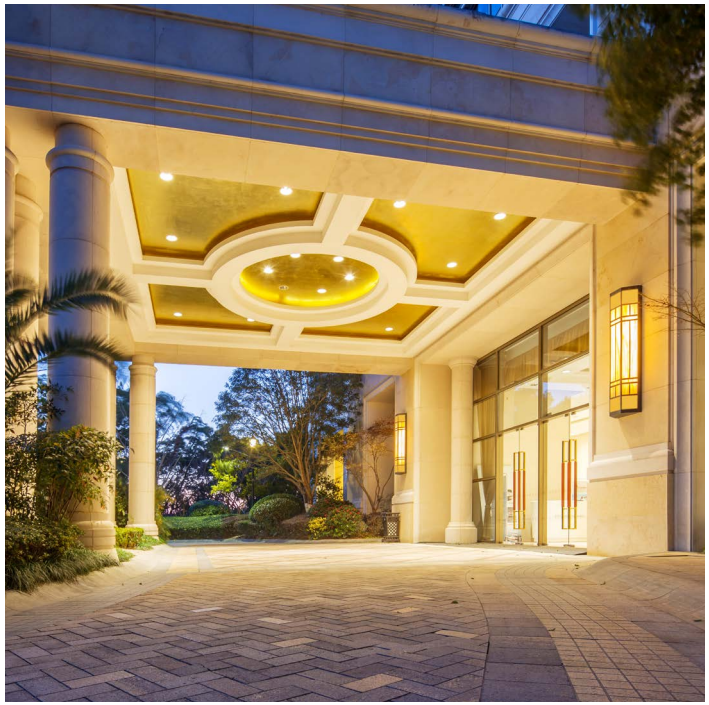


LEVITON®

# Applications Cookbook

## California Title 24 2021

Version 7.0

FOR REFERENCE ONLY

# TITLE 24 COOKBOOK NOTES

1. Refer to manufacturer's data sheets and installation instructions prior to installation
2. Line feed 120/230/277 VAC, 60 Hz
3. Ground not shown, ground devices per applicable national and local codes are best practices
4. For emergency power situations, illustrations assume transfer switch by others upstream of shown devices
5. Line voltage load not to exceed contact rating per device specifications
6. Power packs receiving separate feeds for switched loads and self power must have both feeds on the same phase
7. All low voltage devices consume current. Device power budget is estimated for these details—additional power sources may be required. See product literature for power specifications.
8. Maximum run length for analog wiring is 1000' @ #18 AWC
9. Sensors wired in parallel will cause line voltage relay closure when occupancy is detected by any unit
10. Devices in series requiring contact closure from a single device (clock input, demand response, emergency, etc.) must follow these wiring conventions:
    - First device in sequence provides the +V to the triggering relay
    - Signal from closure attached to all devices in sequence input
    - Com from first device in sequence attached to com on all devices in sequence
11. Applications requiring multiple power packs/power supplies at the same VDC:
    - +V must never be tied together between power packs/power supplies
    - Com/DCC must be tied together to all power packs/power supplies and all powered devices
12. Ultrasonic ceiling mount sensors should be located a minimum of six (6) feet from HVAC supply/return vents
13. Ceiling sensors mounted over doorways should be placed one (1) foot inside the threshold
14. Trough-mounted and pendant-mounted indirect lighting sources affect the operation of locally mounted sensors. Contractor is responsible for adjusting sensor locations to allow for proper operation
15. Contractor is responsible for proper sensitivity and time delay settings for non-adaptive products, following the manufacturer's recommended placement, and field verification of circuits with respect to power pack placement
16. Contractor is responsible for coordinating the operational options of sensors and power packs with the specific work requirements
    - Work relevant energy code requirements affect circuits to be controlled and their control characteristics
    - One controlled relay is required for reach controlled circuit
    - Refer to power pack data sheet for power output and installation guide for maximum number of sensors connected to a control device
    - Multiple control circuits may be controlled by a sensor/multiple sensors. Refer to the product installation manuals for interconnection details
17. Up to 100 Mark VII style ballasts may be controlled per daylighting zone by IRC
18. All relays shown in de-energized state
19. Individually cap off unused leads
20. One-line parenthesis use:
    - (X) Function
    - [#] Terminal
21. N-Way Switching
    - Wireless N-Way Switching/Dimming
        - One device is connected for all control, remaining are connected for device power only. Switching and dimming control are coordinated wirelessly between participating devices.
    - High Voltage 3-Way Switching
        - Per industry standards: (2) high voltage travellers plus (1) high voltage line/load per switch. Switch equal to Leviton 1223-W (Toggle) or 5623-2 (Decora) unless otherwise noted
    - Low Voltage Analog Maintained 3-Way Switching
        - (2) #18 AWG source plus (1) #18 AWG signal per switch. Switch equal to Leviton 1223-W (Toggle) or 5623-2 (Decora) unless otherwise noted
    - Low Voltage Analog Momentary N-Way Switching
        - (1) #18 AWG Source plus (1) #18 AWG signal per switch. Quantity of low voltage momentary switches as required. Terminated in parallel.
    - Digital Stations
        - Digital stations are software programmable and should be wired according to their digital communications
22. Plug Load Control - Commercial receptacle P/Ns:
    - Standard Duplex
        - Split control (1 outlet) CR015-1PX, CR020-1PX
        - Full control (2 outlets) CR015-2PX, CR020-2PX
    - Decora
        - Split control (1 outlet) 16252-1PX,16352-1PX
        - Full control (2 outlets) 16252-2PX, 16352-2PX
23. Control Receptacle:
    - Quantity per applicable codes
    - Termination shown split receptacle. Termination per applicable codes
    - Receptacle markings per applicable energy codes

