

MAN510

Model 81335C

Operant Conditioning Console User's Manual



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The 81335C Behavioral Control Console is a fully integrated animal-learning/operant conditioning control instrument used primarily for student laboratory studies. All schedules can be easily programmed and implemented in a variety of environments. Manual shaping activation is provided and student participation encouraged with front panel display of counters, latency timers where appropriate, and schedule settings.

The 81335C Behavioral Control Console features a 20 x 2 character LCD display screen, membrane touch controls, and rear panel connections. The complete behavioral control package includes a 30 V DC Power Supply, Shaping Push Button, 10' Cage Connection Cable (81406-10), and 81409 Mini I/O Module.

The 81335C has the capability to be used with the following devices:

Pellet Dispenser	80208 and 80209 series **
Liquid Dispenser	80201 **
Omnidirectional Rod	80111
4 Press Bars	80110
4 Nose Pokes	80116O, 80116OR, 80116S
4 Stimulus Lights	80221
4 Control Stimulus Tones	80223
4 Auxiliary Outputs	Refer to Auxiliary Output Control
Air Puff Stimulus	Contact Lafayette Instrument Company

** Other devices such as pumps, grain feeders, etc. may also be connected to the outputs designated for "pellet" and "liquid" dispensers as long as they can operate on 28 V DC and draw no more than 1 amp. The pulse duration is adjustable in the schedule set-ups to meet the needs of most devices.

System Specifications

- Power:** 30VDC 2A Power Supply @ 120/240VAC 50/60Hz
Fuse: 2A Slow-Blow (internal)
Shock: Internal 0-2.4 ma @ 0-225V AC
(Not useable in non-shock versions of 84025 Series Animal Learning Systems)
Inputs: 5 Chamber Connections, 1 Shaping Push button
Outputs: 8 Chamber Connections, 4 Auxiliary (rear panel), Shock, +28VDC and GND



Setup Instructions for Model 81335C

1. All Lafayette Instrument systems are shipped factory assembled for immediate operation. Connect the supplied DB-25 cage connection cable between the chamber mini I/O module and the 81335C Control. Connect the shaping push button to the back panel of the control. If the shock grid will be used, connect its supplied cable to the back panel of the control.
2. Auxiliary connections 1-4 may be used for further manipulation. Additional instructions for the use of these connections are explained within the auxiliary output control section of this manual.
3. The setup for chamber accessories such as a pellet dispenser is covered in separate instructions as appropriate.
4. Connect the power supply output to the rear panel connection on the control unit and the power cable to any suitable grounded outlet. The 81335C can operate on 110VAC to 240VAC using its' supplied power supply.
5. Turn power on to the 81335C.

Operant Conditioning Console

Summary of Controls

Reset

Within Schedule Setup:

Press once, the unit will be reset to the schedule selection menu.

Within Schedule Operation:

Press once, the unit will pause operation, outputs are turned OFF and input counts are disabled. Press the RUN control to return selected outputs to the ON State and continue schedule operation. Ratio Counters, Interval Timers, etc. reset to a value of 0.

Press twice, the unit will exit the schedule (remember to record data first) and be reset to the schedule selection menu.

Within Test Menu:

Press once, the unit will be reset to the schedule selection menu.

Run

Within Schedule Setup:

“PRESS RUN TO BEGIN” is displayed at the end of each schedule set up. Schedule operation begins immediately when RUN is pressed, except for Avoidance and Escape which require a shaping button activation to start a trial after RUN is pressed

Within Schedule Operation:

Press once to resume schedule operation after being paused.

Within Test Menu:

Not used except to begin the PEL, LIQ, SHK, & AIR Series of tests.

Scroll Up

Within Schedule Selection Menu:

Press once to move up to the test menu from the first item, magazine training, on the schedule selection list. Press again and it will go to the end of the list. After scrolling down it will scroll up to see the previous schedule selection.

Within Schedule Setup:

Pressed once to change a selection status from “N” to “Y”, or to increase the numerical value of a ratio, interval, or intensity setting. Press quickly to increment values by 1 unit, hold to run up the value to the maximum.

Within Schedule Operation:

Use with Scroll Down to view different data display screens.

Scroll Down

Within Schedule Selection Menu:

Press once to move down to the next schedule on the schedule selection list.

Within Schedule Setup:

Pressed once to change a selection status from “Y” to “N”, or to decrease the numerical value of a ratio, interval, or intensity setting. Press quickly to decrement values by 1 unit, hold to run the value down to zero.

Within Schedule Operation:

Use with Scroll Up to view different data display screens.

