

# *LO21B LOCKOUT RELAY*

## FOR PASSPORT SYSTEM INSTRUCTION MANUAL

OBSOLETE

## LOCKOUT RELAY

The LO-21B is a micro-processed lock out module designed to operate on swing door applications with the PassPort overhead presence sensor. The LO-21B interprets door open or door closed position based upon motor voltage input, or from a voltage supplied by the control, such as Switch 2 on the Swingmaster MP control. The motor voltage information is sent from the LO-21B to the PassPort via data lines. The LO-21B provides optional safety beam input (dry contacts) to override the inhibit signal during closing. For example, when the safety beam path is blocked or interrupted during closing, the inhibit data will be cancelled initiating a safety signal to the door control safety input.

## TECHNICAL SPECIFICATIONS

DESCRIPTION	SPECIFICATION
Supply voltage	12 to 24 VAC / 15 to 24 VDC
Operating frequency	4 MHz (Microprocessor)
Power consumption	10 mA at rest, 50 mA Maximum
Output	2 x SPST Relays
Maximum Voltage – Relay Contacts	60 VDC, 120 VAC
Maximum Current – Relay Contacts	2A dc, 0.5 A AC

## COMPONENT ID



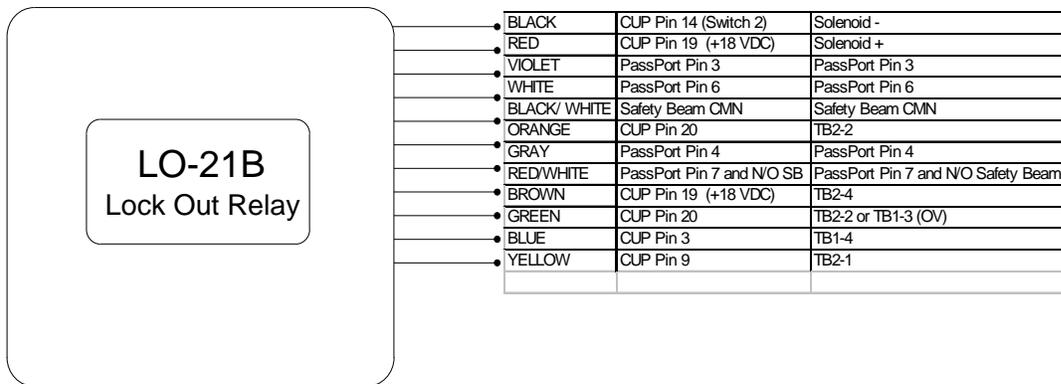
## SAFETY PRECAUTIONS



- Shut off all power going to the header before attempting any wiring procedures.
- Maintain a clean & safe environment when working in public areas.
- Constantly be aware of pedestrian traffic around the door area.
- Always stop pedestrian traffic through the doorway when performing tests that may result in unexpected reactions by the door.
- Always check placement of all wiring before powering up to insure that moving door parts will not catch any wires and cause damage to equipment.
- Ensure compliance with all applicable safety standards (i.e. ANSI A156.10) upon completion of installation.

## LO-21B WIRING

- The chart below shows all wire designations for the LO-21B. Be sure to use the wiring diagrams at the back of this Guide for exact wiring details for each model of Besam operator.



**CAUTION:** The **WHITE** and **RED/WHITE** wires (Data) must **NEVER** touch each other when the module is powered, or damage to the unit will result.

## DIPSWITCH SELECTION FOR POSITIONS 6, 7 & 8

The model of operator and control will determine how dipswitches 6, 7 & 8 must be set up for proper operation to occur.

### DIPSWITCH #6

Corresponds to the type of motor voltage logic on the **RED** and **BLACK** wires.

**OFF** = Used when the voltage source that is going to the red and black wires of the LO-21B is other than a motor.  
For example, Switch 2 on a Swingmaster MP.

**ON** = Used for all applications where the red and black wires of the LO-21B are connected to the motor or solenoid leads.

