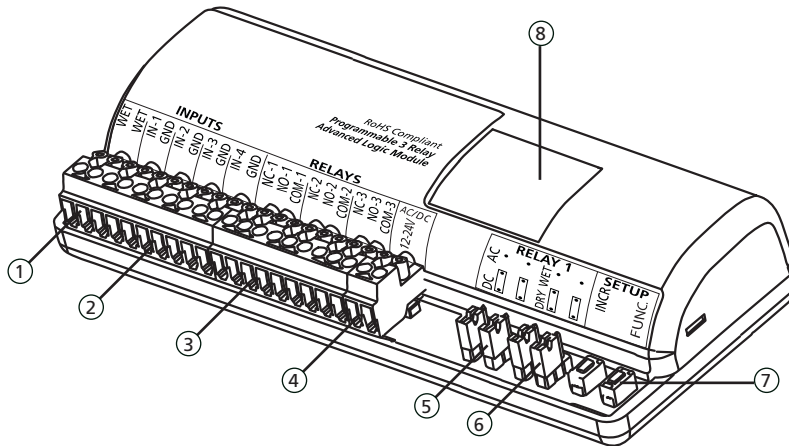


1. DESCRIPTION



1. WET input
2. DRY inputs
3. Relay outputs
4. Power input
5. AC/DC jumpers
6. WET/DRY jumpers
7. Programming buttons
8. 7-segment display

2. SPECIFICATIONS

DESCRIPTION	SPECIFICATION
Supply voltage:	12 – 24 VAC/VDC $\pm 10\%$
Current consumption:	30 – 130 mA (DRY output)
Temperature rating:	-15 – 150 °F (-26 – 150 °C)
Input	
Input 1, 2, 3, 4:	DRY contact
WET input:	5 – 24 VAC/VDC $\pm 10\%$
Contact rating	
Relay 1 (DRY):	3 A @ 24 VAC or 30 VDC
Relay 1 (WET):	1 A
Relay 2:	3 A @ 24 VAC or 30 VDC
Relay 3:	1 A @ 24 VAC or 30 VDC
Dimensions:	5.2" x 2.2" x 1" (133mm x 55mm x 25mm)
Housing:	ABS – white translucent

3. PRECAUTIONS



- ☐ Shut off all power going to 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.
- ☐ ESD electrostatic discharge: Circuit boards are vulnerable to damage by electrostatic discharge. Before handling any board ensure you dissipate your body's charge.
- ☐ Always check placement of all wiring before powering up to ensure that moving door parts will not catch any wires and cause damage to equipment.
- ☐ Ensure compliance with all applicable safety standards (i.e. ANSI A156.10/19) upon completion of installation.
- ☐ DO NOT attempt any internal repair of the sensor. Unauthorized disassembly or repair:
 1. May jeopardize personal safety and may expose one to the risk of electrical shock.
 2. May adversely affect the safe and reliable performance of the product will result in a voided product warranty.

4. JUMPERS

PRECAUTIONS TO OBSERVE WHEN USING A 'WET' OUTPUT

- ☐ Never change the jumper settings when the module has power connected to it or when a load is applied.
- ☐ Never allow 2 different voltage sources to be connected to the load (electric strike for example) at the same time. This can result in serious damage to equipment.
- ☐ Always move both jumpers when changing a jumper set.
- ☐ If an EL device is being powered by a separate power source, DO NOT select the 'WET' output option on the 2-659-0240. If 'WET' is selected, the next activation of the module will send a voltage to the load and if there is already a voltage being applied from another source, the 2-659-0240 and possibly the load will be permanently damaged.
- ☐ When using the 'WET' output option on the 2-659-0240, set all desired switch positions ('WET' – 'DRY' and AC – DC) before the module is powered and before any loads are applied.
- ☐ When DC 'WET' output is selected, COM terminal is positive (+) and the ground (-) is switched between NO and NC.
- ☐ Ensure there is no other voltage connected to the load. Whatever the Input voltage is at the 2-659-0240, the output will correspond. The following can also be observed:
 1. If voltage Input at the 2-659-0240 is AC, then output selection can be AC or DC.
 2. If voltage Input at the 2-659-0240 is DC, then output selection can only be DC.
 3. The maximum load applied to Relay 1 should never exceed 1A. If more than one device is to be connected, add the consumption values together for a total value. If current is excessive, damage to equipment can result.
 4. On the 2-659-0240, the 'WET' output is only available at Relay 1.
- ☐ When supplying 2-659-0240 with AC input voltage and selecting Relay 1 output for 'WET' and DC OUTPUT VOLTAGE, note that the resulting DC output will be the rectified AC input voltage and therefore, about 40% higher than the AC input voltage (rms).

CAUTION: Relay 1 'WET' OPTION IS ACTIVE FOR ALL FUNCTIONS!

RELAY 1 OUTPUT	DRY/WET JUMPER ²	AC OUTPUT VOLTAGE ³	DC OUTPUT VOLTAGE ⁴
DRY	both jumpers set to DRY	N/A	N/A
WET ¹	both jumpers set to WET	both jumpers set to AC	both jumpers set to DC

NOTES:

1. "WET output" allows the 2-659-0240 to supply a voltage output of up to 1 A on relay 1 for powering maglocks or electric strikes directly from the 2-659-0240. Rating of power supply which powers the 2-659-0240 must be at least 1 A.
2. Default jumper settings make relay 1 DRY.
3. AC voltage only available if 2-659-0240 is powered by AC voltage.
4. DC voltage available if 2-659-0240 is powered by AC or DC voltage.

5. WIRING

Each 2-659-0240 function is wired differently. Please review and follow the appropriate wiring diagram shown for each function.