Enter

Within Schedule Selection Menu:

Press once to select the displayed schedule and display the first setup screen

Within Schedule Setup:

Press once to move to the next setup screen for the selected schedule.

Abbreviations

Test Data Displays

FL	Front Left Lever Count
FR	Front Right Lever Count
BL	Back Left Lever Count
BR	Back Right Lever Count
ODL	Omnidirectional Response Count
SHP	Shaping Push Button Count

Setup Displays

FR LF	Front Left
FR RT	Front Right
BK LF	Back Left
BK RT	Back Right

Schedule Data Displays

BLB	Back Left Bar (response) Count
BRB	Back Right Bar (response) Count
CT	Ratio Value in Discrimination 2 & 4
DRL	Interval Value (seconds)
ESCT	Escape Count
FI	Fixed Interval Value (seconds)
FLB	Front Left Bar (response) Count
FR	Fixed Ratio Value
FRB	Front Right Bar (response) Count
INT	Interval Value(s) (Escape & Avoidance)
INTVL	Interval Value (seconds) in DRH
LAT	Latency to respond in Escape and Avoidance Schedules
LIQ	Liquid Reward Count
ODL	Omnidirectional Lever (response) Count
PEL	Pellet Reward Count
SHP	Shaping Push Button Count
TRL	Trial Number
VI	Variable Interval Value (seconds)
VR	Variable Ration Value

Note: A number or +/- is used with some of the above to separate counters as needed for particular schedules.

Using the Test Menu

When the control console is first powered up, it defaults to the Magazine Training schedule selection. Press the Up Button to go to the Test Menu. The Test Menu will cycle through several test options. Press the Reset Button to exit the test menu at any time and turn OFF any outputs that have been left ON.

1. Press Enter to reveal the Auxiliary Output test.
2. Press Enter to skip to the next test menu. Press the Up button to change from the default setting 'N' to 'Y'. This will turn all four auxiliary outputs ON. Press the Down button to change back to 'N' and turn all four auxiliary outputs OFF. The pellet dispenser may also be activated once each time the outputs are turned ON. Pulsed outputs will be pulsed once each time a 'Y' option is selected. You must select 'N' even though the output has turned OFF and then 'Y' for each pulse. Those outputs that are not pulsed will remain ON if ON when exiting. Use a final Down button to switch all auxiliary outputs OFF, and press Enter to advance to the Input Test screen.
3. The input test screen consists of a counter for each available input response. Press any response or shaping push button to increment a count. Press Enter to move to the next menu.
4. A stimulus output selection is provided. Use the Up button to raise the level of the indicated output from 0 to a max of 20 and the Down button to return the level to 0 (OFF). Press the Enter button to reveal the next menu. Note: If an output is ON when the Enter button is press, it will be left ON until the test menu is exited. Repeat for all stimulus lights and tones.
5. At the completion of the CS test menus, the Reward test menus are revealed. Press Run to begin the next series of tests.
6. Press the Up or Down buttons to increase or decrease the timed reward output. Use the Shaping push button to activate the reward output as indicated. Press Enter to repeat this test for the Liquid Dispenser, Shock Output, or Air Puff Control. Press Reset to return to the Magazine Training menu.

Magazine Training – Step by Step use of the Menu Setup Displays

When the control console is first powered up, it defaults to the Magazine Training schedule selection. The Up/Down buttons will take you to other schedule options but for now press Enter.

1. Acceptable Response #1 - Press Enter to accept the default Front Left Press Bar as active. To disable this response press the Down button, followed by Enter.
2. Acceptable Response #2 - Press Enter to accept the default Front Right Press Bar as active. To disable this response press the Down button, followed by Enter.
3. Reinforcement Method #1 – Press the Up button to select the Pellet Dispenser (or any device connected to output terminal #3) followed by Enter. To leave the Pellet Dispenser disabled simply press Enter.
4. Reward Pulse Time #1 – Press Enter to accept the default time of 0.05 seconds. This is sufficient for the 80208 and 80209 Pellet Dispensers. Use the Up/Down buttons to change this time if needed. A quick press will change the time by 0.05 seconds. Hold the button to advance the time more quickly.
5. Reinforcement Method #2 - Press the Up button to select the Liquid Dispenser (or any device connected to output terminal #4) followed by Enter. To leave the Pellet Dispenser disabled simply press Enter.
6. Reward Pulse Time #2 – Press Enter to accept the default time of 0.05 seconds. This is sufficient for the 80201 Liquid Dispenser. Use the Up/Down buttons to change this time if needed.
7. Additional Settings – Press the Up button and Enter to select from the additional settings list. Press Enter only to skip additional settings.
8. FR LF STIM LITE – This setting turns the Front Left Stimulus Light on during magazine training. Use the Up button to set the intensity level from 0 (OFF) to 20 (full brightness). Press Enter to accept the setting.
9. FR RT STIM LITE – same as #8 for the Front Right Stimulus Light.
10. Auxiliary Output #3 – Press the Up button and Enter to turn a device, e.g. house light, that is connected to the auxiliary output #3 on the rear panel ON during magazine training. Press Enter only to leave the Aux #3 output disabled.
11. Auxiliary Output #4 – same as #10 except for Aux #4 output.