### DIPSWITCHES #7, #8

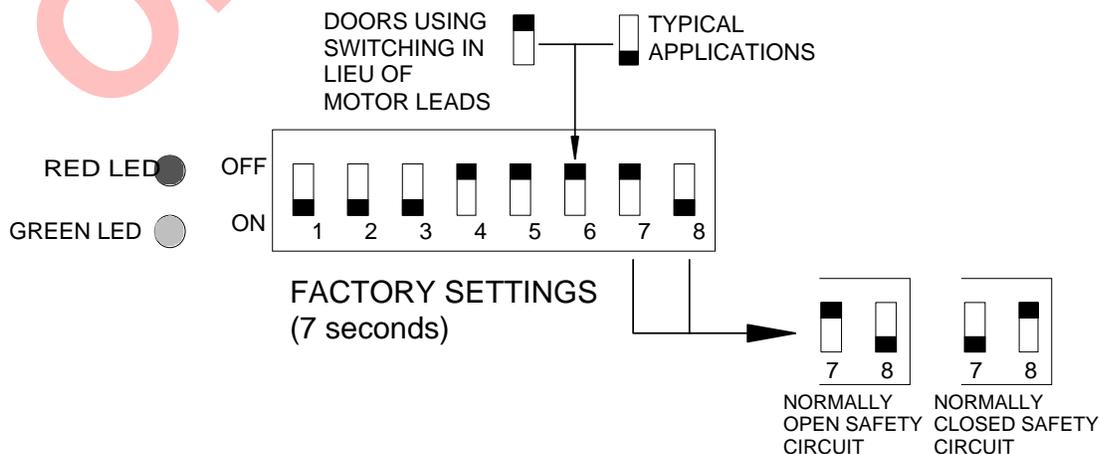
**7 OFF, 8 ON** = Provides a normally open circuit between the **GREEN** (COMMON) and **YELLOW** (SAFETY) during PASSPORT non-detection and a closure during detection.

**7 ON, 8 OFF** = Provides a normally closed circuit between the **GREEN** (COMMON) and **YELLOW** (SAFETY) during PASSPORT non-detection and an open during detection.

(Example: For systems such as the PowerSwing from Besam, this configuration is used to open motor voltage)

The chart below is a quick reference provided for easy setup.

DIPSWITCH >	6	7	8
Swingmaster (ETIK)	ON	OFF	ON
Swingmaster MP (CUP)	OFF	OFF	ON
PowerSwing (CSDA)	ON	ON	OFF



**SET-UP  
INSTRUCTIONS**

Once all wiring is completed, power the LO-21B and the door control and sensor system. Upon powering, the Passport shall go through a learn routine that takes approximately 6 seconds to complete, if uninterrupted. Once the Passport is set up for the closed door position, activate the door to the open position. The Passport will again go through a learn routine, this time for the open door position.

The **RED LED** on the LO-21B means that the output of the Passport is applied to the door's safety circuit. This can occur when the door is closed, or is closing.

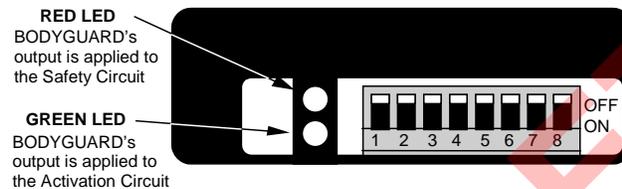
The **GREEN LED** on the LO-21B means that the output of the Passport is being applied to the door's activation circuit. This occurs when the door is in the open position and detection is occurring at the Passport.

If the door is not working properly at this point, check to insure that dipswitches 6, 7 and 8 have been properly set for the application.

If the door goes into safety swing as soon as it starts to close, and the time delay is set for the length of the closing cycle, reverse the black and red wires to the motor input.

With the door working properly, activate the door to fully open, then allow it to close. Count the seconds for the entire closing cycle. This will be the time that needs to be set on the dipswitches (1 through 5) on the LO-21B.

Helpful Hint: To check for proper lockout time delay, activate the door open. Allow the door to begin closing, and then step in behind the door as to follow the door closed. As soon as the door gets fully closed, the Passport should go into detection as it sees you standing in the detection field. Adjust the time accordingly and re-test.

