



MINIZ USER'S GUIDE

Daylight Harvesting Made Simple.

This user's guide applies to the following part numbers:

Model Number	Description	0-10V Outputs	Relay Outputs
mZb02-102	Basic Version, Two Room, 2 Relay, 120V or 277V	0	2
mZd22-102	Dimming Version, Two Room, 2 Relay, 120V or 277V	2	2
mZb02-C02	Basic Version, Two Room, 2 Relay, 347V	0	2
mZd22-C02	Dimming Version, Two Room, 2 Relay, 347V	2	2

Features between models vary. As such, not all information in this manual applies to all models.

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MOUNTING FEATURES

The Power Pack is suitable for plenum use, indoor only, 0 - 40°C, 5 - 95% humidity without condensation. The supply circuit and load circuits of the miniZ Power Pack are pre-wired to the control board. Color coded lead wires are provided for quick connections in a junction box. One ½" nipple is provided on the top of the Power Pack for this purpose.

There are three concentric knockouts provided in the Low Voltage Compartment of the miniZ Power Pack. They are combination ½" and ¾" knockouts. There is one on each of the three external sides of the area.

ENCLOSURE FEATURES

The enclosure of the miniZ Power Pack is divided into two compartments. The Low Voltage Compartment is accessible through the cover-plate. The High Voltage Compartment is factory sealed and is not accessible.

PHYSICAL INSTALLATION

High Voltage Compartment

This area cannot be accessed in the field. Lead wires exit the compartment through the top of the enclosure. There are leads supplied for field connections to circuits that energize the miniZ Power Pack and feed the fluorescent fixture circuits.

Nipple

The fitting on the top of the miniZ Power Pack attaches directly to a junction box or enclosure. Two 0.2" mounting holes through the back of the miniZ low voltage compartment, provide secure fastening to any flat surface.

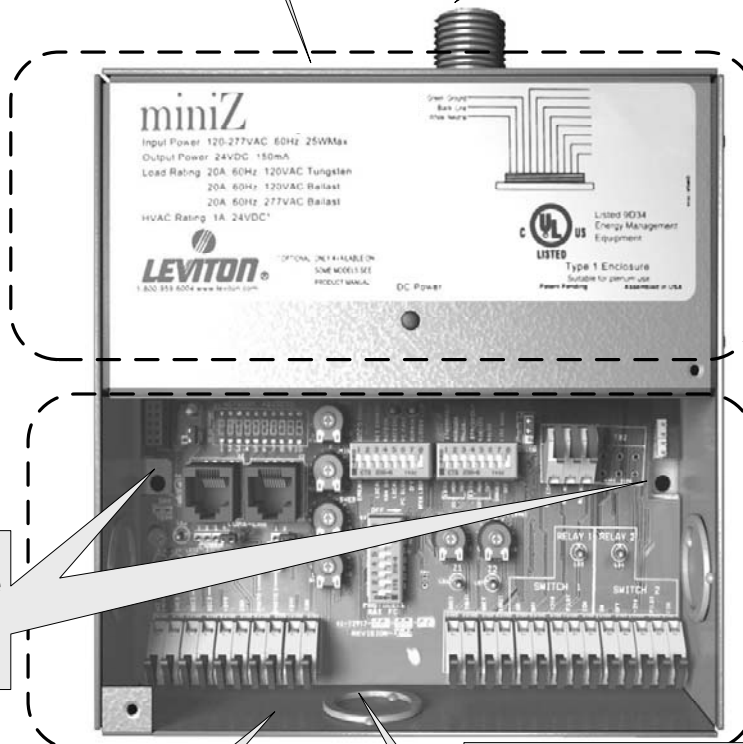
All connections are for copper wire only.

Mounting Holes
Two mounting holes are provided to fasten the miniZ Power Pack in place.

Low Voltage Compartment
This area contains all of the low voltage terminations required in the field. All of the configuration settings are made in this area as well. Class 2 wiring only.

Knockouts

There are three concentric knockouts provided in the Low Voltage Compartment of the miniZ Power Pack. They are combination $\frac{1}{2}$ " and $\frac{3}{4}$ " knockouts. There is one on each of the three external sides of the area.



STEP 2**CONNECT LINE VOLTAGE****Relay 1 Line/Load**

Ratings: 20A at 120VAC Tungsten/Ballast
20A at 277VAC Ballast
15A at 347VAC (347V Models Only)
Normally Open, Electrically held.

Color Code: Blue – Line, 12 AWG
Blue – Load, 12 AWG

Control Power Circuit

Voltage Rating: 120 – 277VAC, or
200-347VAC on 347V Models Only

Color Code: Black – Line, 120 – 277VAC, 18 AWG
(120-277V Models Only)
White – Neutral, 18 AWG
Orange – 347VAC, 18 AWG
(347V Models Only)

Load Rating: 10W

JUNCTION BOX
BY OTHERS

SUPPLY CIRCUITS

The Feed Circuit, Relay 1 Line, and Relay 2 Line can be supplied by the same circuit or individually. The connections are made in the junction box.

All supply circuits must be provided with a 20A or less branch circuit overcurrent protection device. Branch circuit protection for 347V circuits should be rated at 15A.



CONNECT LINE VOLTAGE

Relay 2 Line/Load

Ratings: 20A at 120VAC Tungsten/Ballast
20A at 277VAC Ballast
15A at 347VAC (347V Models Only)
Normally Open, Electrically held.

Color Code: Red – Line, 12 AWG
Red – Load, 12 AWG

Zone Common

Color Code: Gray – 22 AWG
Not available on Basic Model

Zone 1 Analog Output 0 – 10VDC

Color Code: Violet – 22 AWG
Not available on Basic Model

Zone 2 Analog Output 0 – 10VDC

Color Code: Violet w/White stripe – 22 AWG
Not available on Basic Model

These circuits must be insulated from the other wiring even when they are not being used. Cap off and tape any unused wires.