12. Press Run to Begin – Counters are displayed to monitor animal responses, shaping responses and rewards. See Schedule Descriptions for additional details.

Schedule Descriptions

The step-by-step setups of each schedule are similar to that described for Magazine Training and will not be repeated in this section except for settings unique to the operation of the schedule. Use the Down/Up buttons to scroll down or up the list of available schedules. A separate extinction schedule is no longer provided. Simply use Magazine Training, Partial Reinforcement, or Fixed Ratio without a reinforcement device selected. When using Partial Reinforcement, program the stimulus light to come on when the shaping button is pressed to look at spontaneous recovery.

Magazine Training

- a. Both front press bars and the shaping push button increment their respective counters.
- b. Reinforcement is given for each selected/acceptable response and for each push button activation.
- c. The reinforcement counter is incremented for all reinforcements.
- d. The CS lights are available and turn ON at the intensity selected from 1 - 20 when the Run command is issued. The CS remains ON for as long as the schedule is running.
- e. A single Reset pauses the schedule and turns selected outputs OFF. The green status light flashes while the schedule is paused. Press Run to continue and Reset to terminate the schedule.
- f. The Tones and Shock are OFF.

Partial Reinforcement (PRF)

- a. All press bars, the Omni-directional lever, and the shaping push button increment their respective counters.
- b. Reinforcement is given for each selected/acceptable response only when the push button is being pressed.
- c. The reinforcement counter is incremented for all reinforcements.
- d. The CS lights and tones are available and turn ON at the intensity selected from 1 - 20 only when the shaping push button is pressed and held. CS is turned OFF as soon as the push button is released.
- e. A single Reset pauses the schedule and turns selected outputs OFF. The green status light flashes while the schedule is paused. Press Run to continue and Reset to terminate the schedule. Use the Down button to reveal multiple data screens and the Up button to return to previous screens while the schedule is running or paused. Data will be lost as soon as the schedule is terminated.
- f. The Shock is OFF.

Fixed Ratio (FR)

- a. All press bars, the Omni-directional lever, and the shaping push button increment their respective counters.
- b. Reinforcement is given for each selected/acceptable response only for each nth response. This value is set in the Ratio Control screen of the set up menu using the Up and Down buttons. The default value is 1 or Continuous Reinforcement (CRF). The maximum value is FR-99.
- c. The reinforcement counter is incremented for all reinforcements.
- d. The CS lights and tones are available and turn ON at the intensity selected from 1 - 20 for as long as the schedule is running.
- e. A single Reset pauses the schedule and turns selected outputs OFF. The green status light flashes while the schedule is paused. Press Run to continue and Reset to terminate the schedule.

NOTE: The ratio count will return to zero when the schedule is paused. For example, if the animal has made 3 responses toward meeting an FR5 when the scheduled is paused, it will still require 5 responses to meet the ratio when the schedule is resumed. Press Run to continue/resume schedule operation and Reset to terminate the schedule. Use the Down button to reveal multiple data screens and the Up button to return to previous screens while the schedule is running or paused. Data will be lost as soon as the schedule is terminated.

- f. The Shock is OFF.

Variable Ratio (VR)

The Variable Ratio schedule is set up and run in a manner identical to the FR schedule. The only difference is that the Ratio Control setting now sets the Mean ratio value for delivery of reward. The actual distribution is quasi-gaussian with a lower limit of $\frac{1}{2} \times$ mean. Although the upper limit is open, the probability of obtaining a value greater than $2 \times$ mean is very low.

