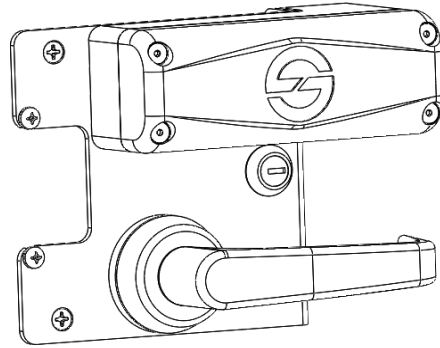


2890 Automatic Bolt Retraction Installation Instructions



The Sargent and Greenleaf 2890 Automatic Bolt Retraction (ABR) system is designed for use with the S&G 2890 locking system and an Automatic Door Opener (ADO). To ensure the locking system's security, the ABR operates by electrically engaging the unsecured side of the lock extension. This design prevents bolt retraction when either the combination lock or access control devices are in the locked position.

The drive unit shown above is compatible with both panic exit and lever handle configurations and can be installed on doors of either hand orientation.

This instruction set includes only the assembly steps specific to the ABR installation. For all other installation procedures, refer to the S&G 2890 instruction sheets corresponding to your locking system.

2890 Automatic Bolt Retraction Installation Instructions

Hardware Installation

1

The exterior handle spindle for the ABR is unique and must be cut to the proper length and installed in the correct orientation (remove material from the square side) or the device will not function properly.

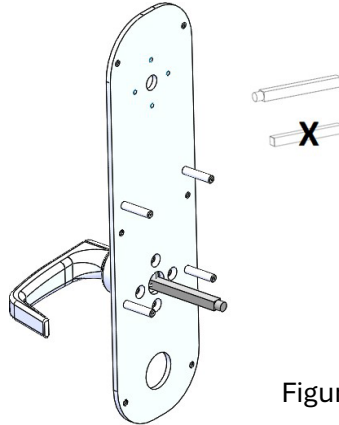


Figure 1

2

Temporarily attach the interior and exterior mounting plates, along with the exterior handle, to determine the correct handle spindle length. After cutting the spindle to the proper length and completing the final assembly, the round end of the spindle should extend $9/16''$ (14 mm) from the face of the interior mounting plate (as shown in Figure 2).

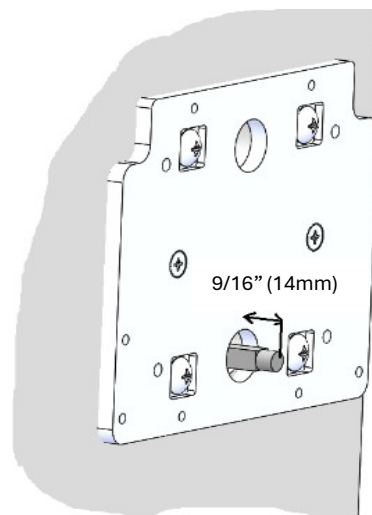


Figure 2

2890 Automatic Bolt Retraction Installation Instructions

3

- a. The ABR is factory-set for Right-Hand mounting (clockwise rotation to open), with the internal directional switch set to UP. If this matches the desired installation, proceed to step 3c.



Figure 3

- b. For Left-Hand mounting (counterclockwise rotation to open), orient the ABR as needed, ensuring the switch is in the Down setting. Then, reposition the directional switch to the UP setting (Figure 4).

Note: The directional switch must be set to the UP position before applying power, or the ABR will not function properly. If the switch setting is changed after installation, power must be momentarily cycled off to reset the ABR handing.

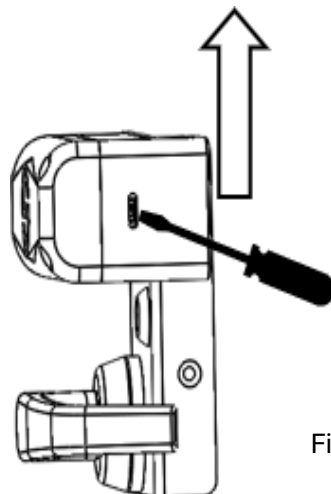


Figure 4

2890 Automatic Bolt Retraction Installation Instructions

- c. Attach the ABR drive unit to the interior cover with (3) #10-32X1/2" flat head screws as shown in Figure 5.