6. FUNCTIONS & PARAMETERS

FUNCTION	DESCRIPTION	LOGIC
10	timer	activation of relay 1 via trigger of input 1 reverse logic available
11	ratchet / latching	ratchet/latching of relay 1 via trigger of input 1
22	2-relay sequencer + inhibitor	sequence of relay 1 and relay 2 with inhibiting of input 1 until input 2 , input 3 , or WET input is triggered activation of input 4 reinhibits input 1
28	2-relay sequencer + door position	sequence of relay 1 and relay 2 via trigger of input 1 or WET input input 2 allows delay to run when open but not when closed
29	deactivation timer	sequence of relay 1 and relay 2 via trigger of input 1 or WET input input 2 , once opened after sequence, allows relay 1 to deactivate input 2 allows delay to run when open but not when closed input 3 disables sequence, reverse logic available
36	3-relay sequencer + '1-shot'	sequence of relay 1 and relay 2 and relay 3 via trigger of input 1 or WET input relay 1 , relay 2 , and relay 3 can be maintained or '1-shot'
37	3-relay sequence with 'independent relay'	sequence of relay 1 and relay 2 and relay 3 via trigger of input 1 or WET input relay 1 , relay 2 , and relay 3 can be 'independent' or sequenced
50	interlock timer	interlock of relay 1 and relay 2 via trigger of input 1 and input 2 , respectively
55	interlock ratchet / latching	interlock ratchet of relay 1 and relay 2 via trigger of input 1 and input 2 , respectively
65	2-way 2-relay sequence	sequence of relay 1 and relay 2 via trigger of input 1 sequence of relay 2 and relay 1 via trigger of input 2 input 3 triggers relay 1 individually, input 4 triggers relay 2 individually
nL	normally locked restroom	sequence of relay 1 (lock), relay 2 (door), and relay 3 (occupied indicators) for normally locked, single occupancy restrooms
nU	normally unlocked restroom	sequence of relay 1 (lock), relay 2 (door), and relay 3 (occupied indicators) for normally unlocked, single occupancy restrooms
dn	3-relay sequencer + 'day / night mode'	sequence of relay 1 and relay 2 and relay 3 via trigger of input 1 or WET input input 2 operation dependent upon input 4 ('day / night mode')
00	disable	2-659-0240 disabled 00 is the default setting and has no assigned function

PARAMETER	DESCRIPTION	LOGIC	
h1	relay 1 hold time	00 – 60 seconds countdown begins AFTER release of input 1 or WET input	
h2	relay 2 hold time	00 – 60 seconds countdown begins AFTER d1 (delay between relay 1 & relay 2) expires	
h3	relay 3 hold time	00 – 60 seconds countdown begins AFTER d2 (delay between relay 1 & relay 3) expires	
d1	delay between relay 1 & relay 2	00 – 60, _1 (1/4), _2 (1/2), _3 (3/4) seconds delay begins AT activation of input 1 or WET input	
d2	delay between relay 1 & relay 3	00 – 60, _1 (1/4), _2 (1/2), _3 (3/4) seconds delay begins AT activation of input 1 or WET input	
rL	reverse logic	00 = normal logic input 1 trigger must be NO and close its contact to trigger	01 = reverse logic input 1 trigger must be NC and open its contact to trigger
nP	no parameters	no parameters available for selected function	

7. PROGRAMMING

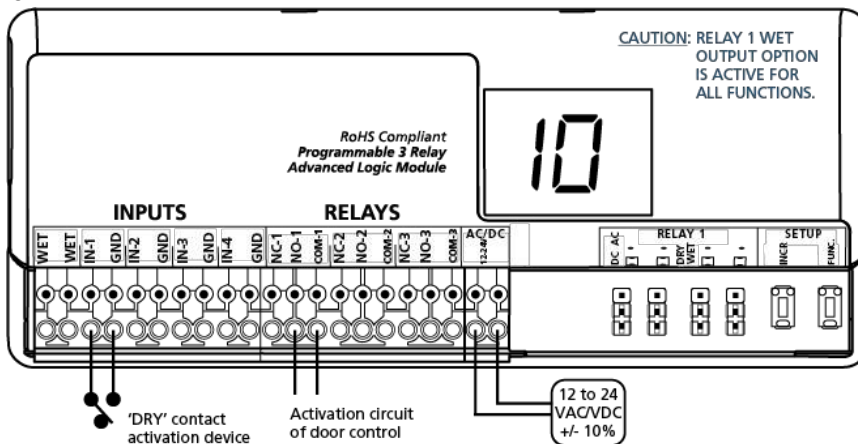
1. Press and hold INCR + FUNC for 3 seconds. The display will toggle between FF and 00 for 5 seconds.^{1,2}
2. While FF and 00 is displayed, press INCR to cycle through functions.³
3. Once the desired function is selected, press FUNC to cycle through the parameters. The display will toggle between the parameter and its current value for 5 seconds.
4. Press INCR to cycle through the parameter's values.⁴
5. Repeat steps 4 – 7 until all function parameters are set.
6. Wait 5 seconds for the 2-659-0240 to save and display the function.

NOTES:

1. Function 00 disables the 2-659-0240.
2. "nP" = no parameters are applicable for the selected function.
3. Relay hold time(s) and delay time(s) MUST be set for any relay that is to be utilized. Ex: For function 36, if using only relay 1, h1 must be set... if using relay 1 and relay 2, h1, h2, and d1 must be set.
4. Pressing and holding INCR will rapid cycle.