Fixed Interval (FI)

- a. All press bars, the Omni-directional lever, and the shaping push button increment their respective counters.
- b. Reinforcement is given for the first selected/acceptable response to occur after 't' seconds have elapsed. The timer is reset to zero and restarts at the completion of the reward pulse. The green status light is turned ON to indicate that the interval timer has timed out. The interval value is set in the Interval Control screen of the set up menu using the Up and Down buttons. The default value is 1.0 seconds. The maximum value is 99.9 seconds in 0.1 second increments.
- c. The shaping pushbutton will deliver reinforcement at any time and will reset the interval timer to zero.
- d. The reinforcement counter is incremented for all reinforcements.
- e. The CS lights and tones are available and turn ON at the intensity selected from 1 - 20 for as long as the schedule is running.
- f. A single Reset pauses the schedule and turns selected outputs OFF. The green status light flashes while the schedule is paused. Press Run to continue and Reset to terminate the schedule.

NOTE: The interval value will return to zero when the schedule is paused. For example, if the timer has timed for 3 seconds of a 5 second FI, it will still require a 5 second interval when the schedule is resumed for a response to be rewarded. Press Run to continue/resume schedule operation and Reset to terminate the schedule. Use the Down button to reveal multiple data screens and the Up button to return to previous screens while the schedule is running or paused. Data will be lost as soon as the schedule is terminated.

- g. The Shock is OFF. Auxiliary Outputs #3 and #4 are available.

Variable Interval (VI)

The Variable Interval schedule is set up and run in a manner identical to the FI schedule. The only difference is that the Interval Control setting now sets the Mean interval value for delivery of reward. The actual distribution is quasi-gaussian with a lower limit of $\frac{1}{2} \times$ mean. Although the upper limit is open, the probability of obtaining a value greater than $2 \times$ mean is very low.

Discrimination 2

This two-part discrimination is designed to let you set all contingencies for two alternating schedules. Switching between the two component parts S1 and S2 is controlled with the shaping push button. The ratio control setting applies to both components. The first group of settings is labeled 1. The default settings for the first component are for the front left lever to be active with the front left stimulus light at full intensity and no reward. The default settings for the second component are for the right front lever to be active with the front right stimulus light at full intensity and pellet reward. Position and not the stimulus light determine where reward is available. A simple Go-No Go Discrimination would use the same response in both components. In the reward component the CS would be ON, and reward would be available. In the no reward component the CS would be OFF and reward not available. Change any default setting as needed to meet a specific experiment design. Discrimination 4 has four components and could be set up with varying levels of light for a stimulus generalization study.

- a. Press Enter to select Discrimination 2 from the Schedule Selection list and display the first Set-Up screen. Use the Up/Down buttons to change the setting and/or press Enter to accept the default setting and proceed to the next item. When Set-Up is complete, press Run to activate the schedule.
- b. Only the Front Right and Front Left Press Bars are used for this schedule. Two counters are provided for each to separate responses in S1 vs. S2. A counter is also provided for the shaping push button.
- c. Reinforcement is given for each selected/acceptable response only for each nth response. This value is set in the Ratio Control screen of the set up menu using the Up and Down buttons. The default value is 1 or Continuous Reinforcement (CRF). The maximum value is FR-99. The same ratio applies to both components of the schedule.
- d. Separate reinforcement counters are incremented for all reinforcements in S1 & S2.
- e. Stimuli selected for each component will be ON for the duration of the component at an intensity of 0 - 20 where 0 is OFF and 20 is full intensity. Lights and/or Tones may be selected.
- f. A single Reset pauses the schedule and turns selected outputs OFF. The green status light flashes while the schedule is paused. Press Run to continue and Reset to terminate the schedule. Use the Down button to reveal multiple data screens and the Up button to return to previous screens while the schedule is running or paused. Data will be lost as soon as the schedule is terminated.
- g. The Shock is OFF. Auxiliary Outputs #3 and #4 are available.

Discrimination 4 - Stimulus Generalization

Discrimination 4 is identical to Discrimination 2 except that there are now 4 component schedules to configure. This is particularly useful for a stimulus generalization experiment. The four components are presented sequentially or at random. The default setting of 'N' cycles sequentially S1-S2-S3-S4. Use the Up button to select 'Y' or random. The first sequence will still be as programmed S1-S2-S3-S4, however each component selection thereafter is randomly determined with the following exceptions. Components are never repeated. Selection is made without replacement so that each component is always presented an equal number of times for each group of four selections.

Differential Reinforcement of Low Response Rates (DRL)

The set up for DRL is identical to the set up for FI. The only difference in this schedule is the affect of responses made while the interval timer is timing. See "b." below.