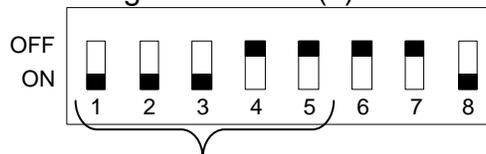


Set the dipswitches according to the chart below to achieve the desired lock out time delay. The dipswitches are configured to send a binary coded input to the microprocessor to establish the correct lock out time delay.

DIP SWITCH #1-5 SETTINGS											
time delay (sec)	dip 1 1 sec	dip 2 2 sec	dip 3 4 sec	dip 4 8 sec	dip 5 16 sec	time delay (sec)	dip 1 1 sec	dip 2 2 sec	dip 3 4 sec	dip 4 8 sec	dip 5 16 sec
1	ON	OFF	OFF	OFF	OFF	17	ON	OFF	OFF	OFF	ON
2	OFF	ON	OFF	OFF	OFF	18	OFF	ON	OFF	OFF	ON
3	ON	ON	OFF	OFF	OFF	19	ON	ON	OFF	OFF	ON
4	OFF	OFF	ON	OFF	OFF	20	OFF	OFF	ON	OFF	ON
5	ON	OFF	ON	OFF	OFF	21	ON	OFF	ON	OFF	ON
6	OFF	ON	ON	OFF	OFF	22	OFF	ON	ON	OFF	ON
7	ON	ON	ON	OFF	OFF	23	ON	ON	ON	OFF	ON
8	OFF	OFF	OFF	ON	OFF	24	OFF	OFF	OFF	ON	ON
9	ON	OFF	OFF	ON	OFF	25	ON	OFF	OFF	ON	ON
10	OFF	ON	OFF	ON	OFF	26	OFF	ON	OFF	ON	ON
11	ON	ON	OFF	ON	OFF	27	ON	ON	OFF	ON	ON
12	OFF	OFF	ON	ON	OFF	28	OFF	OFF	ON	ON	ON
13	ON	OFF	ON	ON	OFF	29	ON	OFF	ON	ON	ON
14	OFF	ON	ON	ON	OFF	30	OFF	ON	ON	ON	ON
15	ON	ON	ON	ON	OFF	31	ON	ON	ON	ON	ON
16	OFF	OFF	OFF	OFF	ON						