8. PROGRAMMING PARAMETERS

10 – TIMER



AVAILABLE PARAMETERS:

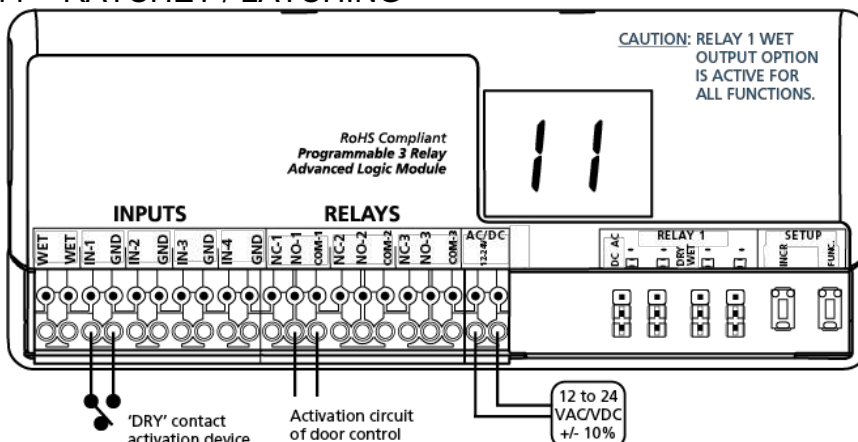
- h1 – relay 1 hold time
- rL – reverse logic

- Trigger INPUT 1. Relay 1 will close and hold for time h1.

NOTES:

Reverse logic allows for a Normally Closed (NC) INPUT 1.

11 – RATCHET / LATCHING



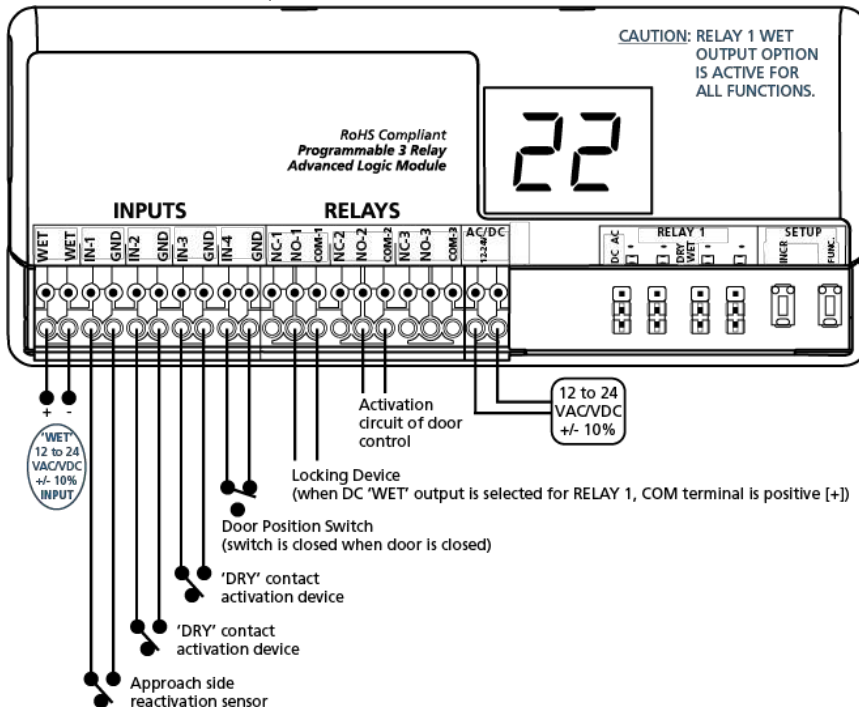
AVAILABLE PARAMETERS:

None

- Trigger INPUT 1. Relay 1 will close and hold indefinitely.
- Trigger INPUT 1. Relay 1 will open.

8. PROGRAMMING PARAMETERS (cont.)

22 – 2-RELAY SEQUENCER + INHIBITOR



AVAILABLE PARAMETERS:

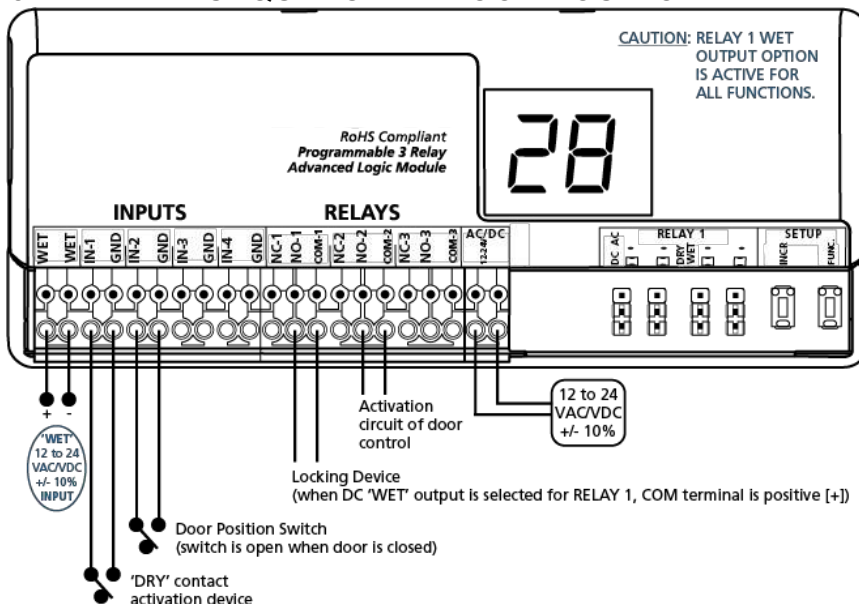
- h1 – relay 1 hold time (must be greater than d1 when using an electric lock)
- h2 – relay 2 hold time
- d1 – delay between relays 1 and 2

- Trigger INPUT 2, 3, or WET. Relay 1 will close and hold for time h1. Relay 2 will close after time delay d1 and hold for time h2.