- a. All press bars, the Omni-directional lever, and the shaping push button increment their respective counters.
- b. Reinforcement is given for the first selected/acceptable response to occur after 't' seconds have elapsed. Responses made on the selected/acceptable response(s) prior to the interval timer timing out reset the timer back to zero without delivering a reward. The green status light is turned ON to indicate that the interval timer has timed out. The interval value is set in the Interval Control screen of the set up menu using the Up and Down buttons. The default value is 1.0 seconds. The maximum value is 99.9 seconds in 0.1 second increments.
- c. The shaping pushbutton will deliver reinforcement at any time and will reset the interval timer to zero.
- d. The reinforcement counter is incremented for all reinforcements.
- e. The CS lights and tones are available and turn ON at the intensity selected from 1 - 20 for as long as the schedule is running.
- f. A single Reset pauses the schedule and turns selected outputs OFF. The green status light flashes while the schedule is paused. The interval value will return to zero when the schedule is paused. Press Run to continue and Reset to terminate the schedule. Use the Down button to reveal multiple data screens and the Up button to return to previous screens while the schedule is running or paused. Data will be lost as soon as the schedule is terminated.
- g. The Shock is OFF.

Differential Reinforcement of High Response Rates (DRH)

This schedule is just the opposite of the DRL and set up uses menu items from both FR and interval schedules. The task is to complete the FR prior to the interval timing out. Once the interval times out the FR count is reset to zero.

- a. Select acceptable responses and reinforcement options as in previous schedules
- b. Ratio Control. Use the Up and Down buttons to set the desired ratio. Press quickly to change values by 1 unit, hold the button to rapidly increment or decrement the value. The minimum value is 2. The maximum value is 99.
- c. Interval Control. Use the Up and Down buttons to set the desired interval from 0.1 to 99.9 seconds in 0.1 second increments.
- d. All press bars, the Omni-directional lever, and the shaping push button increment their respective counters.
- e. The interval timer starts with the first response and is indicated with the green status light turning ON. Reinforcement is given only if the FR value is met before the interval times out. Once the interval timer times out and the green status light turns OFF, the ratio count is reset to zero and the interval timer begins all over with the next response. Only responses made on the selected/acceptable response(s) increment the ratio counter.
- f. The shaping pushbutton will deliver reinforcement at any time. If the interval timer is running, the interval value resets to zero and continue to run. The ratio count remains unchanged providing the animal an opportunity to still meet the contingencies of the schedule.
- g. The reinforcement counter is incremented for all reinforcements.
- h. The CS lights and tones are available and turn ON at the intensity selected from 1 - 20 for as long as the schedule is running.
- i. A single Reset pauses the schedule and turns selected outputs OFF. The green status light flashes while the schedule is paused. The ratio count and interval values reset to zero when the schedule is paused. Press Run to continue and Reset to terminate the schedule. Use the Down button to reveal multiple data screens and the Up button to return to previous screens while the schedule is running or paused. Data will be lost as soon as the schedule is terminated.
- j. The Shock is OFF. Auxiliary Outputs #3 and #4 are available.

Chain (CHN)

This two part chain consists of a Response 1 (default setting = omni-directional lever) that activates a CS (default = Front Left Stimulus Light). An acceptable response 2 (default setting = Front Left Press Bar) in the presence of the CS delivers a single reward and turns the CS OFF.

- a. Any response may be selected for Response 1. Any response may be selected for Response 2 except the response used for Response 1.
- b. All press bars, the Omni-directional lever, and the shaping push button increment their respective counters.
- c. Reinforcement is given only when the chain Response 1 followed by Response 2 is completed.
- d. The reinforcement counter is incremented for all reinforcements.
- e. The CS lights and tones are available and turn ON at the intensity selected from 1 - 20 when Response 1 occurs. CS is turned OFF as soon as Response 2 occurs and the selected reinforcement device is activated.
- f. A single Reset pauses the schedule and turns selected outputs OFF. The green status light flashes while the schedule is paused. Press Run to continue and Reset to terminate the schedule. Use the Down button to reveal multiple data screens and the Up button to return to previous screens while the schedule is running or paused. Data will be lost as soon as the schedule is terminated.
- g. The Shock is OFF. Auxiliary Outputs #3 and #4 are available.

Avoidance (AVD)

Press Enter to select Avoidance from the Schedule Selection list and display the first Set-Up screen. Use the Up/Down buttons to change the setting and/or press Enter to accept the default setting and proceed to the next item. When Set-Up is complete, press Run to activate the schedule.