**Example:**

Dip Switch setting for a seven (7) second time delay



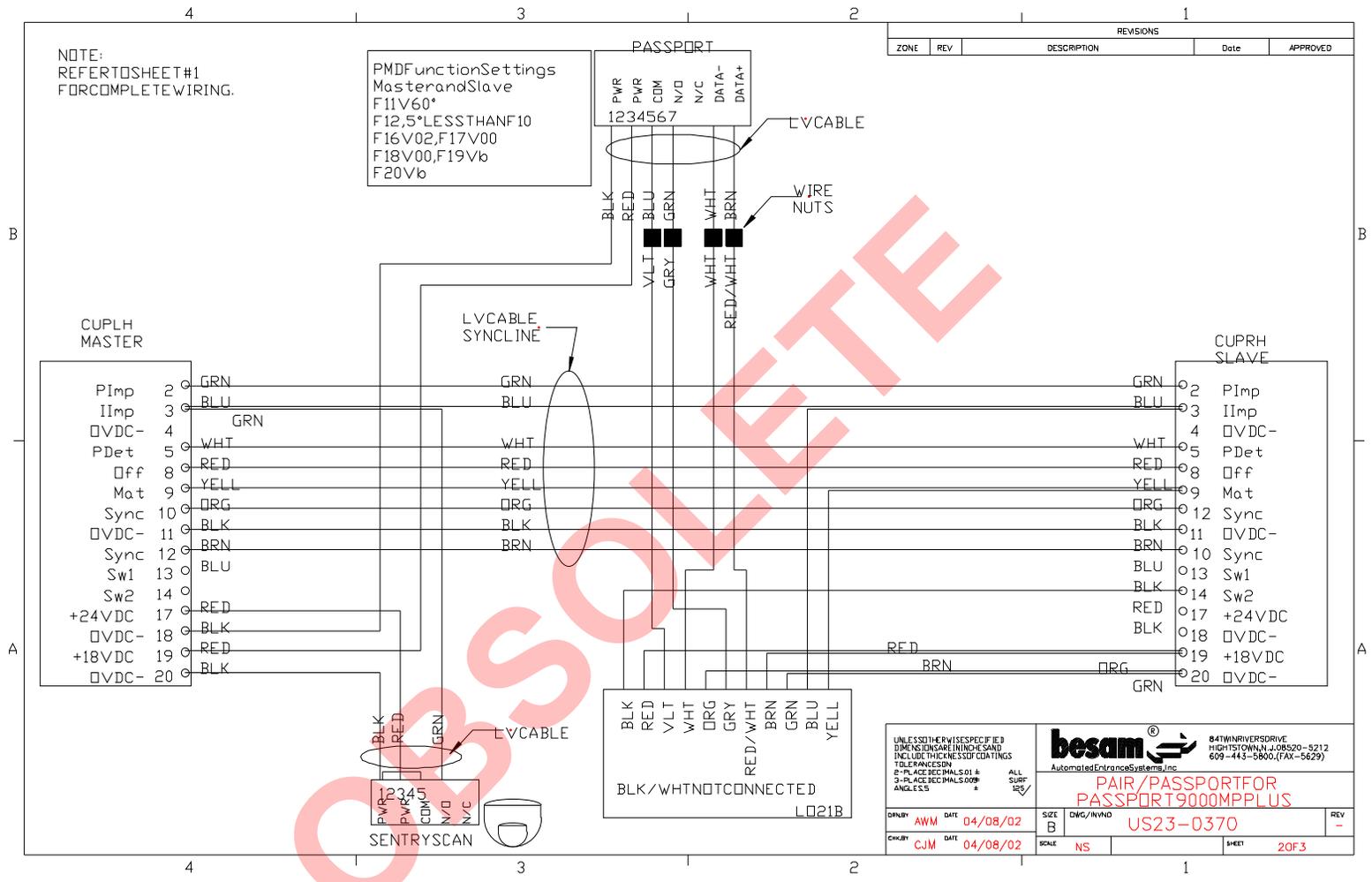
Time delay is controlled by positions 1 through 5 only

TROUBLE-SHOOTING	PROBLEM	PROBABLE CAUSE	CORRECTIVE ACTION
	With the door closed, the RED LED does not come on upon Passport detection.	No Power applied to the Brown (+) and Orange (-) wires. <b>Or</b> The Gray and Violet wires are not properly connected to the Passport pins 3,4.	<p><b>Step 1.</b> Check for power 12-24 VAC / 15-24 VDC on the Brown (+) and Orange (-) wires with a meter. If voltage is there go to Step 2.</p> <p><b>Step 2.</b> Jumper across Passport connector pins 3,4.</p> <ul style="list-style-type: none"> <li>• RED LED does not come on, go to Step 3.</li> <li>• RED LED comes on, go to Step 4.</li> </ul> <p><b>**Step 3.</b> Check continuity with a meter on the Orange, Brown, Violet and Gray wires from the back of the harness connector to the ends of the wire. Correct any problem connections. If no problem connections are found, replace LO21B.</p> <p><b>Step 4.</b> Check Passport Relay Mode function is set to 1. If OK replace Passport.</p>
	With the door closed, the GREEN LED comes on upon Passport detection.	Dipswitch# 6 is in the wrong position.	<p><b>Step 1.</b> Check that Dipswitch# 6 is set correctly for the application.</p> <p><b>Step 2.</b> Remove harness from lockout and re-install (this resets the LO21B).</p> <p><b>Step 3.</b> Check motor voltage in door closed and open position. Call Technical support.</p>
	With the door open, the GREEN LED does not come on upon Passport detection.	Reversed polarity or no motor voltage on the RED and BLACK wires.	<p><b>Step 1.</b> Check Dipswitch# 6 is correct for application.</p> <p><b>**Step 2.</b> Check RED and BLACK wire connections at the motor or source of door open voltage. Correct any problem connections.</p> <p><b>Step 3.</b> Reverse RED and BLACK LO21B wires at the motor.</p>
	No LED display on the LO21B or Passport and door will not open.	Dipswitch# 7,8 are in the wrong position.	<p><b>Step 1.</b> Check Dipswitches# 7,8 for proper position for application.</p> <p><b>Step 2.</b> Check control box connections for the Yellow, Green and Blue wires.</p> <p><b>** Remove power from sensors and door control before performing these checks..</b></p>

