Hy8Relay™ Extended Relay Module

Review the illustrations and follow the steps to install the Hy8Relay.

Packing List

- Hy8Relay with wire harness
- Sticky back Velcro strips
- Two mounting brackets (DIN-rail, Panel)

  NOTE: The mounting brackets are not needed for Smart DC operators.

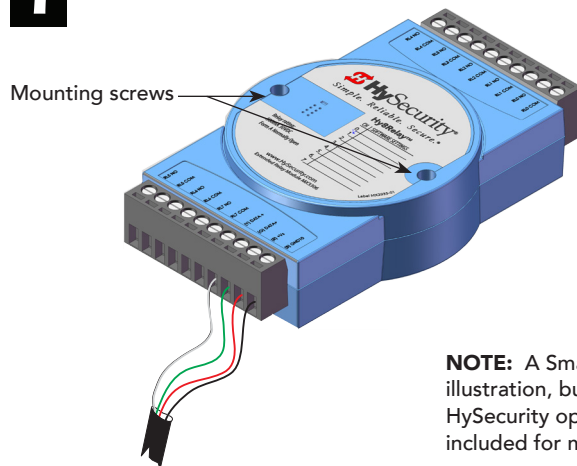## Tools required

- Flathead screwdriver

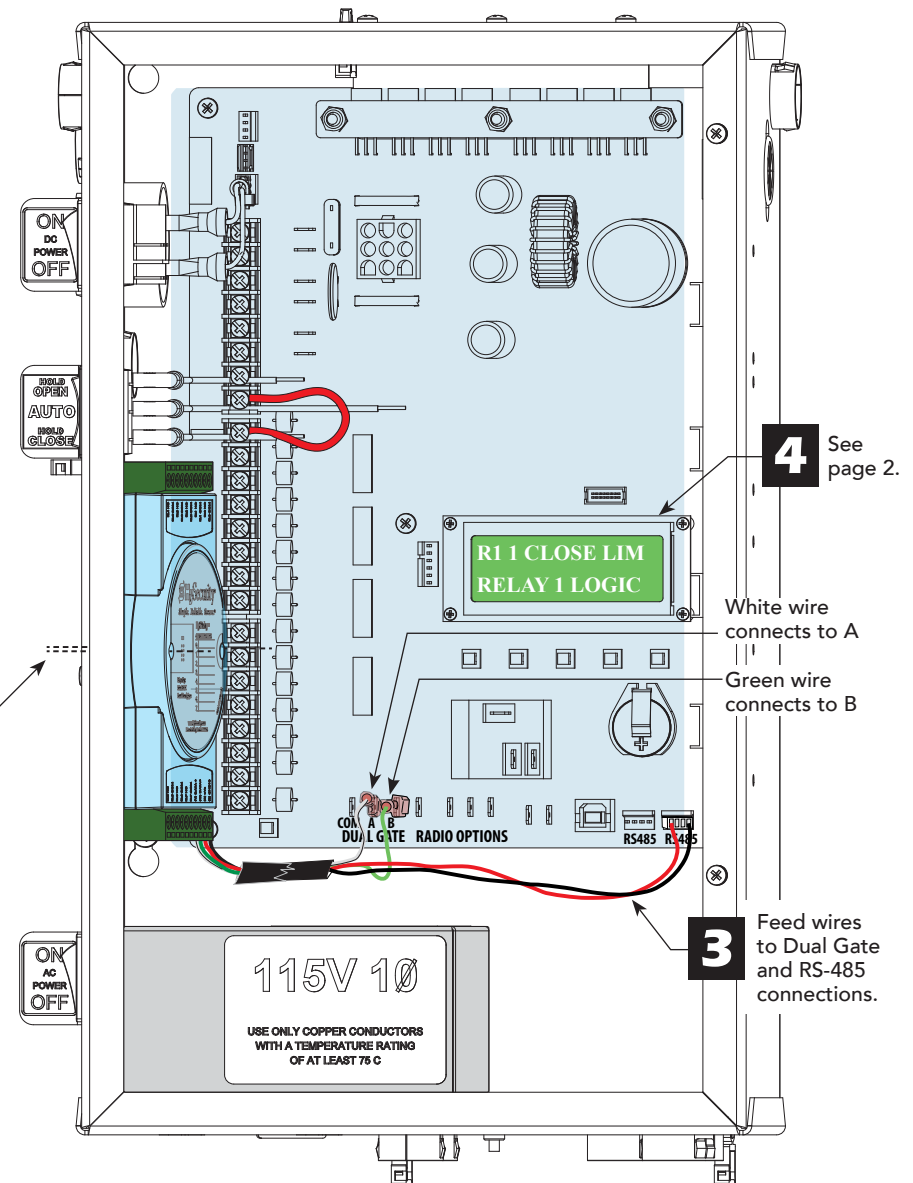## Mapping Hy8Relay Labels: Smart Touch or Smart DC

⚠️ **DANGER**

Turn OFF AC and DC Power switches on the Control Box to avoid electrical shock or equipment damage.