A**Occupancy Sensor Disabled /
Emergency Input**

Label: OCC DISABLE / EMERGENCY
Set by DIP Switch: Block 1 Number 1

This is a +24V input signal. Function can be set to either mode exclusively.

Occupancy Disable Mode

When the input goes high (+24V) the Power Pack will disable the Occupancy Sensor input and there will be no change in the current state. When the input signal is removed, the Occupancy Sensor will return to the normal mode.

Emergency Mode

Emergency mode is triggered when the emergency input is connected to the common. When the signal is received, the Power Pack will turn on all zones by turning on all relays and raising any 0 – 10V outputs to 10 V. The Power Pack zones will remain fully illuminated until the Emergency signal is removed.

B**Load Shed Input**

Label: SHED

This signal would originate from an energy management system and is a +24V input signal. When the input goes high (+24V) the Power Pack will reduce the output load levels based upon the position of the Shed trim pot.

In the event that you are in daylighting mode and less artificial light is required to meet the target than is required by load shed, the lights will remain at the lower lighting level – meeting the target.

C**Occupancy Sensor Input 1**

Label: OCC1

This four position terminal block is dedicated to the connection of the Occupancy Sensor number 1. The Occupancy Sensor signal wire connects to the OCC terminal. Occupancy Sensor input 1 and Photocell input 1 should be used together to provide control for the same room.

D**Occupancy Sensor Input 2**

Label: OCC2

This four position terminal block is dedicated to the connection of the Occupancy Sensor number 2. The Occupancy Sensor signal wire connects to the OCC terminal. Occupancy Sensor input 2 and Photocell input 2 should be used together to provide control for the same room.

E**Occupancy Sensor Supply**

Label: +24V, COM

This +24V source is shared with all circuits supplied from the +24V power supply rated to a maximum of 120 mA.

CONNECT LOW VOLTAGE

F

Photocell Input 1

Label: PHOTO1

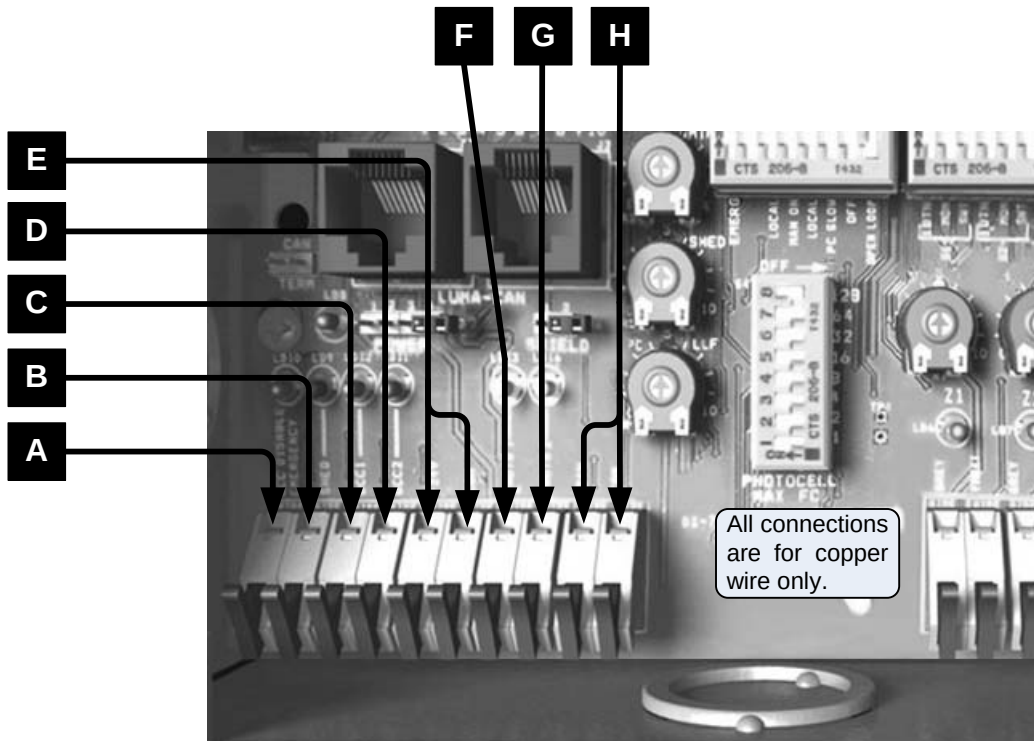
This set of terminal blocks is dedicated to the connection of Photocell number 1. The Photocell signal wire connects to the PHOTO terminal. Photocell input 1 and Occupancy Sensor input 1 should be used together to provide control for the same room.

G

Photocell Input 2

Label: PHOTO2

This set of terminal blocks is dedicated to the connection of Photocell number 2. The Photocell signal wire connects to the PHOTO terminal. Photocell input 2 and Occupancy Sensor input 2 should be used together to provide control for the same room.



H

Photocell Supply

Label: +24V, COM

This +24V source is shared with all circuits supplied from the +24V power supply rated to a maximum of 120 mA.

I**Emergency / HVAC****Label:** RLY COM, RLY N/O, RLY N/C

There is one Low Voltage relay output rated for 1A @ 24V which can be switched between HVAC and Emergency output functionality. This terminal block is connected to the Emergency Output / HVAC relay.

Jumper Settings

A three (3) position pin header is located adjacent to the terminal block. The jumper configuration of this header determines the functionality of the relay.

HVAC

A jumper between pins 1 and 2 will result in HVAC functionality. In this mode the relay will change state when either room is occupied. In occupied state NO (normally open) contact is closed.