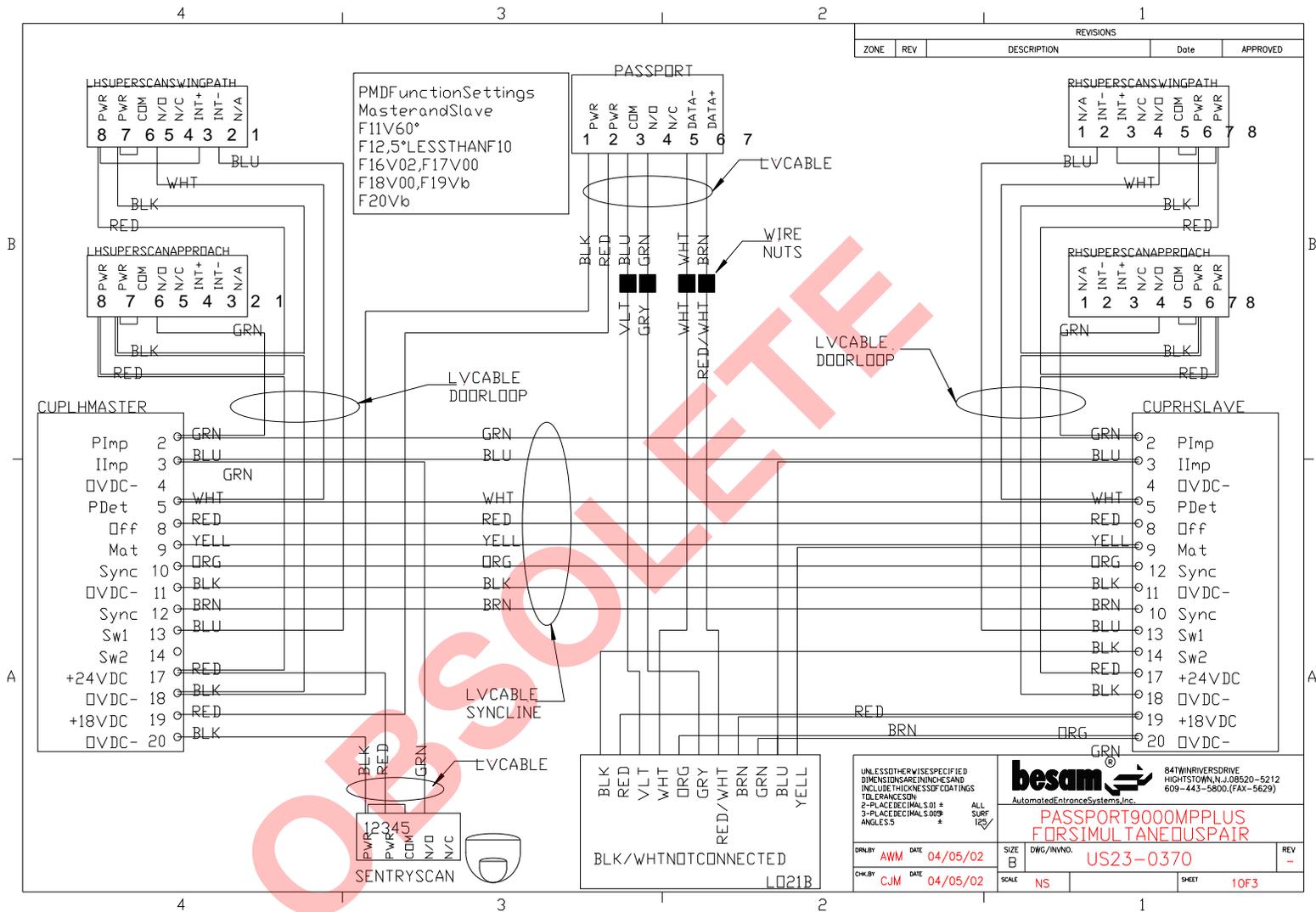
<b>COMPANY CONTACT</b>	<p>If after troubleshooting a problem, a satisfactory solution cannot be achieved, please call B.E.A., Inc. for further assistance during <b>Eastern Standard Time at 1-800-523-2462 from 8am - 5pm.</b></p> <p>For after-hours, call <b>East Coast: 1-866-836-1863</b> or <b>1-800-407-4545 / Mid-West: 1-888-308-8843 / West Coast: 1-888-419-2564.</b> <b>DO NOT leave any problem unresolved.</b> If you must wait for the following workday to call B.E.A., leave the door inoperable until satisfactory repairs can be made.</p> <p><b>NEVER sacrifice the safe operation of the automatic door or gate for an incomplete solution.</b></p> <p><b>Web: <a href="http://www.beasensors.com">www.beasensors.com</a></b></p>
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<b>ADDENDUM: WIRING DIAGRAMS</b>	<p>This addendum contains wiring diagrams for the operators and controls listed below. Diagrams are for the Passport and Passport Plus Systems.</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Swingmaster MP (CUP) Single</li> <li><input type="checkbox"/> Swingmaster MP (CUP) Dual</li> <li><input type="checkbox"/> SuperScan Quick Disconnect Cable</li> </ul>
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**SWINGMASTER  
MP DUAL WITH  
PASSPORT**