- a. One or more acceptable response(s) may be selected to avoid or escape a negative stimulus of shock or air puff stimulation.
- b. One or more stimuli may be selected for the CS interval. Intensities may be set from 0 – 20.
- c. Interval Control 1 determines the CS interval and Interval Control 2 determines the UCS interval. Both may be set from 0.1 to 99.9 seconds in 0.1 second increments.
- d. A '+' and '-' counter is provided for each press bar and the omni-directional lever to separate responses made during CS + from those made during the UCS -.
- e. Counters are provided for presentations of shock and air puff stimulation as well as activations of the shaping push button.
- f. A trial count is provided.
- g. A response latency timer is provided with a resolution of 100 ms.. This timer resets at the beginning of each trial so data must be recorded manually.
- h. The shaping push button is used to start each trial. The green status light signals the CS interval while the red status light signals the UCS interval. The shaping push button may also be used while either CS or UCS timers are running to terminate a trial.
- i. Outputs are turned OFF (except Auxiliary #3 & #4 if selected) and counters frozen between trials.
- j. A single Reset pauses the schedule and turns selected outputs OFF. The green status light flashes while the schedule is paused. Press Run to continue and Reset to terminate the schedule. Use the Down button to reveal multiple data screens and the Up button to return to previous screens while the schedule is running or paused. Data will be lost as soon as the schedule is terminated.
- k. Auxiliary Outputs #3 and #4 are available.

Operant Conditioning Console

Escape (ESC)

Escape set up is similar to Avoidance with a single interval control timer to limit the duration of the negative reinforcement when an animal fails to respond. Use the Additional Settings Menu to present a light or tone stimulus concurrent with shock.

- a. One or more acceptable response(s) may be selected to escape a negative stimulus of shock or air puff stimulation.
- b. Interval Control 1 determines the UCS interval. It may be set from 0.1 to 99.9 seconds in 0.1 second increments
- c. Counters are provided for all responses. Selected/Acceptable responses can only increment once in any given trial and may be added together to obtain total escapes.
- d. Counters are provided for presentations of shock and air puff stimulation as well as activations of the shaping push button.
- e. A trial count and escape counter are provided.
- f. A response latency timer is provided with a resolution of 100 ms.. This timer resets at the beginning of each trial so data must be recorded manually.
- g. The shaping push button is used to start each trial. The red status light signals the UCS interval. The shaping push button may also be used while the UCS timer is running to terminate a trial.
- h. Outputs are turned OFF (except Auxiliary #3 & #4 if selected) and counters frozen between trials.
- i. A single Reset pauses the schedule and turns selected outputs OFF. The green status light flashes while the schedule is paused. Press Run to continue and Reset to terminate the schedule. Use the Down button to reveal multiple data screens and the Up button to return to previous screens while the schedule is running or paused. Data will be lost as soon as the schedule is terminated.
- j. Auxiliary Outputs #3 and #4 are available.

Auxiliary Output Control

The Auxiliary outputs Aux. 1-4, located on the back panel, are controlled by four PhotoMOS solid state relays used as switch closures for external devices. The 28 V DC power supply used with the 81335C control may be accessed at the rear panel terminal strip and used to power auxiliary devices up to a maximum combined load of 1 Amp.

Specifications

Contacts: Type A – COM/NO

Rating: 1 Amp @ 200 V AC/DC

Aux. 1 is wired in parallel with the Left Front Stimulus Light. The FR LF STIM LITE must be fully activated (Level 20) to use Auxiliary 1 to control an alternative stimulus.

Aux. 2 is wired in parallel with the Pellet Reinforcement output. The reward pulse time must be appropriate to the alternative device connected to this relay.

Aux. 3 is turned on for approximately 50 ms with each “Acceptable Response” selected by the user. This output was intended for the Step function on old mechanical cumulative recorders, but could be used for other purposes as well.

Aux. 4 when selected is turned on for the duration of a schedule. This is appropriate for house lights, cubicle fans, or other devices that need to run continuously while a schedule is active.

Standard Wire Connections for Model 81335C using Mini I/O Connection Block Model 80409

The tall stack of terminals behind Outputs 1 – 15 provide +28V DC

+28VDC Connects to:

- Red Wires of Stimulus Lights
- Red Wires of Sonalert Tone Generators
- Red wire of Pellet Dispenser
- White wire of Liquid Dispenser
- Any other device that requires continuous +28 V DC

The tall stack of terminals behind Inputs 1 – 8 provide Ground (GND)

Ground Connects to:

- Black Wires of Press Bars
- Black Wire of Omni-Directional Lever (ODL)
- Black Wire of Pellet Dispenser
- Black Wire of Liquid Dispenser
- Any other device that requires continuous Ground

Output terminals 1 - 15

1. FR LF STIM LITE - Black wire of Front Left Stimulus Light
2. FR RT STIM LITE - Black wire of Front Right Stimulus Light
3. PELLETT - White wire of Pellet Dispenser
4. LIQUID - Green wire of Liquid Dispenser
5. BK LF STIM LITE - Black wire of the Back Left Stimulus Light
6. BK RT STIM LITE - Black wire of the Back Right Stimulus Light
7. Not Used
8. FR LF STIM TONE - Black wire of Front Left Sonalert Tone Generator
9. FR RT STIM TONE - Black wire of Front Right Sonalert Tone Generator
10. Not Used
11. Not Used
12. Air Puff Control

Note: Other 28 V DC devices may be connected to any “programmed output” and will be activated according to the settings for that output designation. Maximum combined current 1 Amp.