Emergency

A jumper between pin 2 and 3 will result in Emergency output functionality. In this mode the relay will change state when an Emergency Input signal is detected. In normal, non-emergency state the NO (normally open) contact is closed.

J**Zone 1 Control Outputs****Label:** GREY- Common

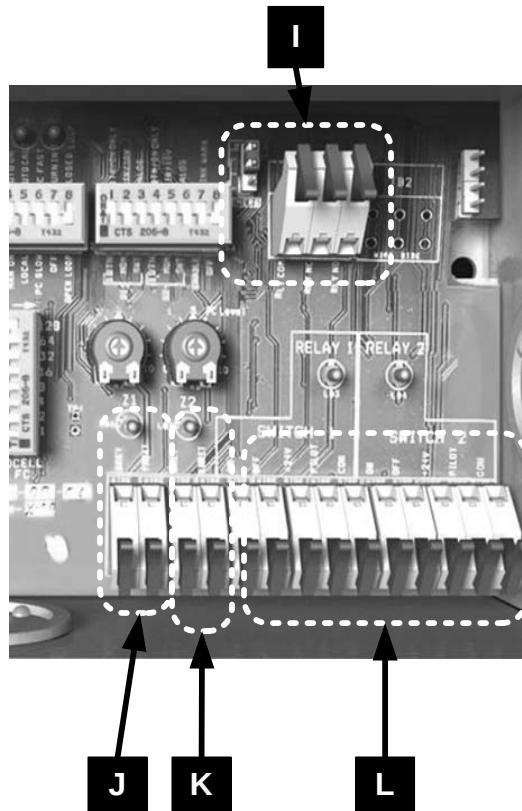
VIOLET – Signal 0 – 10V

These terminals provide an alternate location for connecting to the dimming ballast control circuit. The dimming circuit provides the analog output to control up to 100 dimming ballasts. The basic version of the miniZ Power Pack does not have these terminals.

K**Zone 2 Control Outputs****Label:** GREY- Common

VIOLET – Signal 0 – 10V

These terminals provide an alternate location for connecting to the dimming ballast control circuit. The dimming circuit provides the analog output to control up to 100 dimming ballasts. The basic version of the miniZ Power Pack does not have these terminals.



CONNECT LOW VOLTAGE

L

Low Voltage Switch Inputs

Label: SWITCH 1; ON, OFF, +24V, PILOT, COM
SWITCH 2; ON, OFF, +24V, PILOT, COM

There are two low voltage switch inputs. Switch 1 provides control for Room 1 and Room 2 provides control for Room 2.

Switch Types

Set by DIP Switch: Block 2 Number 1

There are two general types of switch inputs; analog and switched.

Analog

In analog mode, the input is expecting to see a 0 - 24VDC or a 0 - 10VDC signal which is used to dim the light levels proportionately to the level of the analog input.

Switched

In the switched mode, the input is expecting to see a +24 VDC level to indicate that a switch is closed.

One Button Mode

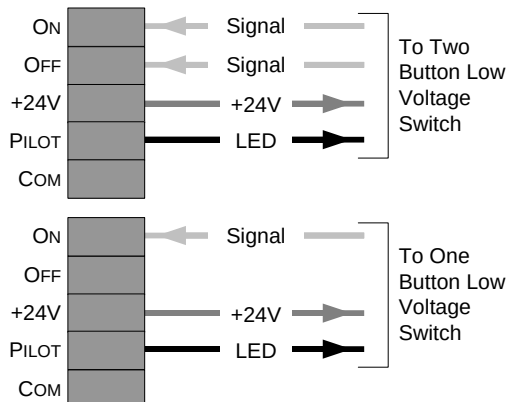
The switch connected to these terminal blocks uses the same button to turn on and turn off the lights. Push the button once to turn on, push the button a second time to turn off. The button signal wire should be connected to the On terminal. No wire is required at the Off terminal.

Two Button Mode

The switch connected to these terminal blocks uses two different buttons to turn on and turn off the lights. Push one button to turn on, push a different button to turn off. The signal wires from each of the buttons should be connected to their associated terminals.

Supply

The +24V source terminal supplies the power required to energize the Low Voltage switch circuit. This source is shared with all circuits supplied from the +24V power supply to a maximum of 120 mA.



LOW VOLTAGE SWITCH CONNECTIONS

Switch Connections

For a complete description of switch behaviors refer to the Settings section. Wiring of the Low Voltage switch must match the manufacturer recommendations.

Pilot

This is the Pilot light output. To illuminate the button on the Low Voltage switch, connect the appropriate wire from the switch to the Pilot terminal. If the button does not require illumination no wire will be present. The Pilot output connects to common to turn on the pilot light in your control device.

Emergency / Occupancy Sensor Disable*DIP Switch:* Block 1 Switch 1*Label:* EMERG / OCC DISABLE

This configures the response to a signal (+24V) at the OCC Disable/Emergency input terminal. If the switch is in the off position (EMERG), the response to a connection to common will be to turn all relays on and raise all 0 – 10V outputs to ten volts. During this condition no other control will have any effect over the outputs. If this switch is set to on (OCC DISABLE), the Occupancy Sensor will be disabled and no change in the current zone state will occur when +24VDC is received by the input. When the signal is removed, the Power Pack will return to normal operation.

Spare*DIP Switch:* Block 1 Switch 2*Label:* NONE

This switch is not used.

Local / Network Enabled*DIP Switch:* Block 1 Switch 3*Label:* LOCAL / NET ENABLED

The models covered by this manual do not have network capability. This switch should remain in the off position.