NOTES:

Ensure INPUT 1 does not initiate the sequence and that INPUT 4 is closed when the door is closed.

28 – 2-RELAY SEQUENCER + DOOR POSITION



AVAILABLE PARAMETERS:

- h1 – relay 1 hold time (must be greater than d1 when using an electric lock)
- h2 – relay 2 hold time
- d1 – delay between relays 1 and 2

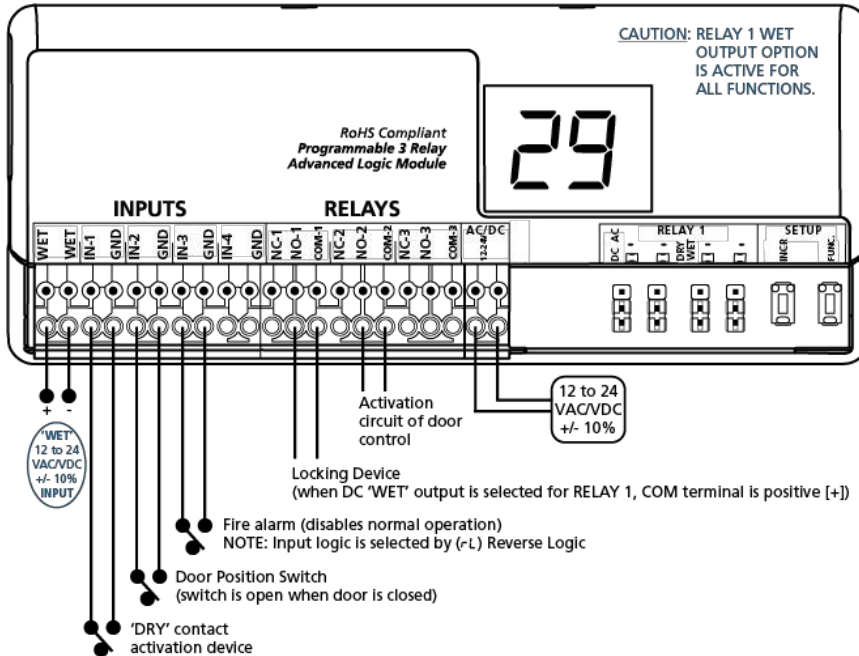
- Trigger INPUT 1 or WET. Relay 1 will close and hold for time h1. Relay 2 will close after time delay d1 and hold for time h2.

NOTES:

INPUT 2 allows the delay to run when the contact is open but triggers RELAY 2 immediately when the contact is closed.

8. PROGRAMMING PARAMETERS (cont.)

29 – DEACTIVATION TIMER



AVAILABLE PARAMETERS:

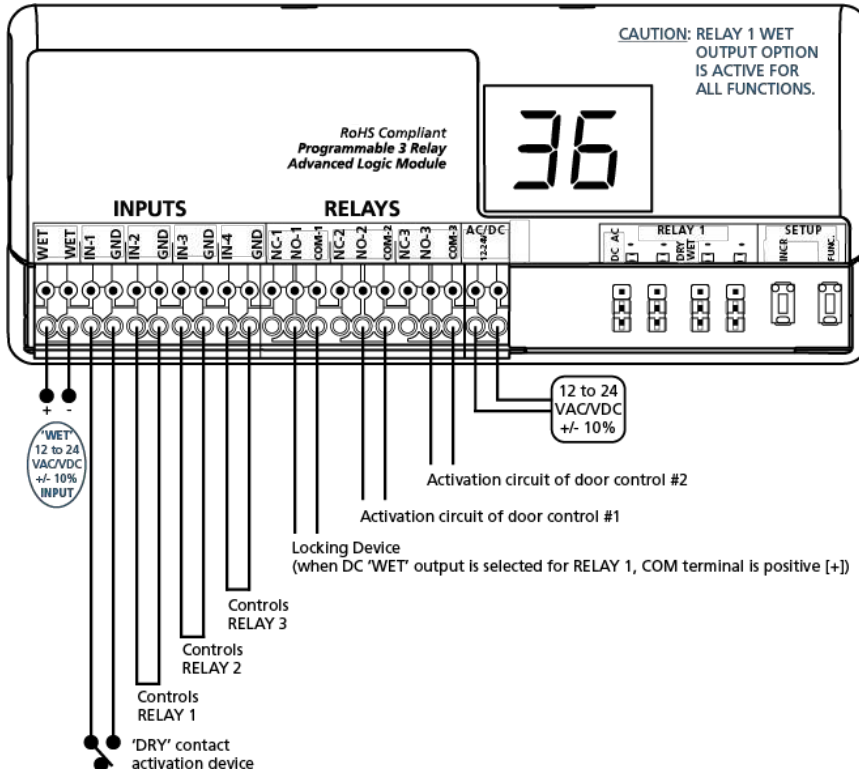
- h1 – relay 1 hold time (must be greater than d1 when using an electric lock)
- h2 – relay 2 hold time
- d1 – delay between relays 1 and 2
- rL – reverse logic

- Trigger INPUT 1 or WET. Relay 1 will close and hold for time h1. Relay 2 will close after time delay d1 and hold for time h2.

NOTES:

- INPUT 2 deactivates RELAY 1 once INPUT 2 is opened (and after the sequence has run).
- INPUT 2 allows the delay to run when the contact is open, but triggers RELAY 2 immediately when the contact is closed.
- INPUT 3 disables the sequence.

