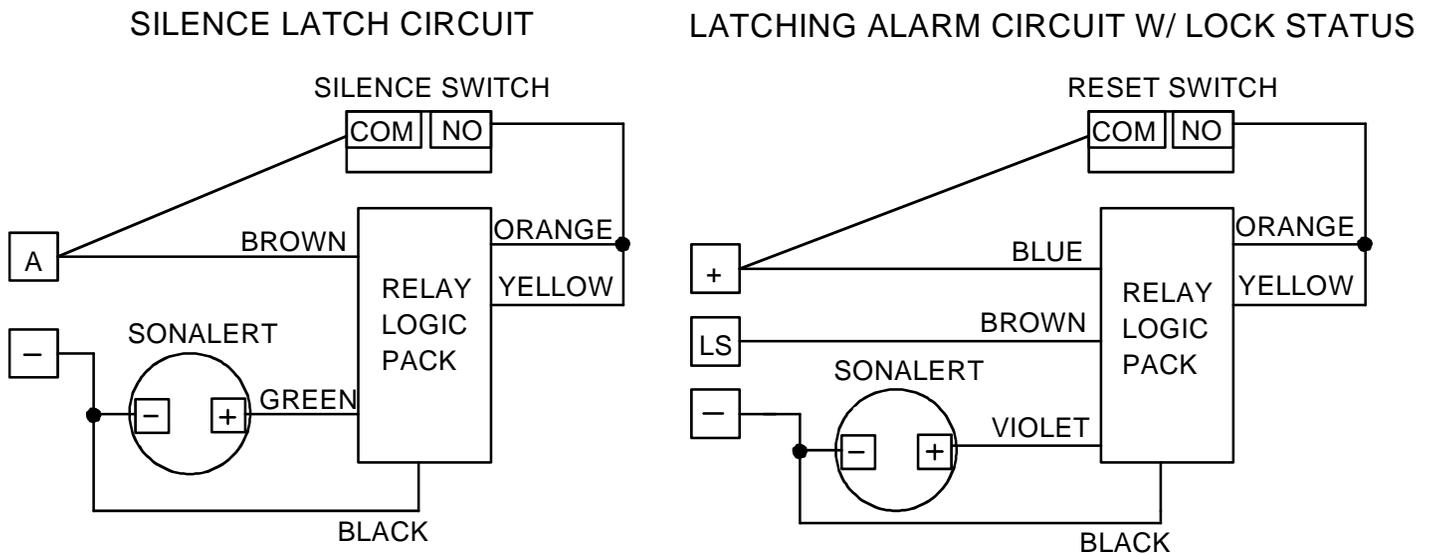
5. RELAY INTERLOCK LATCH

Often it is desired that a signal condition which occurs for a period of time sets a latch that creates a different signal which is active until reset manually regardless of whether the first signal has continued or not. This function may be accomplished with the relay logic pack.

In the drawings below, we show two typical and useful applications. The first is a silence latch. Terminal A supplies +V to operate a Sonalert when some alarm condition occurs. The relay logic pack and a normally open momentary switch are connected as shown. When the alarm condition occurs, the Sonalert will sound. If the silence switch is then pressed, the Sonalert will cease sounding and remain silent until the alarm condition resets (+V is removed from terminal A). The silence latch will then automatically reset.

The second drawing shows a latching alarm used with a lock status sensing electric lock such as Securitron's Magnalock. Terminal "LS" is the lock status output **which supplies +V when the lock is secure**. With the connections as shown below, the alarm will sound any time the lock becomes insecure (+V is removed from terminal LS). Even after the lock has been made secure again, the alarm will continue to sound until the momentary reset switch is pressed.

FIG. 3: LATCHING CIRCUITS



6. DPDT RELAY

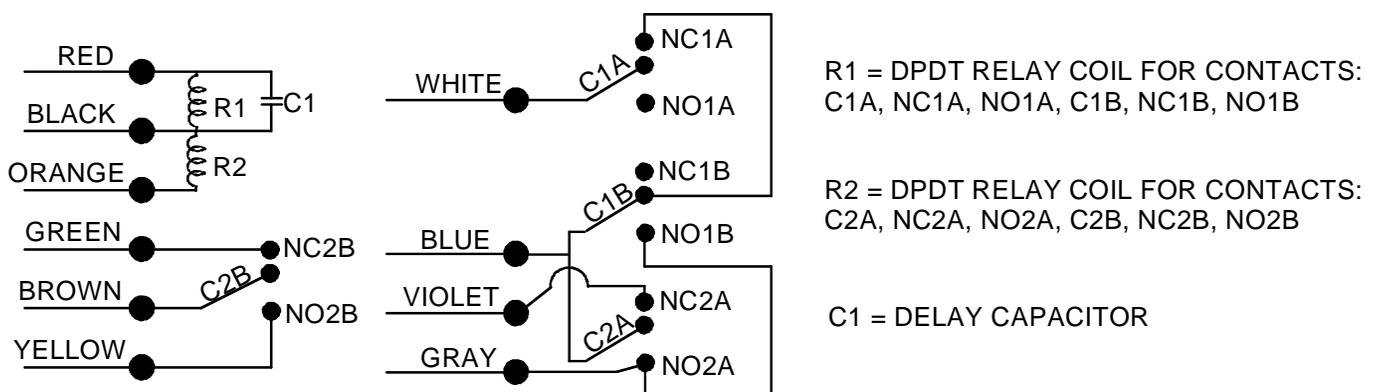
The relay logic pack can be employed as a double pole double throw 2 Amp relay by use of the following wires:

- Orange = + coil
- Black = - coil
- Brown = COM1
- Blue = COM2
- Green = NC1
- Violet = NC2
- Yellow = NO1
- Gray = NO2

7. SCHEMATIC

The relay logic pack's schematic is shown below to permit the user to evaluate other applications.

FIG. 4: RELAY LOGIC PACK SCHEMATIC



8. MAGNACARE® LIFETIME REPLACEMENT WARRANTY

For warranty information visit: www.securitron.com/en/site/securitron/About/MagnaCare-Warranty/