Input Terminals 1 - 8

1. FR LF PRESS BAR - Red wire of the Front Left Response Lever
2. FR RT PRESS BAR - Red wire of the Front Right Response Lever
3. OMNI-DIRECT LEVER - Red wire of the Omni-Directional Ceiling Rod
4. BK LF PRESS BAR - Red wire of the Back Left Response Lever
5. BK RT PRESS BAR - Red wire of the Back Right Response Lever
6. Not Used
7. Not Used
8. Not Used

Note: Other input devices with switch closure or relay output or GND output may be connected to any “programmed input” and can be selected according to the settings for that input designation. This includes the open nose poke and nose poke with single stimulus light.

Operant Conditioning Console

DB-25 Connections

It is recommended and more convenient to use the 80408 I/O block for connecting to the 81335C Control Console following the terminal assignments given above. The following pin designations are provided for those wishing to wire directly to a DB-25 Plug connecting to the rear panel socket labeled Chamber Connection.

Pin/Function

1. + 28 V DC
2. Output - FR RT STIM LITE
3. Output - LIQUID
4. Output - BK RT STIM LITE
5. Output - FR LF STIM TONE
- 6.
7. Output - AIR
- 8.
- 9.
- 10.
11. Input - BK LF PRESS BAR
12. Input - FR RT PRESS BAR
13. GROUND
14. Output - FR LF STIM LITE
15. Output - PELLET
16. Output - BK LF STIM LITE
- 17.
18. Output - FR RT STIM TONE
- 19.
- 20.
- 21.
- 22.
23. Input - BK RT PRESS BAR
24. Input - OMNI-DIREC LEVER
25. Input - FR LF PRESS BAR



Notes

Add any user notes here for your convenience.

Terms and Conditions

LIC Worldwide Headquarters

Toll-Free: (800) 428-7545 (USA only)

Phone: (765) 423-1505

Fax: (765) 423-4111

Email: sales@lafayetteinstrument.com

export@lafayetteinstrument.com (Outside the USA)

Mailing Address:

Lafayette Instrument Company

PO Box 5729

Lafayette, IN 47903, USA

Lafayette Instrument Europe:

Phone: +44 1509 817700

Fax: +44 1509 817701

Email: esusales@lafayetteinstrument.com

Phone, Fax, Email or Mail-in Orders

All orders need to be accompanied by a hard copy of your purchase order.

All orders must include the following information:

- Quantity
- Part Number
- Description
- Your purchase order number or method of pre-payment
- Your tax status (include tax-exempt numbers)
- Shipping address for this order
- Billing address for the invoice we'll mail when this order is shipped
- Signature and typed name of person authorized to order these products
- Your telephone number
- Your email address
- Your FAX number

Domestic Terms

There is a \$50 minimum order. Open accounts can be extended to most recognized businesses. Net amount due 30 days from the date of shipment unless otherwise specified by us. Enclose payment with the order; charge with VISA, MasterCard, American Express, or pay COD. We must have a hard copy of your purchase order by mail, E-mail or fax. Students, individuals and private companies may call for a credit application.

International Payment Information

There is a \$50 minimum order. Payment must be made in advance by: draft drawn on a major US bank; wire transfers to our account; charge with VISA, MasterCard, American Express, or confirmed irrevocable letter of credit. Proforma invoices will be provided upon request.

Exports

If ordering instrumentation for use outside the USA, please specify the country of ultimate destination, as well as the power requirements (110V/60Hz or 220V/50Hz). Some model numbers for 220V/50Hz will have a "C" suffix.

Quotations

Quotations are supplied upon request. Written quotations will include the price of goods, cost of shipping and handling, if requested, and estimated delivery time frame. Quotations are good for 30 days, unless otherwise noted. Following that time, prices are subject to change and will be quoted at your request.