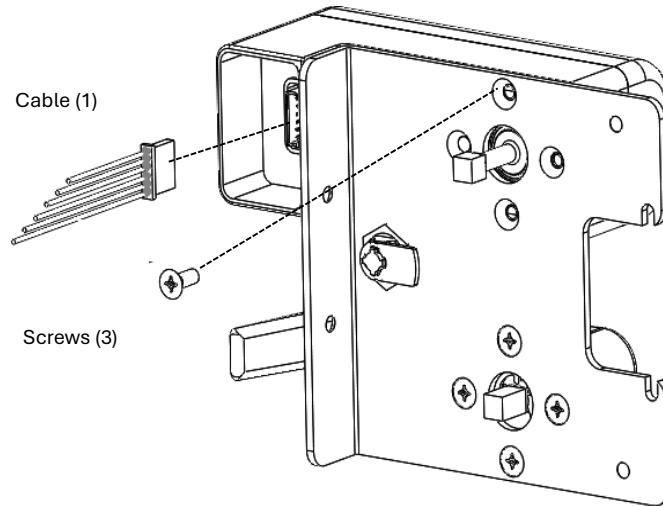


Figure 5

- d. Insert the electrical cable into the connector on the ABR drive unit as shown in Figure 5.

4

- a. Complete the hardware installation by securing the interior cover and ABR unit assembly to the S&G 2890 lock.

2890 Automatic Bolt Retraction Installation Instructions

System Integration and Wiring

The Sargent and Greenleaf 2890 Automatic Bolt Retraction (ABR) system is designed for use with the S&G 2890 locking system (featuring an FF-L-2740 lock, e.g. S&G 2740B or X10 lock), an Automatic Door Opener (ADO), an Access Control System (AC), and optionally, an ADA wall switch (ADASW).

When the FF-L-2740 lock is in the unlocked state and the ABR receives a trigger signal from the AC system, it rotates the handle and signals the ADO to activate.

The ABR requires the following:

- **+24 VDC continuous power, typically supplied by the ADO**
- **+10 to +27 VDC unlock trigger signal (suggested min 5 seconds) from the AC system.**

The following instructions cover system integration and wiring for two types of configurations:

- Access Control with ADA switch
- Access Control Only

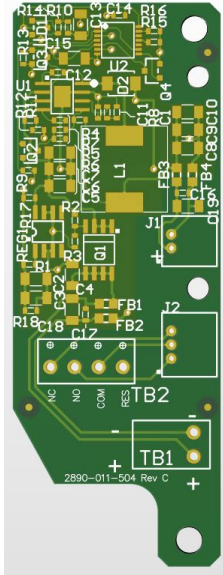
The automatic door opener referenced in these instructions is the S&G Supplied - ADO-KIT 1890 AUTOMATIC DOOR OPERATOR KIT.

ADO Manufacturer Instructions:

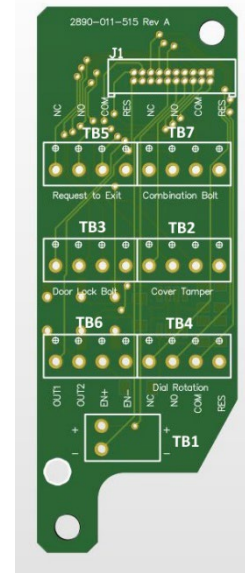
<https://sdcsecurity.com/docs/INST-AutoEntry.pdf>