1 Remove all packing material.
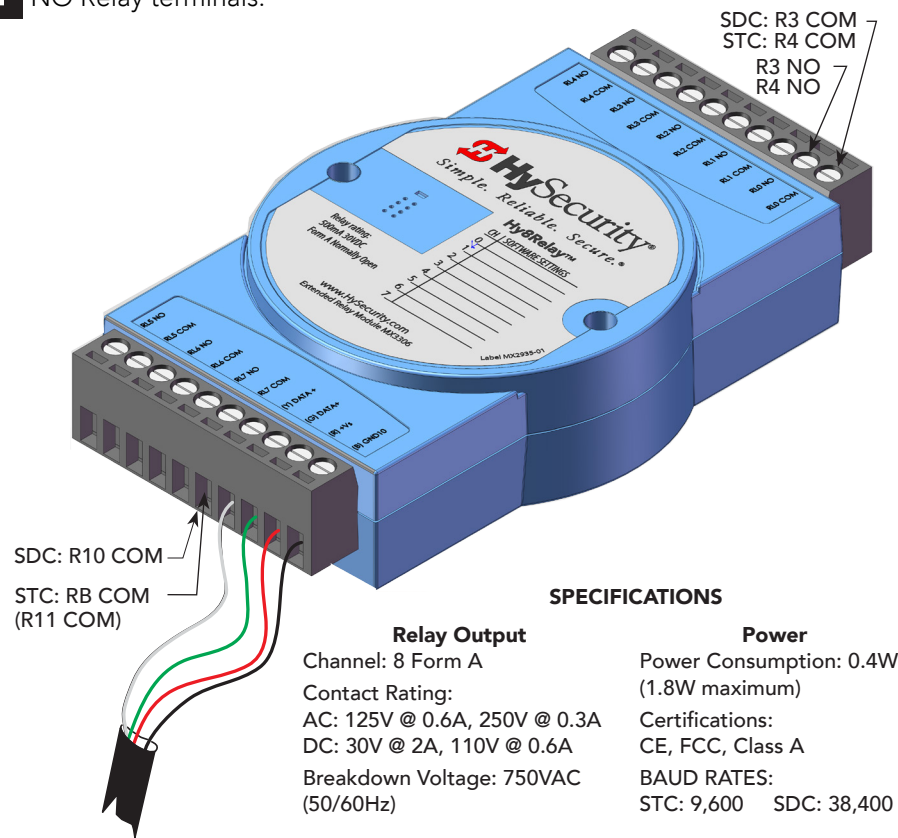
Mounting screws

2 Mount Hy8Relay to Control Box.

Pems exist on the SDC Control Box for this purpose.

NOTE: A Smart DC operator is shown in the illustration, but Hy8Relay can be used with all HySecurity operators. Two different brackets are included for mounting applications.

4 See page 2.

R1 1 CLOSE LIM
RELAY 1 LOGIC

White wire connects to A

Green wire connects to B

3 Feed wires to Dual Gate and RS-485 connections.

115V 1∅

USE ONLY COPPER CONDUCTORS
WITH A TEMPERATURE RATING
OF AT LEAST 75 C

4 Connect wiring to the COM and NO Relay terminals.

SDC: R3 COM
STC: R4 COM
R3 NO
R4 NO

SDC: R10 COM
STC: RB COM (R11 COM)

SPECIFICATIONS

Relay Output
Channel: 8 Form A
Contact Rating:
AC: 125V @ 0.6A, 250V @ 0.3A
DC: 30V @ 2A, 110V @ 0.6A
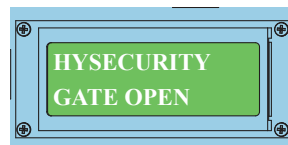Breakdown Voltage: 750VAC (50/60Hz)

Power
Power Consumption: 0.4W (1.8W maximum)
Certifications: CE, FCC, Class A
BAUD RATES:
STC: 9,600   SDC: 38,400

The Hy8Relay terminals associate to User Relay menu items in the operator:

Table 1: Hy8Relay Terminals					
Smart Touch Controller: Baud Rate 9600			**Smart DC Controller: Baud Rate 38400**		
Terminal	STC Installer Menu	Setting	Terminal	SDC Installer Menu	Setting*
R4 COM	R4: RELAY 4 LOGIC	0 to 28	R3 COM	R3: RELAY 3 LOGIC	0 to 28
R5 COM	R5: RELAY 5 LOGIC	0 to 28	R4 COM	R4: RELAY 4 LOGIC	0 to 28
rA COM R10 COM	rA: rELAY A LOGIC R10: RELAY A LOGIC	0 to 28	R9 COM	R9: RELAY 9 LOGIC	0 to 28
rb COM R11 COM	rb: rELAY b LOGIC R11: RELAY B LOGIC	0 to 28	R10 COM	R10: RELAY 10 LOGIC	0 to 28

5 When setting the User Relay function, the gate cannot be in motion nor the motor engaged.

Start at a gate status display:

GATE OPEN, GATE CLOSED, or GATE STOPPED

StOP_ OPEn, CLOS   (Smart Touch Controller)

HYSECURITY GATE OPEN

Press Menu* twice at the gate status display. The initial User Menu display appears.

User Menu — CT or HC

Installer Menu — UC or LL

From the User Menu, press and hold Reset and Open and then release them. The initial Installer Menu appears.

Press Next until the RL1 display appears. (On hydraulic operators a second mechanical relay (RL2) is also available.)

Table 2: Menu Mode Navigation Buttons			
To change data appearing in the display	**To navigate through the Selections**	**To choose what appears on the display**	**To navigate between menu items**
Press Select. Two left characters blink.	Press Next or Previous. Continue pressing Next to view all selections.	Press Select. Blinking characters become static.	Press Next or Previous. Advance - press Next Previous - press Previous

⚠ **CAUTION** If you use S.T.A.R.T. to change menu settings, be sure to check that the latest software versions are uploaded to your PC device and the gate operator's controller. Otherwise, ALERT 24 appears and several fields may be auto-filled with incorrect data. You will need to upgrade to the latest software version and contact HySecurity Technical Support to reset the controller. Contact HySecurity Technical Support at 800-321-9947.

**R1 1 CLOSE LIM
RELAY 1 LOGIC**

An example of a user relay function is shown here. Setting R1 to 1 creates an interlock signal to another operator's interlock input. The relay is released when the fully-closed limit switch is tripped (indicates that the gate is secure). Any open command energizes the relay.

Multiple configurations can be developed, with up to 32 functions available (an additional 12 for revenue control gate operators. See the gate operator product manual. All of the user relay functions are accessible in the Installer Menu selections. User Relays 1 through 32 are described in Table 3.

NOTE: A setting of zero disables a user relay. The user relays will operate normally to 18VDC. Below 18VDC, alert notification occurs. On StrongArmParkDC the R2 RELAY 2 LOGIC is recommended for LED arm lights.

Relay No.	Name	Description	Wire Connection
Table 3: Programmable User Relays			
1	Close limit output	Output can be used as an interlock signal to another operator's interlock input, or simply to indicate that the gate is secure. The relay is "off" when the gate is closed. The relay energizes when the fully-closed limit is released. (Any open command energizes the relay.)	Relay 1
2	Close limit pulse output	Used in a sequenced system to command a second operator to close. Generates a brief pulsed output that occurs when the close limit is triggered.	Relay 1
3	Open limit output	Indicates a full-open position. This output becomes active when an open-limit is triggered and deactivates when the open-limit is released or a close command is received.	Relay 1
4	Open limit pulse output	Used in a sequenced system to command a second operator to open. Generates a brief pulsed output that occurs when the open limit is triggered. An additional pulse is also generated with any new open command even when the gate is already fully-opened.	Relay 1
5	Warn before/during operate output	Controls an external warning device. This output operates at the same time as the internal warn before operate buzzer.	Relay 1
6	Gate Lock output	Controls external solenoid or magnetic locks. In both directions of travel, this output is activated about 7/10ths of a second before the operator starts moving the gate and remains active while moving. Output remains active, for a few seconds, after stopping.	Relay 1
7	Gate forced open output	Controls an external warning device. Activated if the gate is forced off the closed limit switch and the operator is not able to restore the gate to full closed position within four seconds. **NOTE:** This alarm resets itself in 30 seconds.	Relay 1
8	Gate open too long output	Controls an external warning device. Activates when the gate is open longer than the user-selected period of time. Adjustable from 0 seconds with 15 to 135s selectable delay time frames in 30s increments. **NOTE:** TL - Open TIME ALERT adjustments can be made in the Installer Menu. The TL Installer Menu display only appears when using this relay.	Relay 1
9	Safety Mode Alert output	Controls an external warning device. Activated when the system is in Safety Mode or Entrapment Mode. Safety Mode occurs when the gate encounters an obstruction. In Entrapment Mode, the gate is stopped, and alert occurs if the internal inherent sensor triggers while the system is in Safety Mode.	Relay 1
10	Entrapment Mode Alert output	Controls an external warning device. Activated only when in the Entrapment Mode.	Relay 1
11	Unauthorized Vehicle Entry output (Tail gate alert)	Controls an external warning device. Activated when a second vehicle enters from the outside without a valid input from an access control device. This output releases when an access control input signals open or the arm/gate reaches the close limit.	Relay 1
12	Outside Obstruction Vehicle Detector output	Interlocks an entry device to and arming loop so gate does not open until the Outside Obstruction Loop Detector is tripped.	Relay 1