Manual On / Auto On*DIP Switch:* Block 1 Switch 4*Label:* MAN ON / AUTO ON

This switch determines the response to the Occupancy Sensor signals. In the off position (MANUAL ON) the Power Pack will turn on zones only with a switch input. The Occupancy Sensor input signals will only turn the lights off. In the on position (AUTO ON) position the Power Pack will turn on and off zones in response to signals from the Occupancy Sensors. This setting controls the behavior for both rooms.

Local / Auto Cal*DIP Switch:* Block 1 Switch 5*Label:* LOCAL / AUTO CAL

The setting activates the Auto Calibration cycle. For more information, see the discussion on the Auto Calibration feature later in this guide. This setting controls the behavior for both rooms.

CONFIGURATION DIP SWITCH SETTINGS – BLOCK ONE

Photocell Slow Response / Fast Response

DIP Switch: Block 1 Switch 6

Label: PC SLOW / PC FAST

This setting determines the speed at which the system will respond to changes in light levels detected by the Photocell. In the off position (PC Slow), the response time will be 30 minutes. In the on position (PC Fast), the response time will be 30 seconds. This setting controls the behavior for both rooms.

Burn In

DIP Switch: Block 1 Switch 7

Label: BURN IN / OFF

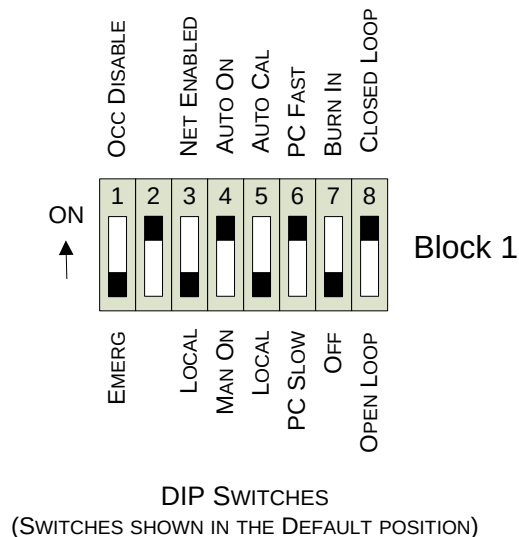
This setting activates the 100 Hour Burn In feature. This setting controls the behavior for both rooms.

Open Loop / Closed Loop

DIP Switch: Block 1 Switch 8

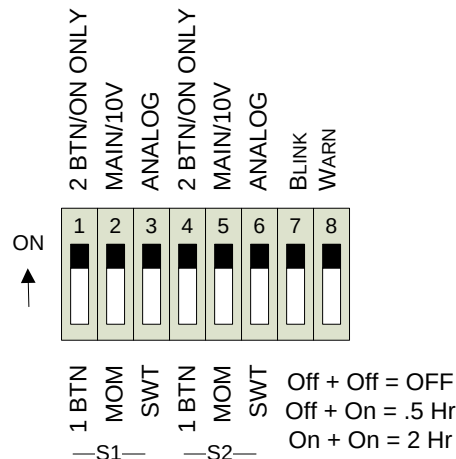
Label: OPEN LOOP / CLOSED LOOP

The switch determines whether the power pack should operate in open loop or closed loop daylight harvesting mode. In closed loop mode, the photocell should be sensing the amount of ambient or task light in the room. In open loop mode, the photocell should be sensing the amount of light coming in through the skylight or windows. For details on the two methods of operation, please see the discussion later in this guide. This setting controls the behavior for both rooms.



CONFIGURATION DIP SWITCH SETTINGS – BLOCK TWO

BLOCK 2 - DIP SWITCHES
(SWITCHES SHOWN IN THE ON POSITION)



SWITCH INPUT TYPES

Set by DIP Switches: Block 2 Number 3 and/or Number 6

Settings: ON = Analog, OFF = Switched

There are several modes of switch inputs; analog and switched. In analog mode there is only one behavior. In Switch mode there are four modes of operation for input switches.

SWITCHED MODE BEHAVIOR

One Button Momentary Mode (Z-Max Low Voltage Switches)

Set by DIP Switch: Block 2 Number 1 and/or Number 4 = Off

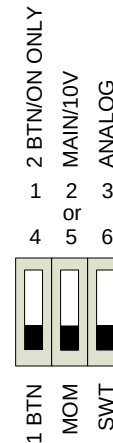
Block 2 Number 2 and/or Number 5 = Off

Block 2 Number 3 and/or Number 6 = Off

Connections: In this mode, the On input is used to both turn on and turn off the zone. The switch should be wired so that the ON signal wire is landed on the ON terminal.

Behavior: Activating the ON signal input with a +24VDC level shall cause the associated room to fade the lights to the daylighting target level over three (3) seconds. If daylighting is not active in the space, this function will fade the lights to the level of the maximum trim pot. If the zone is already on, then the lights will fade to off over one (1) second. If the zone is off, tapping the button shall turn it on.

Units that have dimming available and activated shall dim the room on and off. Tapping the button shall fade the room up to full in three (3) seconds. Tapping the button shall fade the room down to off in one (1) second. If the button is held, dimming shall continue until either full or off is established or the button is released. When holding the button, both up and down fade shall be three seconds.



CONFIGURATION DIP SWITCH SETTINGS – BLOCK TWO

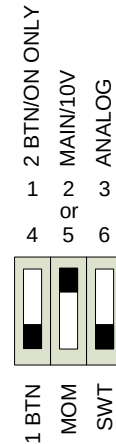
One Button Maintained Mode (Toggle Switch)

Set by DIP Switch: Block 2 Number 1 and/or Number 4 = Off
 Block 2 Number 2 and/or Number 5 = On
 Block 2 Number 3 and/or Number 6 = Off

Connections: In this mode, the On input is used to both turn on and turn off the zone.
 The switch should be wired so that the ON signal wire is landed on the ON terminal.

Behavior: If the input is active (24V at the input), the zone is on, if it is inactive, the zone is off.