2890 Automatic Bolt Retraction Installation Instructions System Integration and Wiring

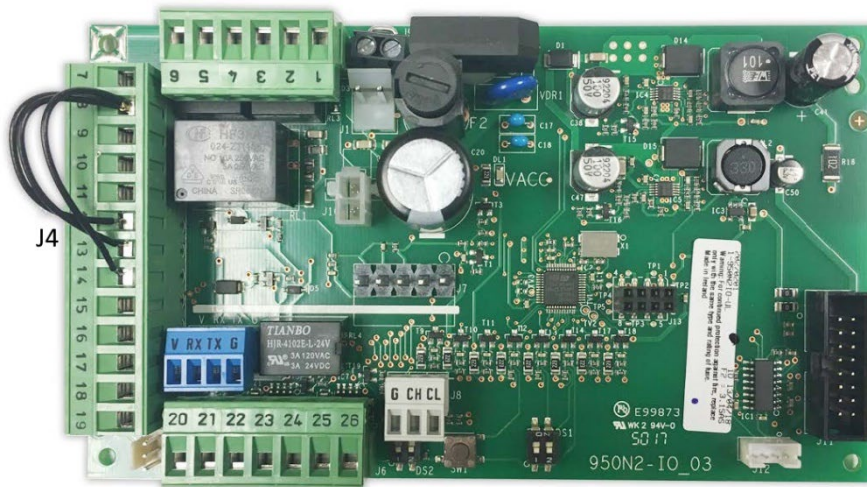
Reference



2890 Lower Control Module, Blocking Module PCB



2890 Lower Control Module, Terminal Block w/ ADA PCB



ADO I/O Board

2890 Automatic Bolt Retraction Installation Instructions System Integration and Wiring

Access Control with ADA Switch Configuration

Follow the wiring guides below as well as the wiring guide for your ADO, access control system, and ADA Switch push plate for successful integration.

The connections below are used in conjunction with an electronic access control system. ADA Switch is always active, but the ABR will only unlock the door when access control module is unlocked.