Table 3: Programmable User Relays			
Relay No.	**Name**	**Description**	**Wire Connection**
13	Loitering Alert	Indicates a vehicle is loitering on the Outside Obstruction Loop. Adjustable from 0 seconds with 15 to 135s selectable delay time frames in 30s increments. **NOTE:** LT LOITERING ALERT adjustments can be made in the Installer Menu. The LT Installer Menu display only appears when using this relay.	Relay 1 or 2
14	Gate nearing full travel output	Applies to operators with position/proximity sensors only. This output is used to reduce the sensitivity of a proximity sensor near the ends of gate travel. Activated when the gate is 3s (approx. 3 ft) from expected limit switch trigger (full travel in both the open and close directions). **NOTE:** If the operator has not yet learned limits, it will energize Relay 14 when the motor begins moving the gate or barrier arm.	Relay 1
15	Gate failure output	Activated to report occurrence of a problem. Indicates the system is in an Error Mode, Fault Mode or Entrapment Mode. If the relay is active, the gate is disabled.	Relay 1
16	Motor Running output	Active when the motor is running and gate is in motion.	Relay 1
17	AC Power Failure output	This relay is normally energized and drops with loss of AC power.	Relay 1
18	DC Power Failure output	**DC operators only.** The relay activates when the battery power is very low, but the output ceases when the battery is dead. The relay is triggered when the battery is less than 20 volts.	Relay 1
19	Flasher Relay	Flashes lights once per second. The relay is constantly pulsing except when the open limit switch is triggered. * Preferred connection is Relay 2, a solid state relay.	Relay 1 or 2*
20	Free Exit Loop Vehicle Detector output	Active when the Free Exit Loop is tripped.	Relay 1
21	Inside Obstruction Vehicle Detector output	Active when the Inside Obstruction Loop is tripped.	Relay 1
22	Reset Loop Detector output	Active when the Reset Loop detector is tripped.	Relay 1
23	External Latching Gate Lock Output	Not used in the Smart DC Controller. In Smart Touch Controller, connects to Input Terminal 22. Ten seconds elaspse before screw actuated lock unlocks. If connecting a Solenoid or Mag Lock, use User Relay 6.	Relay 1
24	Gate at Partial Open Position	Active when the partial open position is reached or exceeded.	Relay 1
25	DC Power Alert	Used most often for solar applications where a number of accessories are connected to the Controller. To slow battery drain, accessory power loads are shed, when the software detects a low battery voltage (below 21VDC, but greater than 18VDC) for a duration of 2 seconds or more.	Relay 1
26	Free Vehicle Detector Pulse	Activates when the Exit Loop Detector is tripped and causes a 250mS pulse output to occur.	Relay 1
27	Not Open (requires AC power)	When AC power is detected, this relay activates when the gate in NOT on the open limit. If AC power fails, or the gate is on the open limit, the relay is deactivated.	Relay 1
28	Flasher (requires AC power)	Controls flashing lights that pulse 500ms per second. The relay is constantly activating except when the open limit switch is triggered or AC power fails.	Relay 1
29	Set aside for Factory Use	HySecurity Testing Only	Do not use
30	Arm Break	Used ONLY on StrongArm and StrongArmPark DC and activates if the breakaway arm switch is tripped. Set BA in Installer Menu	Relay 1 or 2
31	Warn Operate Run	Relay is active while warn before and motor running.	Relay 1 or 2
32	Partial Open Pulse	Relay pulses when partial open activated and when partial open limit reached. Often used at a sequential gate site.	Relay 1 or 2