Units that have dimming available and activated shall dim the zone on and off. Activating the input shall fade the zone up to full in three (3) seconds. Activating the input shall fade the zone down to off in one (1) second.



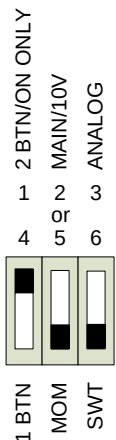
Two Button Mode (GE Switches)

Set by DIP Switch: Block 2 Number 1 and/or Number 4

Settings: ON

Connections: In this mode the switch should be wired so that the ON signal wire is landed on the ON terminal. The OFF signal wire should be connected to the OFF terminal. The switch common will be fed from the +24VDC terminal. Activating the ON signal input with a +24VDC level shall cause the associated zone to turn on. Activating the OFF button input shall turn the zone off.

Behavior: Tapping the ON button shall fade the lights to the daylighting level over three (3) seconds. If daylighting is not active in the space, the ON button fades the levels to the level of the maximum trim pot. Tapping the OFF button shall fade to off the lighting in the room over one (1) second. If either button is held, dimming shall continue until either full or off is established or the button is released. While held, dimming is three (3) seconds in both directions.



Two Button Mode (On Only)

Set by DIP Switch: Block 2 Number 1 and/or Number 4

Settings: ON

Connections: In this mode the switch should be wired so that the ON signal wire is landed on the ON terminal. The OFF signal wire should not be connected. The switch common will be fed from the +24VDC terminal. Activating the ON signal input with a +24VDC level shall cause the associated zone to turn on.

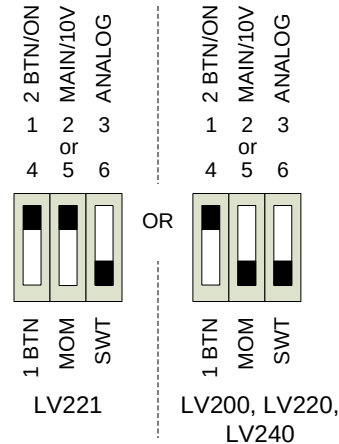
Behavior: There are some cases when it is desirable to allow zones to be turned on manually, but not off. The off function is controlled by an occupancy sensor or time clock. This is accomplished by configuring the input in two button mode and only using the ON input.

Special Function Leviton Switches (LV200, LV220, LV221, and LV240)

Set by DIP Switch: Block 2 Number 1 & 2 or Number 4 & 5

Settings: ON

Connections: In this mode the switches should be wired so that the ON, OFF, PILOT, +24V, and COM wires are connected.



ANALOG MODE BEHAVIOR (LEVITON LV230 SWITCHES)

Set by DIP Switch: Block 2 Number 3 and/or Number 6

Settings: ON = Analog

Set by DIP Switch: Block 2 Number 2 and/or Number 5

Settings: ON = 0 – 10VDC, OFF = 0 – 24VDC

Connections: In this mode, the ON input is connected to +0 – 10VDC or +0 – 24VDC varying input. The OFF input is optionally connected to a maintained contact, indicating whether the lights should be on or off. Input impedance is 85k ohms.

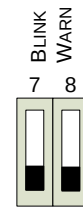
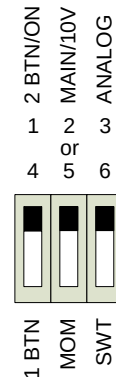
Behavior: Analog mode allows for a dimmed override to be applied allowing the user to set the temporary dimmed level of the lights via a slider or other such input device. In this mode, the miniZ expects either +0 - 10VDC or +0 - 24VDC at the ON input, which indicates the dimmed level, and a maintained input to the OFF terminal indicating whether the lights should be on or off. When using the miniZ in a daylighting operation, the dimmed level is a temporary override. After the override time (60 minutes) has elapsed, the device will automatically return to daylight harvesting mode.

The input can be set for two different voltage ranges. When in this mode, a zero (0) volt level signal represents off, while a 24 (or 10) volt level represents full on. The zone is dimmed proportionally between these levels.

BLINK WARN OVERRIDE TIME

Set by DIP Switch: Block 2 Number 7
Block 2 Number 8

Behavior: This setting determines the length of time the zones will remain on once the blink warn feature is activated and a request for the override has been received. This request can be made by pressing the On button at the low voltage switch. Pilot output will flash on and off to indicate blink warn is active. Overriding blink warn by tapping the On button will stop the flashing.



Off + Off = OFF
Off + On = .5 Hr
On + On = 2 Hr

DIP Switch Block 3

Photocell Maximum Foot Candle DIP Switch

(PHOTOCELL MAX)

Set by DIP Switch: Block 3 Number 1 to 8

Application – Open Loop Daylight Harvesting ONLY

This 8 position DIP switch is used to set the maximum foot candle value of the photocell being used with the system. The switches shall represent the binary number 0 - 255. The foot candle value is the sum of the switch values multiplied by 10. The system can accommodate photocells with a range of 0 to 2550 foot candles in increments of 10. From this setting the miniZ Power Pack determines the foot candles per volt.