	ADO TERMINAL BLOCK				2890 Lower Control Module						
					Blocking Module PCBA		Terminal Block W/ADA PCBA				
	J4-7	J4-8	J4-9	J4-11	TB1-1	TB1-2	TB6-1	TB6-2	TB6-3	TB6-4	TB4-4
ABR CABLE											
Pin 1 (RED)	■										
Pin 2 (BLACK)			■								
Pin 3 (BLUE)							■				
Pin 4 (BLUE)											■
Pin 5 (YELLOW)		■									
Pin 6 (YELLOW)				■							
ACCESS CONTROL SYSTEM											
Unlock Signal					■				■		
Ground						■				■	
ADA SWITCH											
Normally Open											■
Common								■			

Wiring Matrix – Access Control with ADA Switch

ADO Requirements

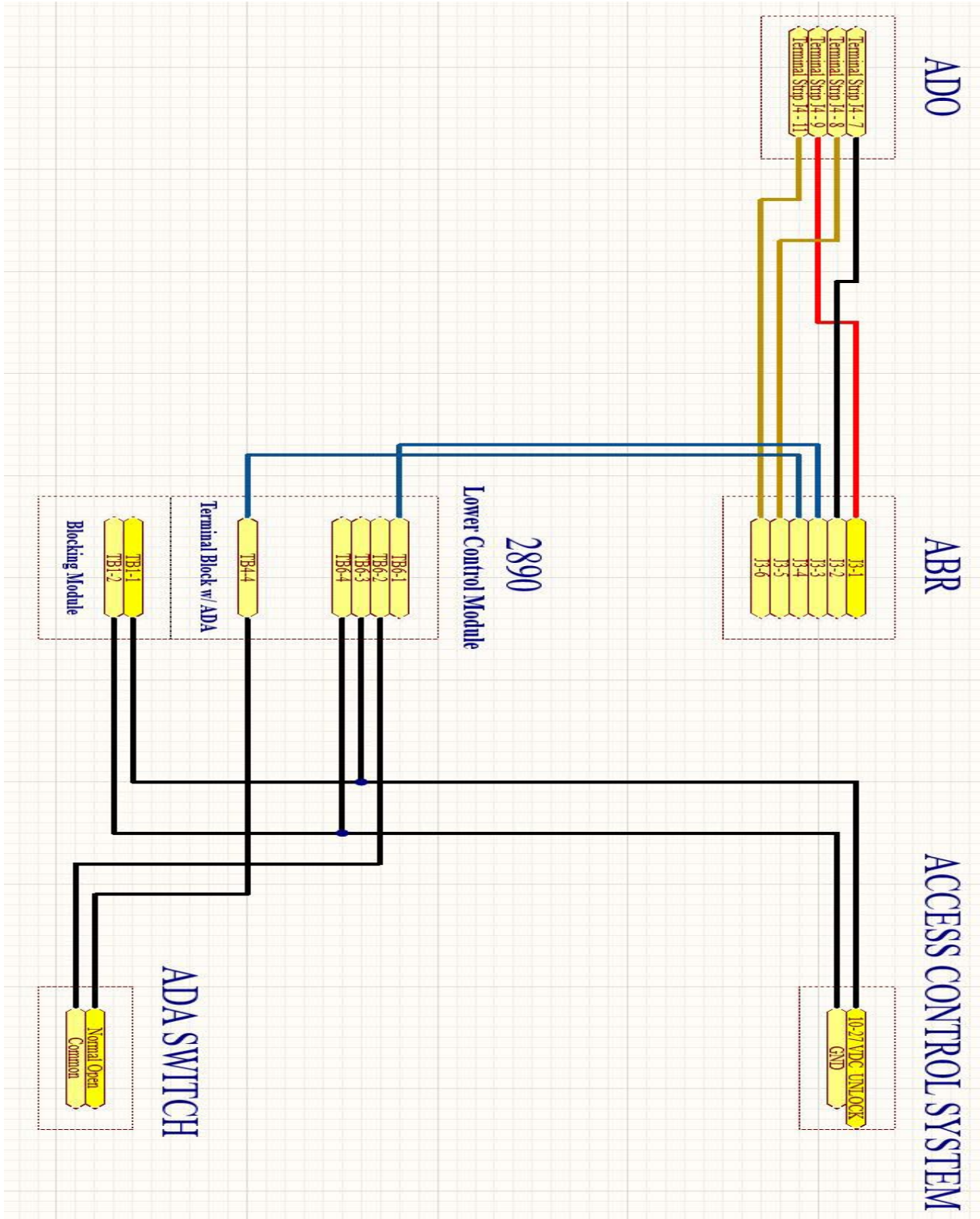
- **+24 VDC Continuous power for the ABR**
- Activation Input (ABR provides a Normally Open relay)
- Ground for use with the Activation Input