**SWINGMASTER  
MP DUAL WITH  
PASSPORT PLUS**



**STEP 1:** Wire the main cable into the control box as follows:

**SWINGMASTER ETIK CONTROL**

- Use **CHART 1** if the pre-wired terminal is attached to an **approach**-side SuperScan
- Use **CHART 2** if the pre-wired terminal is attached to a **safety**-side SuperScan

**CHART 1: Pre-Wired Terminal is on APPROACH Side**

Wire Color	ETIK Control Connection
Blue	N/A
Yellow	Pin 16 – Swingpath VP Dr 1(0 Volts)
Orange	N/A
Green	Pin 13 – Opening Impulse
Brown	Pin 15 – Swingpath VP DR #1
White	Pin 12 – Common (0 volts)
Black	Power (-) : 12 to 24 VAC ± 10% / 12 to 24 VDC ± 10%
Red	Power (+) : 12 to 24 VAC ± 10% / 12 to 24 VDC ± 10%

**NOTE: Pairs Of Doors –** Tie the Brown wire from each safety side SuperScan together, and wire nut them. Install yellow wire from the right door to pin 15 at ETIK control, and yellow wire at left door to pin 16.

**CHART 2: Pre-Wired Terminal is on SAFETY Side (BE SURE TO READ STEP 2)**

Wire Color	ETIK Control Connection
Blue	N/A
Yellow	Pin 12 – Common (0 volts)
Orange	N/A
Green	Pin 15 - Swingpath VP DR #1
Brown	Pin 13 – Opening Impulse
White	Pin 16 – Swingpath VP Dr #1 (0 volts)
Black	Power (-) : 12 to 24 VAC ± 10% / 12 to 24 VDC ± 10%
Red	Power (+) : 12 to 24 VAC ± 10% / 12 to 24 VDC ± 10%

**NOTE: Pair Of Doors -** Tie the Green wire from each safety side SuperScan together, and wire nut them. Install white wire from the right door to pin 15 at ETIK control, and white wire at left door to pin 16.

**STEP 2:** If the pre-wired terminal is installed on the Safety Side SuperScan, the green wire that is on pin 5 of the connector must be moved to pin 4.