Cancellations

Orders for custom products, custom assemblies or instruments built to customer specifications will be subject to a cancellation penalty of 100%. Payment for up to 100% of the invoice value of custom products may be required in advance. Cancellation for a standard Lafayette Instrument manufactured product once the product has been shipped will normally be assessed a charge of 25% of the invoice value, plus shipping charges. Resell items, like custom products, will be subject to a cancellation penalty of 100%.

Exchanges and Refunds

Please see the cancellation penalty as described above. No item may be returned without prior authorization of Lafayette Instrument Company and a Return Goods Authorization (RGA#) number which must be affixed to the shipping label of the returned goods. The merchandise should be packed well, insured for the full value and returned along with a cover letter explaining the reason for return. Unopened merchandise may be returned prepaid within thirty (30) days after receipt of the item and in the original shipping carton. Collect shipments will not be accepted. Product must be returned in saleable condition, and credit is subject to inspection of the merchandise.

Repairs

Instrumentation may not be returned without first receiving a Return Goods Authorization Number (RGA). When returning instrumentation for service, please call Lafayette Instrument to receive a RGA number. Your RGA number will be good for 30 days. Address the shipment to: Lafayette Instrument Company
3700 Sagamore Parkway North
Lafayette, IN 47904, USA.

Shipments cannot be received at the PO Box. The items should be packed well, insured for full value, and returned along with a cover letter explaining the malfunction. An estimate of repair will be given prior to completion ONLY if requested in your enclosed cover letter. We must have a hard copy of your purchase order by mail or fax, or repair work cannot commence for non-warranty repairs.

Damaged Goods

Damaged instrumentation should not be returned to Lafayette Instrument prior to a thorough inspection. If a shipment arrives damaged, note damage on delivery bill and have the driver sign it to acknowledge the damage. Contact the delivery service, and they will file an insurance claim. If damage is not detected at the time of delivery, contact the carrier/shipper and request an inspection within 10 days of the original delivery. Please call the Lafayette Instrument Customer Service Department for repair or replacement of the damaged merchandise.

Limited Warranty

Lafayette Instrument Company warrants equipment manufactured by the company to be free of defects in material and workmanship for a period of one year from the date of shipment, except as provided hereinafter. The original manufacturer's warranty will be honored by Lafayette Instrument for items not manufactured by Lafayette Instrument Company, i.e. resell items. This assumes normal usage under commonly accepted operating parameters and excludes consumable products.

Warranty period for repairs or used instrumentation purchased from Lafayette Instrument is 90 days. Lafayette Instrument Company agrees either to repair or replace, at its sole option and free of part charges to the customer, instrumentation which, under proper and normal conditions of use, proves to be defective within the warranty period. Warranty for any parts of such repaired or replaced instrumentation shall be covered under the same limited warranty and shall have a warranty period of 90 days from the date of shipment or the remainder of the original warranty period whichever is greater. This warranty and remedy are given expressly and in lieu of all other warranties, expressed or implied, of merchantability or fitness for a particular purpose and constitutes the only warranty made by Lafayette Instrument Company.

Lafayette Instrument Company neither assumes nor authorizes any person to assume for it any other liability in connection with the sale, installation, service or use of its instrumentation. Lafayette Instrument Company shall have no liability whatsoever for special, consequential, or punitive damages of any kind from any cause arising out of the sale, installation, service or use of its instrumentation.

All products manufactured by Lafayette Instrument Company are tested and inspected prior to shipment. Upon prompt notification by the Customer, Lafayette Instrument Company will correct any defect in warranted equipment of its manufacture either, at its option, by return of the item to the factory, or shipment of a repaired or replacement part. Lafayette Instrument Company will not be obliged, however, to replace or repair any piece of equipment, which has been abused, improperly installed, altered, damaged, or repaired by others. Defects in equipment do not include decomposition, wear, or damage by chemical action or corrosion, or damage incurred during shipment.

Limited Obligations Covered by this Warranty

1. In the case of instruments not of Lafayette Instrument Company manufacture, the original manufacturer's warranty applies.
2. Shipping charges under warranty are covered only in one direction. The customer is responsible for shipping charges to the factory if return of the part is required.
3. This warranty does not cover damage to components due to improper installation by the customer.
4. Consumable and/or expendable items, including but not limited to electrodes, lights, batteries, fuses, O-rings, gaskets, and tubing, are excluded from warranty.
5. Failure by the customer to perform normal and reasonable maintenance on instruments will void warranty claims.
6. If the original invoice for the instrument is issued to a company that is not the company of the end user, and not an authorized Lafayette Instrument Company distributor, then all requests for warranty must be processed through the company that sold the product to the end user, and not directly to Lafayette Instrument Company.