Access Control Requirements

- Unlock Signal (+10 to +27 VDC)
- Ground for use with the activation Signal
- Programmable Unlock Time (sufficient for ABR or Manual Opening)

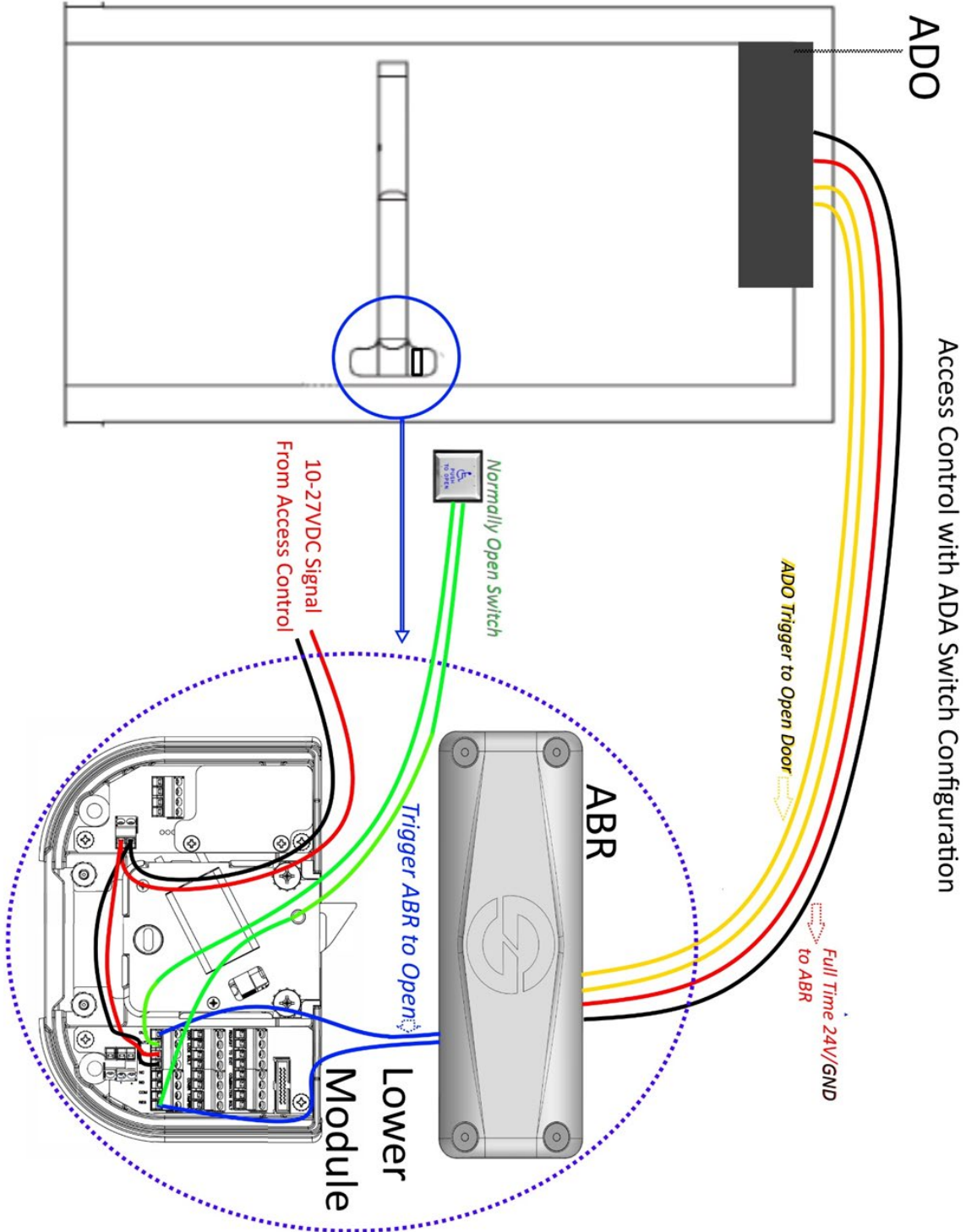
2890 Automatic Bolt Retraction Installation Instructions System Integration and Wiring