36 – 3-RELAY SEQUENCER + "1-SHOT"



AVAILABLE PARAMETERS:

- h1 – relay 1 hold time (must be greater than d1 when using an electric lock)
- h2 – relay 2 hold time
- h3 – relay 3 hold time
- d1 – delay between relays 1 and 2
- d2 – delay between relays 1 and 3

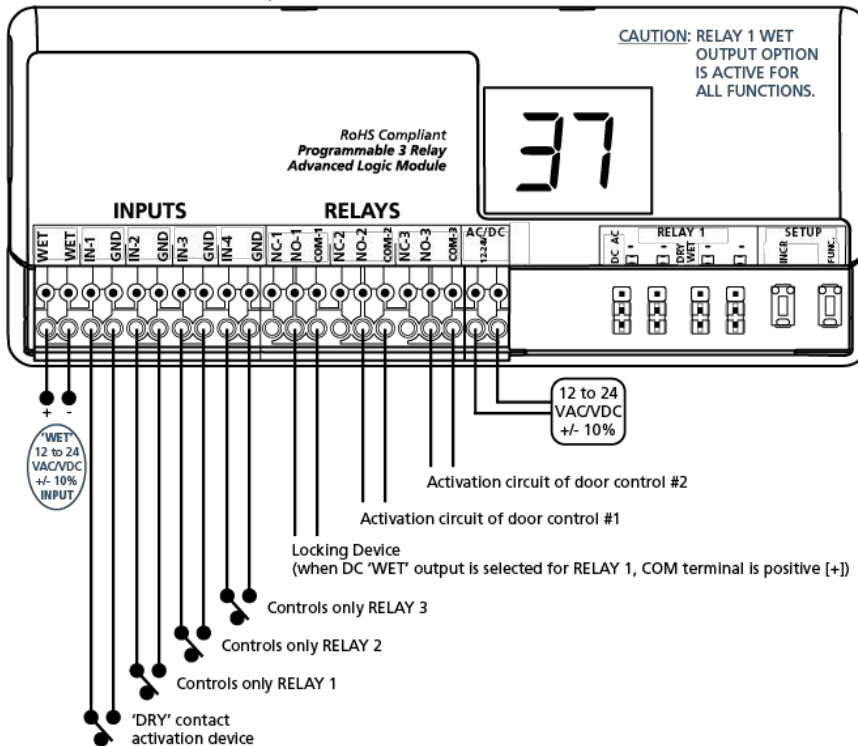
- Trigger INPUT 1 or WET. Relay 1 will close and hold for time h1. Relay 2 will close after time delay d1 and hold for time h2. Relay 3 will close after time delay d2 and hold for time h3.

NOTES:

- If INPUT 1 or 'WET' is maintained, jumping INPUT 2, 3, and/or 4 will allow RELAY 1, 2, and/or 3 (respectively) to close, run the hold time and then open. If no jumpers are set, RELAYS 1, 2, and/or 3 will close, hold and not time out (open, i.e. 1-shot) until INPUT 1 or 'WET' is released.

8. PROGRAMMING PARAMETERS (cont.)

37 – 3-RELAY SEQUENCER WITH “INDEPENDENT RELAY”

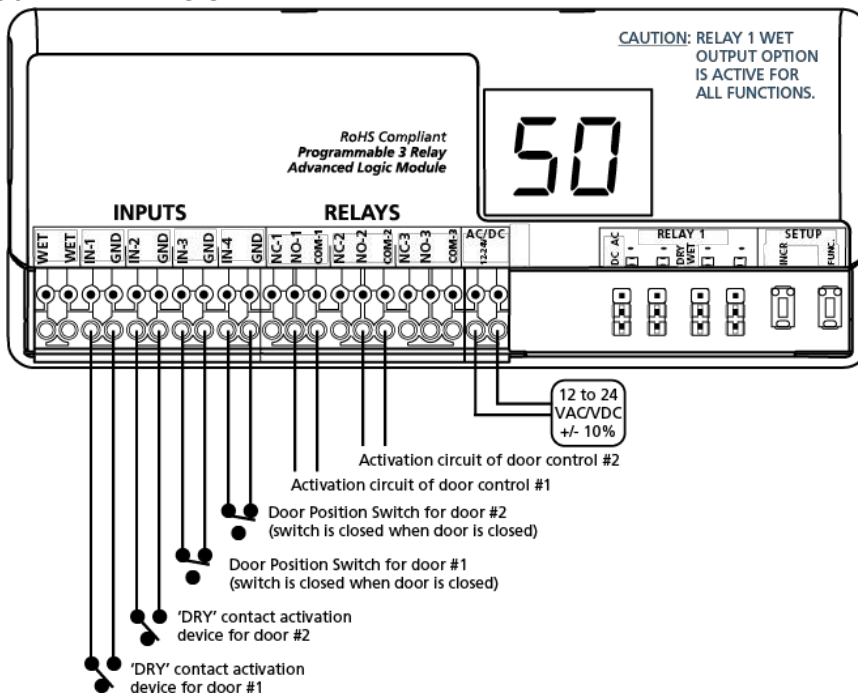


AVAILABLE PARAMETERS:

- h1 – relay 1 hold time (must be greater than d1 when using an electric lock)
- h2 – relay 2 hold time
- h3 – relay 3 hold time
- d1 – delay between relays 1 and 2
- d2 – delay between relays 1 and 3

- Trigger INPUT 1 or WET. Relay 1 will close and hold for time h1. Relay 2 will close after time delay d1 and hold for time h2. Relay 3 will close after time delay d2 and hold for time h3.
- Trigger INPUT 2. Relay 1 will close and hold for time h1.
- Trigger INPUT 3. Relay 2 will close and hold for time h2.
- Trigger INPUT 4. Relay 3 will close and hold for time h3.