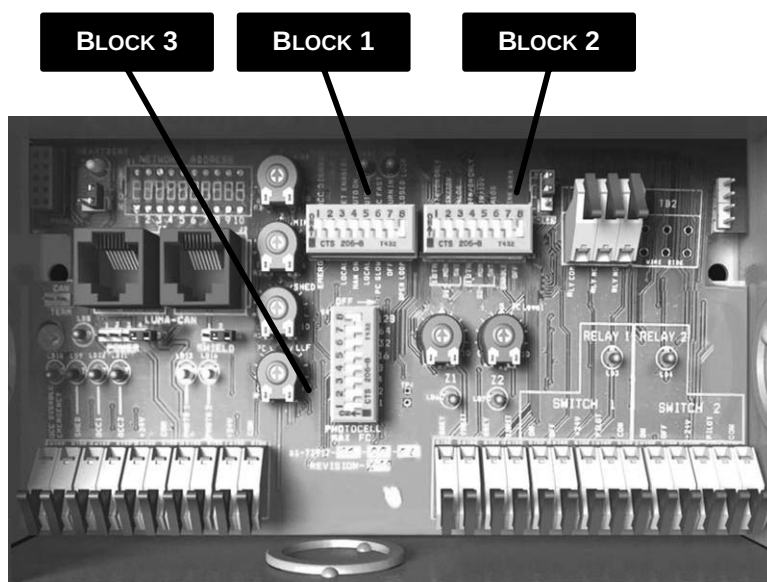
Default

The default setting for this switch is 7.

ON ←	
8	128
7	64
6	32
5	16
4	8
3	4
2	2
1	1

Block 3

(TOTAL VALUE SHOWN IS 25)



DIP SWITCH BLOCK LOCATIONS

STEP 8**CONFIGURATION TRIM POT SETTINGS****1 MAXIMUM TRIM POT (MAX)**

Adjust this trim pot to set the upper limit for the 0 – 10VDC Ballast outputs. The full range of the pot adjusts the upper limit in a range from 6 volts to 10 volts.

Application

During daylight harvesting operation, the Max trim pot will scale the auto threshold calculated target proportionally. For example, if the auto threshold acquired value from the photocell is 6 volts, turning the Max trim pot to 8 will scale the 6 volts by 80% making the photocell target value 4.8 volts. (max shall also limit the dimmer outputs by the same scaling factor. For this example, the dimmer output will not go above 8 volts.

Default

The default position is full on.

2 MINIMUM TRIM POT (MIN)

Adjust this trim pot to set the minimum level the 0 – 10VDC outputs will dim during daylight harvesting mode operation. The full range of the pot adjusts the lower limit in a range from 0 volts to 4 volts.

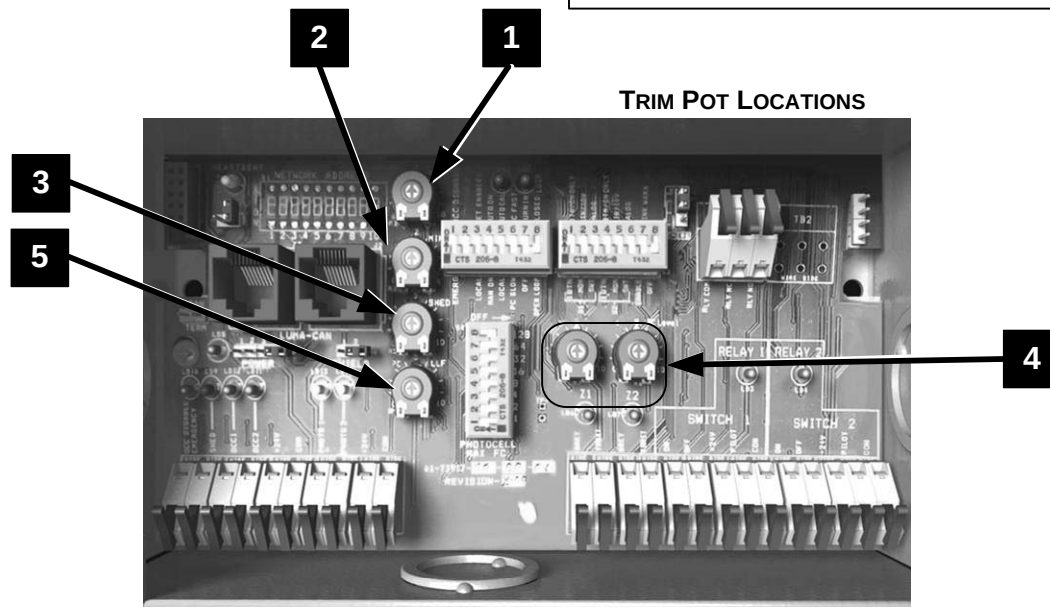
Application

As external light increases, the miniZ will begin reducing the light levels of the loads as the photocell value begins to rise. Normally, with Min set to 0, the 0 – 10VDC outputs will continue to decrease until the dimmer outputs are at zero. If the Min pot is set to a value higher than zero, the output will not drop below that value even though the daylight harvesting routine determines that it should.

Overriding of the daylight harvesting mode with the use of dimming control, will allow the control below the Min level, all the way down to zero volts.

Default

The default position is full off.



CONFIGURATION TRIM POT SETTINGS

3 LOAD SHED TRIM POT (SHED)

Adjust this trim pot to determine the action taken when the LOAD SHED (SHED) input is active.

Application

For the basic model, if the pot is positioned between 0 – 30%, relay 1 will be forced off, if set between 30 – 70%, both relays will be forced off, and if set between 70 – 100%, relay 2 will be forced off.

For dimmed models, all 0 – 10VDC outputs will go to the level determined by the position of the Load Shed pot if it is currently higher than that level. If the Load Shed pot is adjusted above the Max pot, no change shall occur.

Default

The default position is center.

5 PHOTOCELL LLF TRIM POT

Dimmed Model, Closed Loop

Used to input a LLF for both rooms. The LLF is 20% when the trim pot is set at 0 and 0% when the trim pot is at 10.

Dimmed Model, Open Loop

Used to set the target worksurface design level in foot candles (0 - 100 fc) for both rooms.

Basic Model

No function.

Default

The default setting is full off

4 DAYLIGHT HARVESTING PC LEVEL TRIM POT

Dimmed Model, Open Loop

In Open Loop mode, the Target trim pot is used to enter the desired foot candle value from 0 – 100 foot candles, at the photocell. A setting of 0 equals 0 foot candles, a setting of 10 equals 100 foot candles.