Access Control with ADA Switch Configuration



2890 Automatic Bolt Retraction Installation Instructions System Integration and Wiring

Access Control with ADA Switch Configuration



2890 Automatic Bolt Retraction Installation Instructions System Integration and Wiring

Access Control Only

Follow the wiring guides below, the wiring guide for your ADO, and access control system for successful integration.

The connections below are used in conjunction with an electronic access control system. Every time a valid credential is entered; the access control system will unlock the 2890 and trigger the ADO.

	ADO TERMINAL BLOCK				2890 Lower Control Module						
					Blocking Module PCBA		Terminal Block W/ADA PCBA				
	J4-7	J4-8	J4-9	J4-11	TB1-1	TB1-2	TB6-1	TB6-2	TB6-3	TB6-4	TB4-4
ABR CABLE											
Pin 1 (RED)											
Pin 2 (BLACK)											
Pin 3 (BLUE)											
Pin 4 (BLUE)											
Pin 5 (YELLOW)											
Pin 6 (YELLOW)											
ACCESS CONTROL SYSTEM											
Unlock Signal											
Ground											

Wiring Matrix – Access Control Only

ADO Requirements

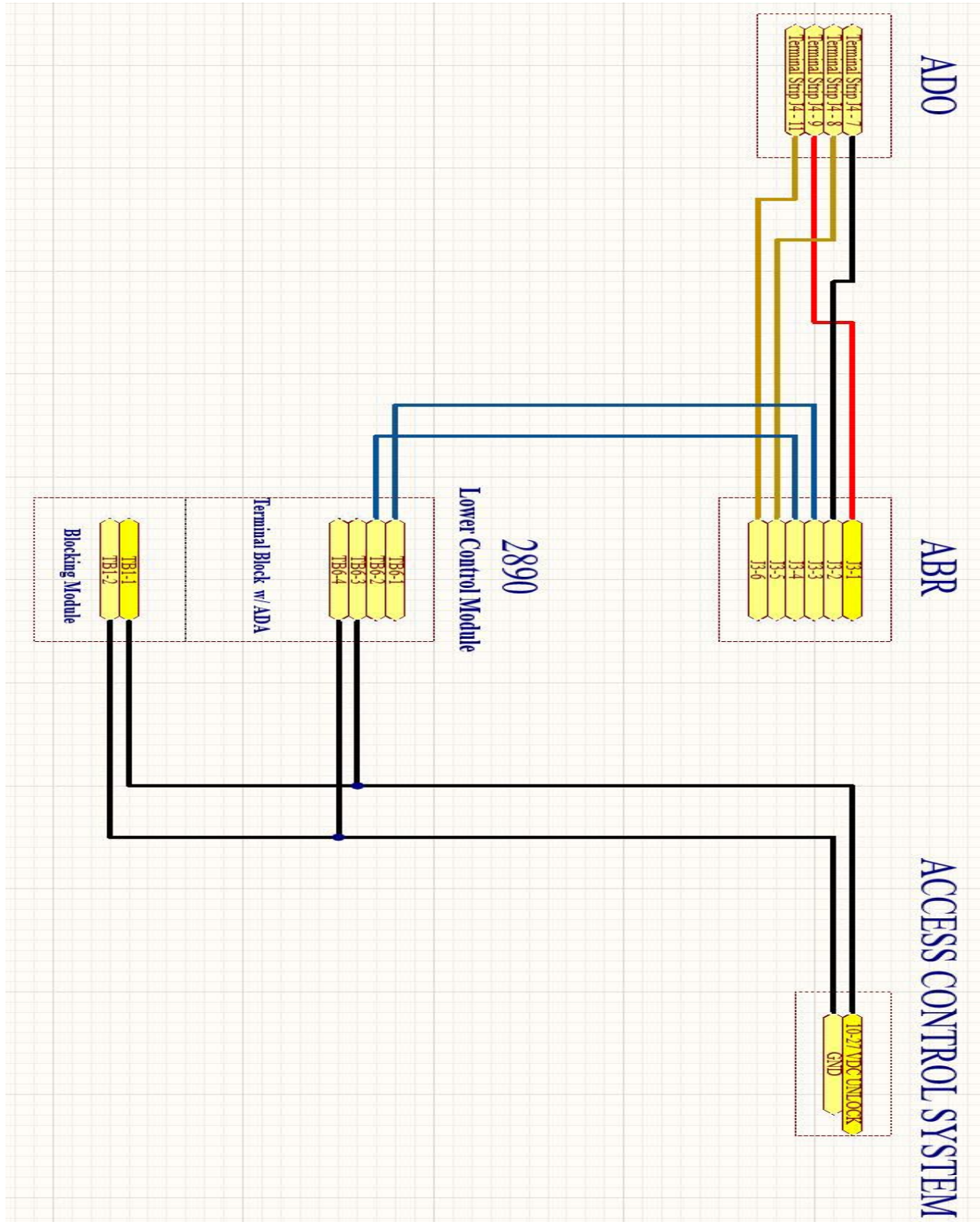
- **+24 VDC Continuous power for the ABR**
- Activation Input (ABR provides a Normally Open relay)
- Ground for use with the Activation Input

Access Control Requirements

- Unlock Signal (+10 to +27 VDC)
- Ground for use with the activation Signal
- Programmable Unlock Time (sufficient for ABR or Manual Opening)