**STEP 3:** Wire the 24" extension cable into the opposite side SuperScan as follows:

**SWINGMASTER ETIK CONTROL**

- Use **CHART 1A** if the pre-wired terminal was attached to an **approach**-side SuperScan
- Use **CHART 2A** if the pre-wired terminal was attached to a **safety**-side SuperScan

**CHART 1A – Connections to the SuperScan on SAFETY Side**

Wire Color	24" Extension Cable Connection
Yellow	6 - Common
Orange	Not Used
Brown	4 – N.O.
White	Not Used
Black	7 - Power
Red	8 - Power

**CHART 2A – Connections to the SuperScan on the APPROACH Side**

Wire Color	24" Extension Cable Connection
Yellow	6 - Common
Orange	Not Used
Brown	5 – N.C.
White	Not Used
Black	7 - Power
Red	8 - Power

**STEP 3:** The "B" switch on top of the Swingmaster operator is utilized for the purpose of inhibiting the Safety Side SuperScan when the door nears the position of back-check. The circuit must close at the desired point of inhibiting.

- Attach a wire from terminal 15 of the ETIK control directly to the N.O. terminal of the "B" Switch on top of the Swingmaster operator.
- Attach a wire from terminal 16 of the ETIK control directly to the COM. terminal of the "B" Switch on top of the Swingmaster operator.
- Adjust operator cam to trip "B" switch at desired location.

**STEP 1:** Wire the main cable into the control box as follows:

**SWINGMASTER CUP CONTROL**

- Use **CHART 1** if the pre-wired terminal is attached to an **approach**-side SuperScan
- Use **CHART 2** if the pre-wired terminal is attached to a **safety**-side SuperScan

**CHART 1: Pre-Wired Terminal is on APPROACH Side**

Wire Color	CUP Control Connection
Blue	Not Used
Yellow	Pin 13 – Switch 1
Orange	Pin 17: +24 VDC
Green	Pin 2 – P Imp
Brown	Pin 5 – P Det
White	Pin 18: 0 Volts
Black	Pin 18: 0 VDC
Red	Pin 17: +24 VDC

**CHART 2: Pre-Wired Terminal is on SAFETY Side**

Wire Color	CUP Control Connection
Blue	Pin 13 – Switch 1
Yellow	Not Used
Orange	Pin 17: +24 VDC
Green	Pin 5 – P Det
Brown	Pin 2 – P Imp
White	Pin 18: 0 VDC
Black	Pin 18: 0 VDC
Red	Pin 17: +24 VDC

**STEP 2:** Ensure that jumper J2 is installed at the default position (Active) on all SuperScan Master Modules.

**STEP 3:** Wire the 24" extension cable into the opposite side SuperScan as follows:

**SWINGMASTER CUP CONTROL**

- Use **CHART 1A** if the pre-wired terminal was attached to an **approach**-side SuperScan
- Use **CHART 2A** if the pre-wired terminal was attached to a **safety**-side SuperScan

**CHART 1A – Connections to the SuperScan on SAFETY Side**

Wire Color	24" Extension Cable Connection
Yellow	2 – Inhibit (-)
Orange	3 – Inhibit (+)
Brown	5 – N.C.
White	6 – Common
Black	7 - Power
Red	8 - Power

**CHART 2A – Connections to the SuperScan on the APPROACH Side**

Wire Color	24" Extension Cable Connection
Yellow	Not Used (Be sure to cap wire off)
Orange	Not Used (Be sure to cap wire off)
Brown	5 – N.C.
White	6 - Common
Black	7 - Power
Red	8 - Power

**STEP 4:** For pairs of doors, simply wire the cable the same way as outlined above.

**STEP 5:** Ensure the following PMD settings:

- F11 / Value 60
- F12 / Value 5 degrees less than F10
- F16 / Value 02
- F17 / Value 00
- F18 / Value 00
- F19 / Value b
- F20 / Value b

FUNCTIONS 11 AND 12 MAY HAVE TO BE ADJUSTED SLIGHTLY PER INSTALLATION