Dimmed Model, Closed Loop

In Closed Loop mode, the PC Level trim is used to set the target photocell values. The trim pots scale of 0 – 10 represents the 0 – 10 volt signal of each photocell. If, however, you are using Auto Calibration, the PC Level trim pot defines the Light Loss Factor (LLF) applied to the target level. The LLF is 20% when the trim pot is set at 0 and 0% when the trim pot is at 10. The assumption is that auto calibration occurs when the lamps are new, the fixtures are clean, and the room is performing to the initial lumen output not the maintained lumen output. When the Offset trim pot is set to 0, the LLF is set to 20%. When the PC Level trim pot is set to 10, the LLF is 0%.

Basic Model

On the basic model these trim pot set the point that the relay for each room is opened. The photocell must remain on either side of the trip point for the time determined by the Photocell Fast/Slow DIP switch setting before changing states.

Independent Controls

Each PC Level trim pot controls a corresponding room independent of the other. Use pot Z1 to control Room 1 and pot Z2 to control Room 2. The default setting is center.

Setup

To setup your device in either open loop or closed loop mode, please reference Step 4, Settings, found on page 3 of this document. This section details with specific calibration and configuration of your miniZ device when in each of these modes.

Open-Loop Operation

Typical open-loop systems employ a photocell positioned towards the daylight source (window, skylight, etc).

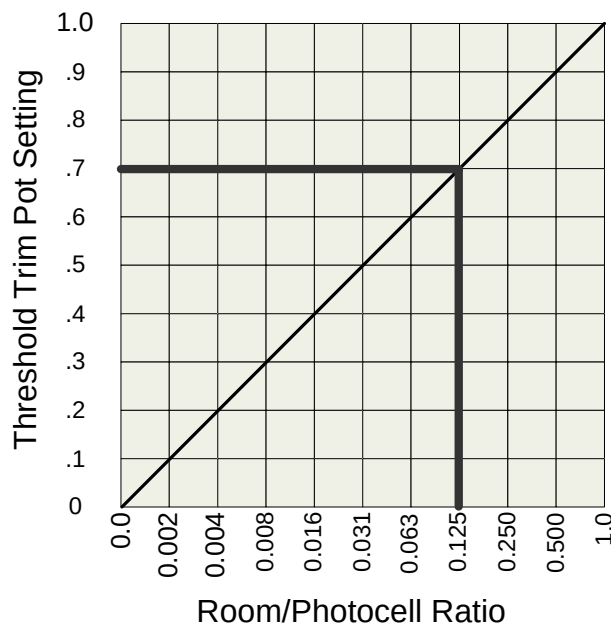
Important! For best results, the photocell should receive as little electric light as possible.

To determine the setting of each of the PC Level trim pots, light meter readings must be taken during the day with the electric lights off and during consistent daylight (i.e. if a cloud covers the sun during meter recording, start over or wait for the cloud to pass). Position the light meter at the photocell, pointing it in the same direction as the photocell. Record the value. Next position the light meter at the work surface in each room pointing it towards the ceiling. Record the value in each room.

Now calculate the ratio of the zone value to the photocell value for each room. Use the chart below to determine the PC Level setting. For example, if the photocell reading is 400 foot candles and Room 1's reading is 50 foot candles, the ratio is $50/400 = 0.125$. Find 0.125 on the chart's x-axis (Room/Photocell Ratio) and follow a straight line up until the diagonal line it intersected. Then follow a straight line to the left on the chart to obtain the trim pot setting. In this case the setting would be 7.

Closed-Loop Operation

Closed-loop systems position the photocell so that it measures the amount of light in the room being controlled. It is important to correctly position the photocell so that it receives either the average amount of ambient light or if sensing task lighting that it is directed at a surface which will reflect an appropriate representation of the amount of task lighting in the room.



BURN IN FEATURE

Set by DIP Switch: Block 1 Number 7 On

The **Burn IN** feature of the miniZ Power Pack provides an automatic initializing cycle for new fluorescent lamps. The Burn In feature will maintain the fluorescent fixtures at full illumination levels for 100 hours. At the conclusion of the **Burn IN** cycle the miniZ Power Pack will enter normal operation.

When to use it

Some manufacturers of fluorescent lamps require the lamp to be run at the full illumination level for a 'burn in' period prior to any dimming activity. This feature provides an easy method to satisfy that requirement.

Start

To initialize this function, move the DIP switch labeled Burn In to the 'ON' position. *Observe:* The LED above the DIP switch will glow red and will remain in that state until the cycle is complete. The fluorescent fixtures will also be illuminated at their full level when turned on until all zones have been on for 100 hours.

Stop

The cycle can be stopped at any time by turning off the DIP switch.

Observe: The red LED above the DIP switch will turn off.

Restart

To restart this function, move the DIP switch labeled Burn In to the 'ON' position. *Observe:* The observations will be the same as the Start step.

Burn In and the Auto Cal features can occur at the same time.

AUTO CALIBRATION**(CLOSED LOOP OPERATION ONLY)**

Set by DIP Switch: Block 1 Number 5 On

The **Auto Calibration** feature of the miniZ Power Pack provides an automatic daylight harvesting calibration. During the 24 hour calibration period all fluorescent fixtures will remain at full illumination levels and cannot be turned off. The miniZ Power Pack will monitor the Photocell readings to determine the lowest level during the calibration period. This reading typically occurs at night. At the conclusion of the **Auto Calibration** period the miniZ Power Pack will enter normal operation.

Note: Auto Calibration is only applicable to closed loop photocell operation. When the device is configured in open loop mode, auto calibration can be activated but the results of such will have no effect on the configuration or output of the miniZ.