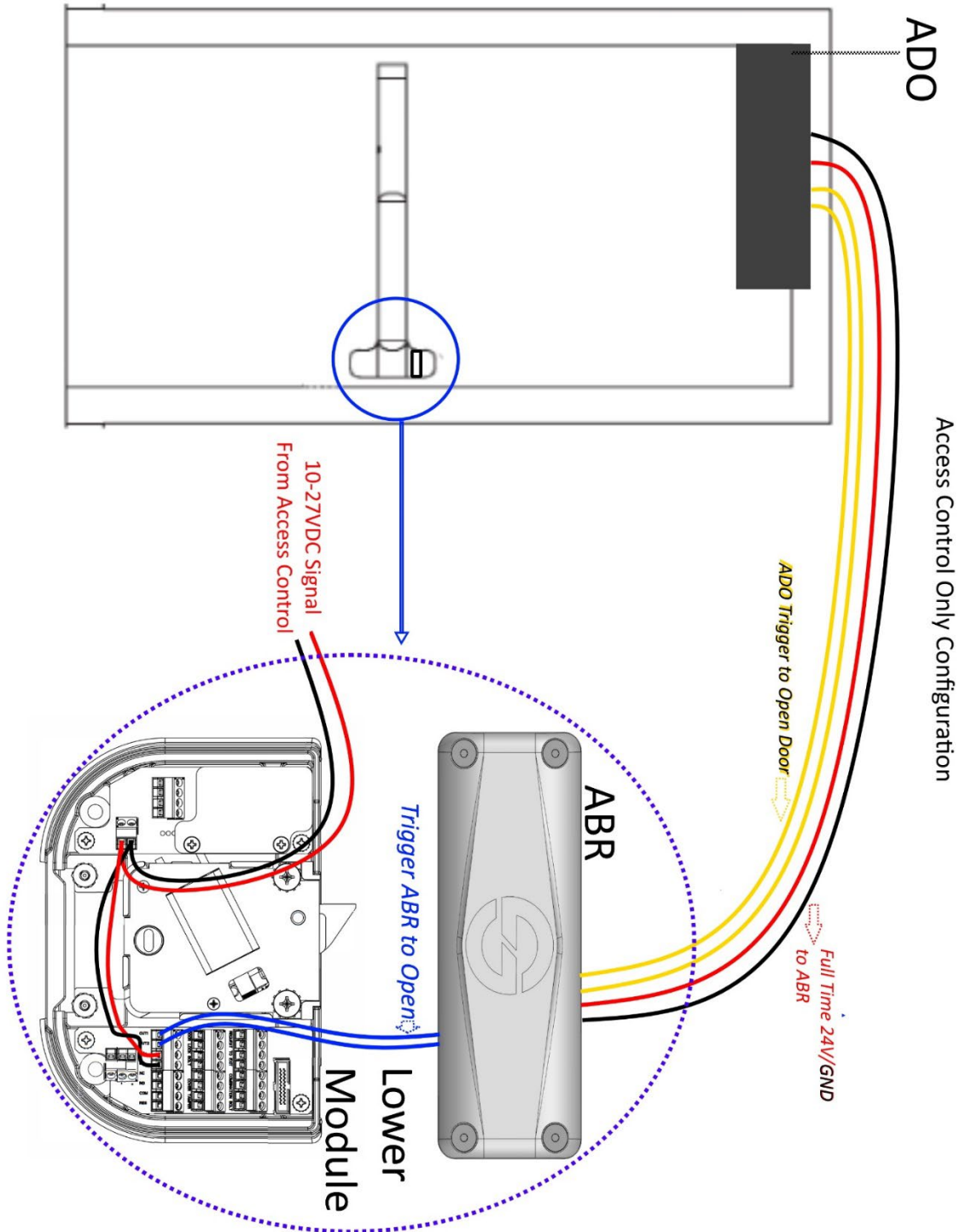
2890 Automatic Bolt Retraction Installation Instructions System Integration and Wiring

Access Control Only



2890 Automatic Bolt Retraction Installation Instructions System Integration and Wiring

Access Control Only



2890 Automatic Bolt Retraction Installation Instructions

ABR Initialization and Operation

ABR Initialization

When the +24 VDC power is applied to the ABR module it initializes running the motor in the switch selected direction and verifying switch operation, then it returns to the home (locked position) in 8 seconds. The following is required when applying power to the ABR module:

- The switch to select handing should be in the proper position. The design of the module dictates that the switch should always be UP when installed.
Note – the motor will run clockwise a right-handed installation and counterclockwise in a left-handed installation, this direction is while observing the ABR cover side.
- If power is applied at various stages of the design, verify the following:
 - The switch selecting handing should be in the proper position prior to applying power.
 - The ABR motor can move in an open direction. If installed on the 2890 either the lock cannot be present, or the lock needs to be unlocked; and the blocking module needs to be in the open position.
 - Sufficient time should be allowed for the initialization to complete before removing power.
 - If already installed, the switch handle moves to the open position.

ABR Operation

Once powered and initialized the operation of the ABR is defined by the following four states:

- **WAIT** – This is essentially a sleep state. The ABR is looking for an UNLOCK signal from the access control system via the 2890 lower control module.
- **OPEN** – This state is initiated when the ABR receives an UNLOCK signal from the access control system via the 2890 lower control module. *This signal is only passed by the lower control module if the LOCK of the 2890 is unlocked.* The ABR will run the motor to turn the handle in the opening direction, cycle

2890 Automatic Bolt Retraction Installation Instructions

the activation signal to the DO to open the door, delay 6 seconds, and then initiate the **CLOSE** state.

- **CLOSE** – The close state is initiated by the **OPEN** state. The ABR will run the motor to turn the handle in the close direction. The ABR will then enter the **WAIT** state. The door will close when the ADO open time expires.
- **WARNING** – *If during either the **OPEN** or **CLOSE** states the ABR does not reach the intended position (opened or closed) within the expected time, the ABR will emit 3 short beeps to indicate a timeout. The ABR will then continue in the **OPEN** or **CLOSE** state.*