50 – INTERLOCK TIMER



AVAILABLE PARAMETERS:

- h1 – relay 1 hold time
- h2 – relay 2 hold time

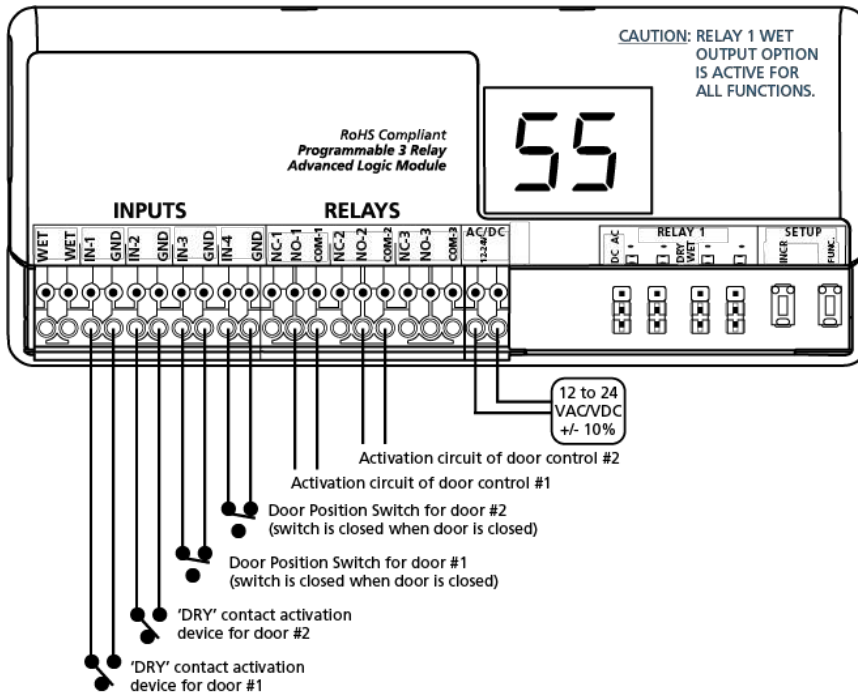
- Trigger INPUT 1. Relay 1 will close and hold for time h1.
- Trigger INPUT 2. Relay 2 will close and hold for time h2.

NOTES:

If INPUT 1 is triggered, INPUT 2 and RELAY 2 will be inhibited until INPUT 3 (door position switch) is closed. Conversely, if INPUT 2 is triggered, INPUT 1 and RELAY 1 will be inhibited until INPUT 4 (door position switch) is closed.

8. PROGRAMMING PARAMETERS (cont.)

55 – INTERLOCK RATCHET / LATCHING



AVAILABLE PARAMETERS:

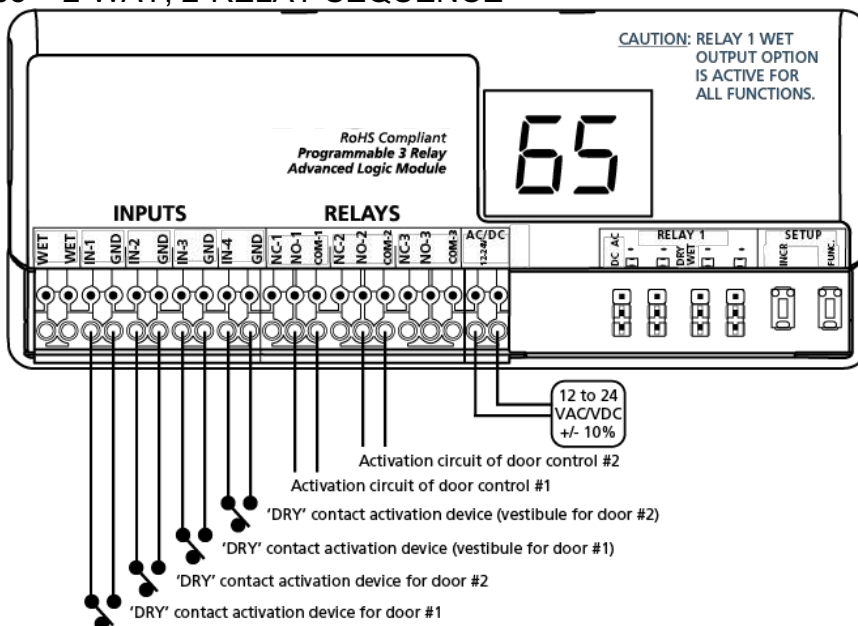
None

- Trigger INPUT 1. Relay 1 will close and hold indefinitely.
- Trigger INPUT 1. Relay 1 will open.
- Trigger INPUT 2. Relay 2 will close and hold indefinitely.
- Trigger INPUT 2. Relay 2 will open.

NOTES:

If INPUT 1 is triggered, INPUT 2 and RELAY 2 will be inhibited until INPUT 3 (door position switch) is closed. Conversely, if INPUT 2 is triggered, INPUT 1 and RELAY 1 will be inhibited until INPUT 4 (door position switch) is closed.