Start

To initialize this function, move the DIP switch labeled Auto Cal to the 'ON' position.

Observe: The LED above the DIP switch will begin to flash on and off in a steady pattern until the calibration period is complete. The fluorescent fixtures will also be illuminated at their full level for the duration of the cycle.

Stop

The cycle can be stopped at any time by turning off the DIP switch.

Observe: The red LED above the DIP switch will turn off.

Restart

To restart this function, move the DIP switch labeled Auto Cal to the 'OFF' position and then back to the 'ON' position.

End of Cycle

Observe: The LED will be on steady at the end of the calibration period and the miniZ Power Pack will automatically enter normal operation.

WARRANTY

LIMITED 5 YEAR WARRANTY AND EXCLUSIONS

Leviton warrants to the original consumer purchaser and not for the benefit of anyone else that this product at the time of its sale by Leviton is free of defects in materials and workmanship under normal and proper use for five years from the purchase date. Leviton's only obligation is to correct such defects by repair or replacement, at its option, if within such five year period the product is returned prepaid, with proof of purchase date, and a description of the problem. This warranty excludes and there is disclaimed liability for labor for removal of this product or reinstallation. This warranty is void if this product is installed improperly or in an improper environment, overloaded, misused, opened, abused, or altered in any manner, or is not used under normal operating conditions or not in accordance with any labels or instructions. There are no other or implied warranties of any kind, including merchantability and fitness for a particular purpose, but if any implied warranty is required by the application jurisdiction, the duration of any such implied warranty, including merchantability and fitness for a particular purpose, is limited to five years. Leviton is not liable for incidental, indirect, special, or consequential damages, including without limitation, damage to, or loss of use of, any equipment, loss of sales or profits of delay or failure to perform this warranty obligation. The remedies provide herein are the exclusive remedies under this warranty, whether based on contract, tort or otherwise.

WARNING: TO BE INSTALLED AND/OR USED IN ACCORDANCE WITH APPROPRIATE ELECTRICAL CODES AND REGULATIONS.

WARNING: IF YOU ARE UNSURE ABOUT ANY OF THESE INSTRUCTIONS, CONSULT A QUALIFIED ELECTRICIAN.

CAUTION: USE THIS DEVICE ONLY WITH COPPER OR COPPER CLAD WIRE, WITH ALUMINUM WIRE ONLY USE DEVICES MARKED CO/ALR OR CU/AL.

WARNING: TO AVOID FIRE, SHOCK OR DEATH; TURN OFF POWER AT CIRCUIT BREAKER OR FUSE AND TEST THAT POWER IS OFF BEFORE WIRING!

DIP SWITCH BANK S2	SWITCH No.	FUNCTION	DEFAULT POSITION IN ALL MODELS
	1	EMERG / OCC DISABLE	EMERG
	2	SPARE	-
	3	LOCAL / NET ENABLE	LOCAL
	4	MAN ON / AUTO ON	AUTO ON
	5	LOCAL / AUTO CAL	LOCAL
	6	PC SLOW / PC FAST	PC FAST
	7	OFF / BURN IN	OFF
	8	OPEN LOOP / CLOSED LOOP	CLOSED LOOP

DIP SWITCH BANK S3	SWITCH No.	FUNCTION	DEFAULT POSITIONS		
			BASIC MODELS	DIMMING & NETWORK MODELS	
	1	S1 – 1 BTN / 2 BTN ON ONLY	2 BTN ON	2 BTN ON	SETUP FOR OPERATION WITH LV200 OR LV240
	2	S1 – MOM / MAIN 10V	MOM	MOM 10V	
	3	S1 – SWT / ANALOG	SWT	SWT	
	4	S2 – 1 BTN / 2 BTN ON ONLY	2 BTN ON	2 BTN ON	SETUP FOR OPERATION WITH LV200 OR LV240
	5	S2 – MOM / MAIN 10V	MOM	MOM 10V	
	6	S2 – SWT / ANALOG	SWT	SWT	
	7	ENABLES BLINK WARN & SETS OVERRIDE TIME. 00 = BW OFF, 01 = ½ HR, 11 = 2HR.		OFF	BLINK WARN DISABLED, 1 HR OVERRIDE
	8			OFF	

DIP SWITCH BANK S4 PHOTOCELL MAX FC (7)	SWITCH No.	VALUE	POSITION	SETUP FOR 70FC MAXIMUM OUTPUT PHOTOCELL
	1	1	ON	
	2	2	ON	
	3	4	ON	
	4	8	OFF	JUMPER PLUG JP5 – INSTALLED FOR HVAC (HVAC / EMERG)
	5	16	OFF	
	6	32	OFF	
	7	64	OFF	
	8	128	OFF	

TRIM POTS				
LABEL	BASIC MODEL		DIMMING & NETWORK MODELS	
	FUNCTION	DEFAULT SETTING	FUNCTION	DEFAULT SETTING
MAX.	N/A	N/A	Max output of 0 - 10V Outputs, Range 6 - 10V.	10 (100%)
MIN.	N/A	N/A	Minimum daylighting level, Range 0 - 4V.	0%
SHED	Left – Relay 1 sheds Center – Both Relays shed Right – Relay 2 sheds	10 (Relay 2 sheds)	Sets Load Shed level.	7 (70%)
TARGET ZONE 1	Sets the point that Relay 1 is opened. Range 0-10V	5 (5V)	Sets target level 0 – 10V in Closed Loop mode, 0 – 100fc in Open Loop mode	5 (50%)
TARGET ZONE 2	Sets the point that Relay 1 is opened. Range 0-10V	5 (5V)	Sets target level 0 – 10V in Closed Loop mode, 0 – 100fc in Open Loop mode	5 (50%)