65 – 2-WAY, 2-RELAY SEQUENCE



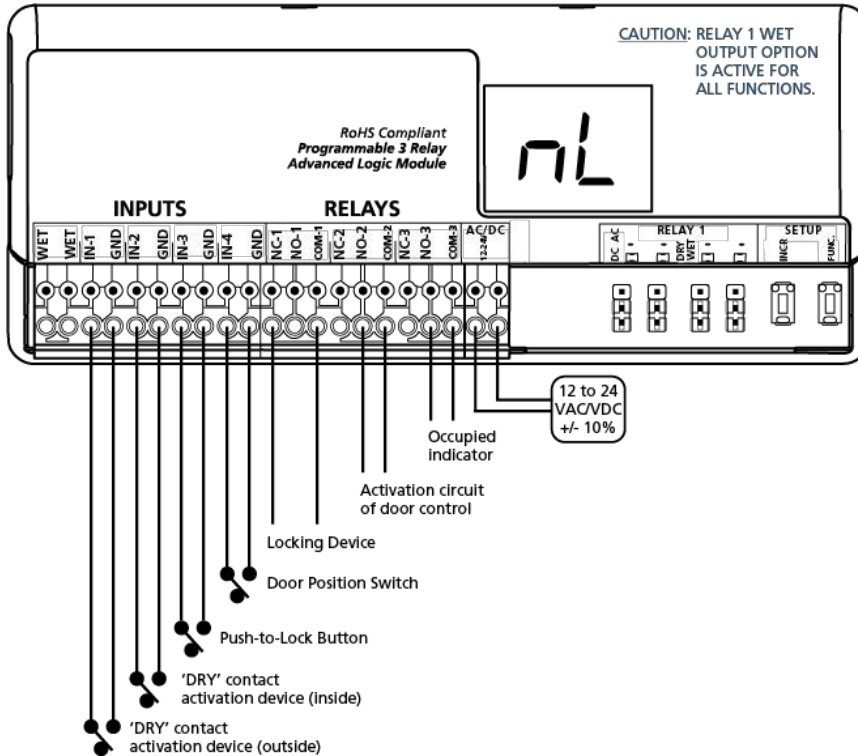
AVAILABLE PARAMETERS:

- h1 – relay 1 hold time
- h2 – relay 2 hold time
- d1 – delay between relays 1 and 2
- d2 – delay between relays 2 and 1

- Trigger INPUT 1. Relay 1 will close and hold for time h1. Relay 2 will close after time delay d1 and hold for time h2.
- Trigger INPUT 2. Relay 2 will close and hold for time h2. Relay 1 will close after time delay d2 and hold for time h1.
- Trigger INPUT 3. Relay 1 will close and hold for time h1.
- Trigger INPUT 4. Relay 2 will close and hold for time h2.

8. PROGRAMMING PARAMETERS (cont.)

nL – NORMALLY LOCKED RESTROOM



AVAILABLE PARAMETERS:

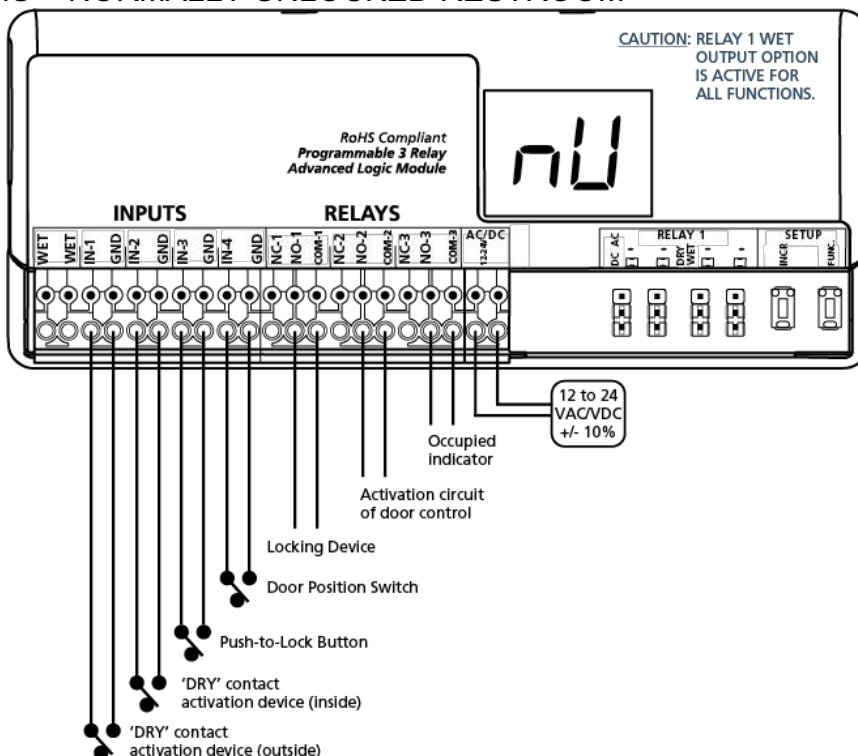
- h1 – relay 1 hold time (h1 must be greater than d1)
- h2 – relay 2 hold time
- d1 – delay between relays 1 and 2

- Trigger INPUT 1. Relay 1 will close and hold for time h1. Relay 2 will close after time delay d1 and hold for time h2.
- Trigger INPUT 3. Relay 3 will close and INPUT 1 will be inhibited.
- Trigger INPUT 2. Relay 1 will close and hold for time h1. Relay 2 will close after time delay d1 and hold for time h2. Relay 3 will open.

NOTES:

INPUT 3 will not function unless INPUT 4 is closed. INPUT 4 should be closed when the door is closed.

nU – NORMALLY UNLOCKED RESTROOM



AVAILABLE PARAMETERS:

- h2 – relay 2 hold time
- d1 – delay between relays 1 and 2

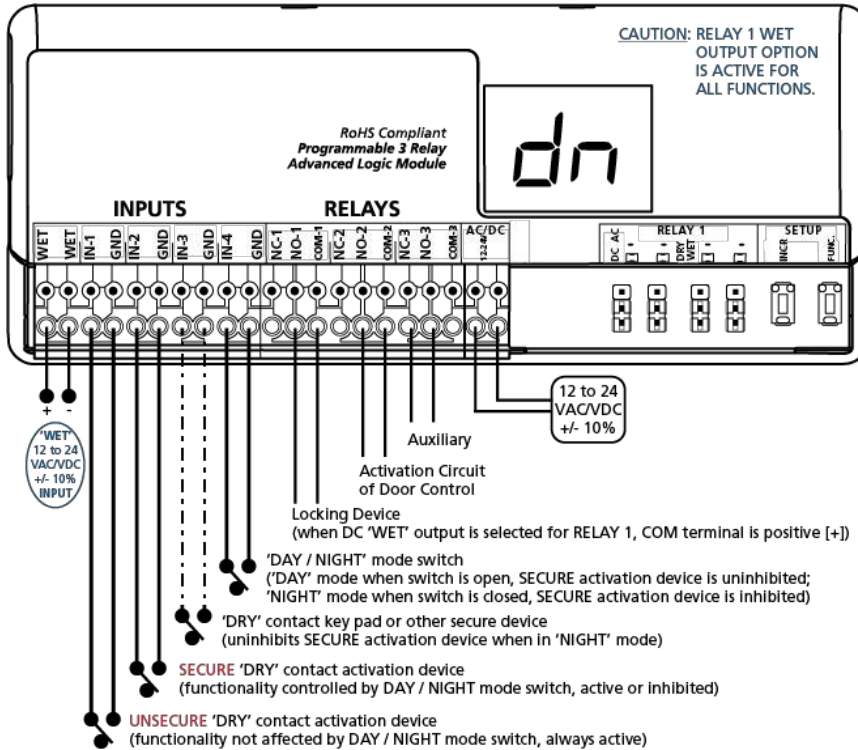
- Trigger INPUT 1. Relay 2 will close and hold for time h2.
- Trigger INPUT 3. Relay 1 and 3 will close and INPUT 1 will be inhibited.
- Trigger INPUT 2. Relay 1 will open. Relay 2 will close after time delay d1 and hold for time h2. Relay 3 will open.

NOTES:

INPUT 3 will not function unless INPUT 4 is closed. INPUT 4 should be closed when the door is closed.

8. PROGRAMMING PARAMETERS (cont.)

dn – 3-RELAY SEQUENCE WITH “DAY / NIGHT MODE”



AVAILABLE PARAMETERS:

- h1 – relay 1 hold time
- h2 – relay 2 hold time
- h3 – relay 3 hold time
- d1 – delay between relays 1 and 2
- d2 – delay between relays 1 and 3

- Trigger INPUT 1, INPUT2, or WET. Relay 1 will close and hold for time h1. Relay 2 will close after time delay d1 and hold for time h2. Relay 3 will close after time delay d2 and hold for time h3.
- Trigger INPUT 3. Relay 1 will close and hold for time h1. INPUT 2 will be uninhibited for 5 seconds.

NOTES:

INPUT 2 will only function if INPUT 4 is open.

9. TEST

Upon completion of jumper settings, wiring, and programming, test the 2-659-0240 to ensure that all function parameters are working correctly and as intended for the specific application.

10. RELAY STATUS

STATUS	DESCRIPTION
r1	relay 1 closed when wired NO or open when wired NC
r2	relay 2 closed when wired NO or open when wired NC
r3	relay 3 closed when wired NO or open when wired NC
r=	relay 1 and relay 2 closed when wired NO or open when wired NC
r=	relay 1 and relay 3 closed when wired NO or open when wired NC
r≡	relay 1, relay 2, and relay 3 closed when wired NO or open when wired NC

11. FUNCTION CROSS-REFERENCE

Rev 0 FUNCTION	REV 1 FUNCTION
21	22
25	28, 29, 36, or 37
35	36 or 37
75	28, 29, 36, or 37

12. TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	CORRECTIVE ACTION
2-659-0240 will not react to any inputs	Incorrect power	Verify power supply of 12 to 24 VAC/VDC +/- 10% is wired to correct terminals.
	Not programmed	Ensure a function is programmed, 2-659-0240 does not show 00, and all 'H' values are set to at least 01.
	Incorrect wiring	Verify wiring is applied exactly as described for specific function programmed.
	Defective 2-659-0240	Replace 2-659-0240.
2-659-0240 has no output	Incorrect output devices	Ensure proper devices are connected to outputs for the specific function programmed.
	Not programmed	Ensure a function is programmed, 2-659-0240 does not show 00, and all 'H' values are set to at least 01.
	Incorrect wiring	Verify wiring is applied exactly as described for specific function programmed.
	Incorrect jumper settings	Ensure all jumpers are configured correctly for specific application.
	Defective 2-659-0240	Replace 2-659-0240.
2-659-0240 output is constant/maintained	One or more of IN-1 through IN-4 have shorted	Resolve respective short.
E1, E2, E3, E4, E5	EEPROM error	Reset 2-659-0240 and reprogram.

INSTALLATION/SERVICE COMPLIANCE EXPECTATIONS

The sensor manufacturer cannot be held responsible for incorrect installations or inappropriate adjustments of the sensor/device; therefore, the sensor manufacturer does not guarantee any use of the sensor outside of its intended purpose.

The sensor manufacturer strongly recommends that installation and service technicians be AAADM-certified for pedestrian doors, IDA-certified for doors/gates, and factory-trained for the type of door/gate system.

Installers and service personnel are responsible for executing a risk assessment following each installation/service performed, ensuring that the sensor system installation is compliant with local, national, and international regulations, codes, and standards.

Once installation or service work is complete, a safety inspection of the door/gate shall be performed per the door/gate manufacturer recommendations and/or per AAADM/ANSI/DASMA guidelines (where applicable) for best industry practices. Safety inspections must be performed during each service call – examples of these safety inspections can be found on an AAADM safety information label (e.g. ANSI/DASMA 102, ANSI/DASMA 107, UL 325).

Verify that all appropriate industry signage and warning labels are in place.