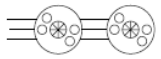
ABBREVIATIONS:

| | |
|---|---|
| LC | LumaCAN |
| LV | Low voltage |
| HV | High voltage switch (maintained) |
| LVM | Low voltage switch (momentary) Equal to Leviton 1081 (toggle) OR Leviton 56081 (Decora) |
| LVT | Low voltage switch (maintained) Equal to Leviton 12021-2 (toggle) or Leviton 56021-2 (Decora) |
| LV2 | IRC low voltage switch |
| UON | Unless otherwise noted |
| BLK | Black |
| WHT | White |
| BLU | Blue |
| YEL | Yellow |
| ORG | Orange |
| VIO | Violet |
| BRN | Brown |

SYMBOLS:

No Connection

Connection


Devices wired in parallel

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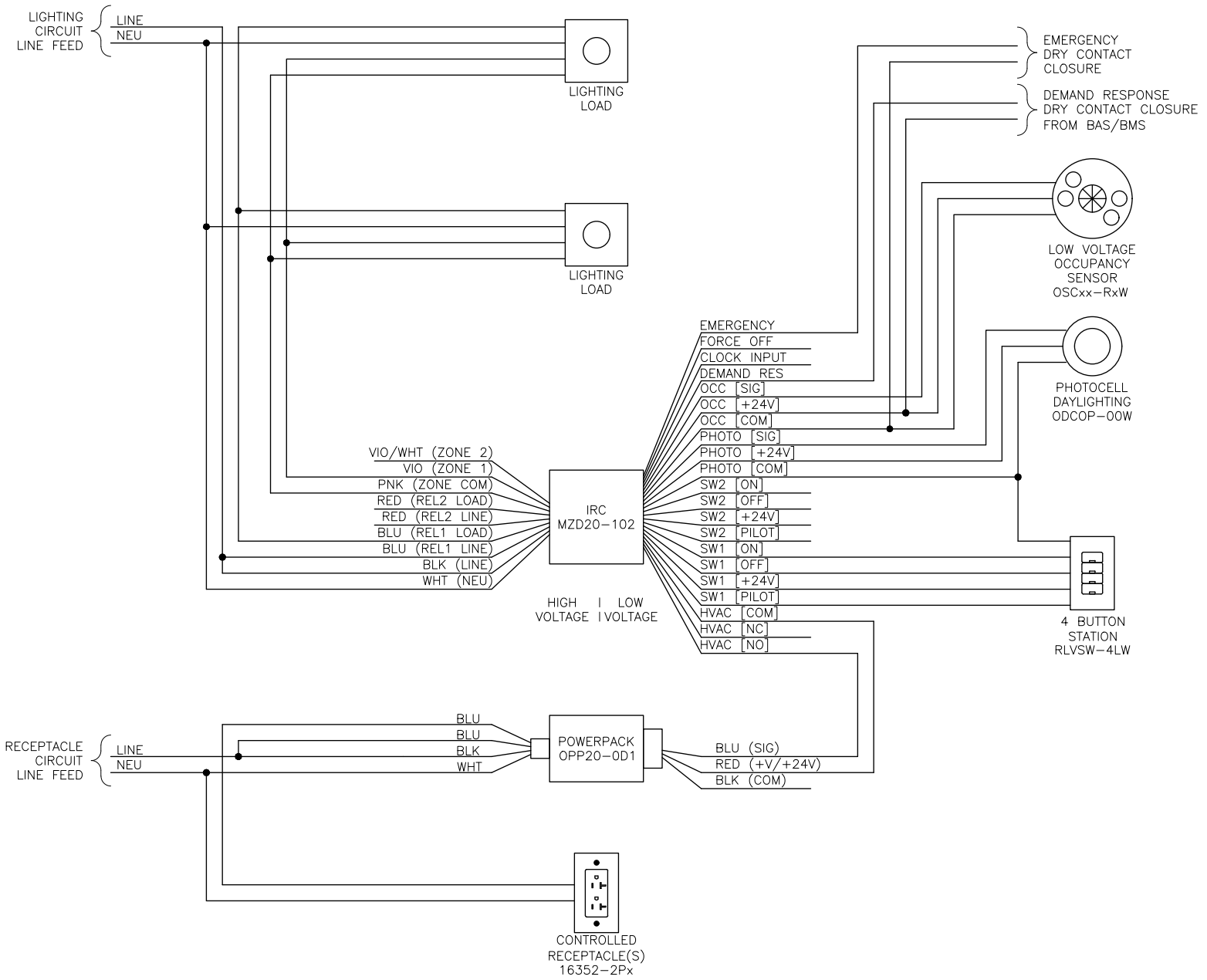
# TITLE 24 SMALL OFFICE, IRC, SINGLE ZONE



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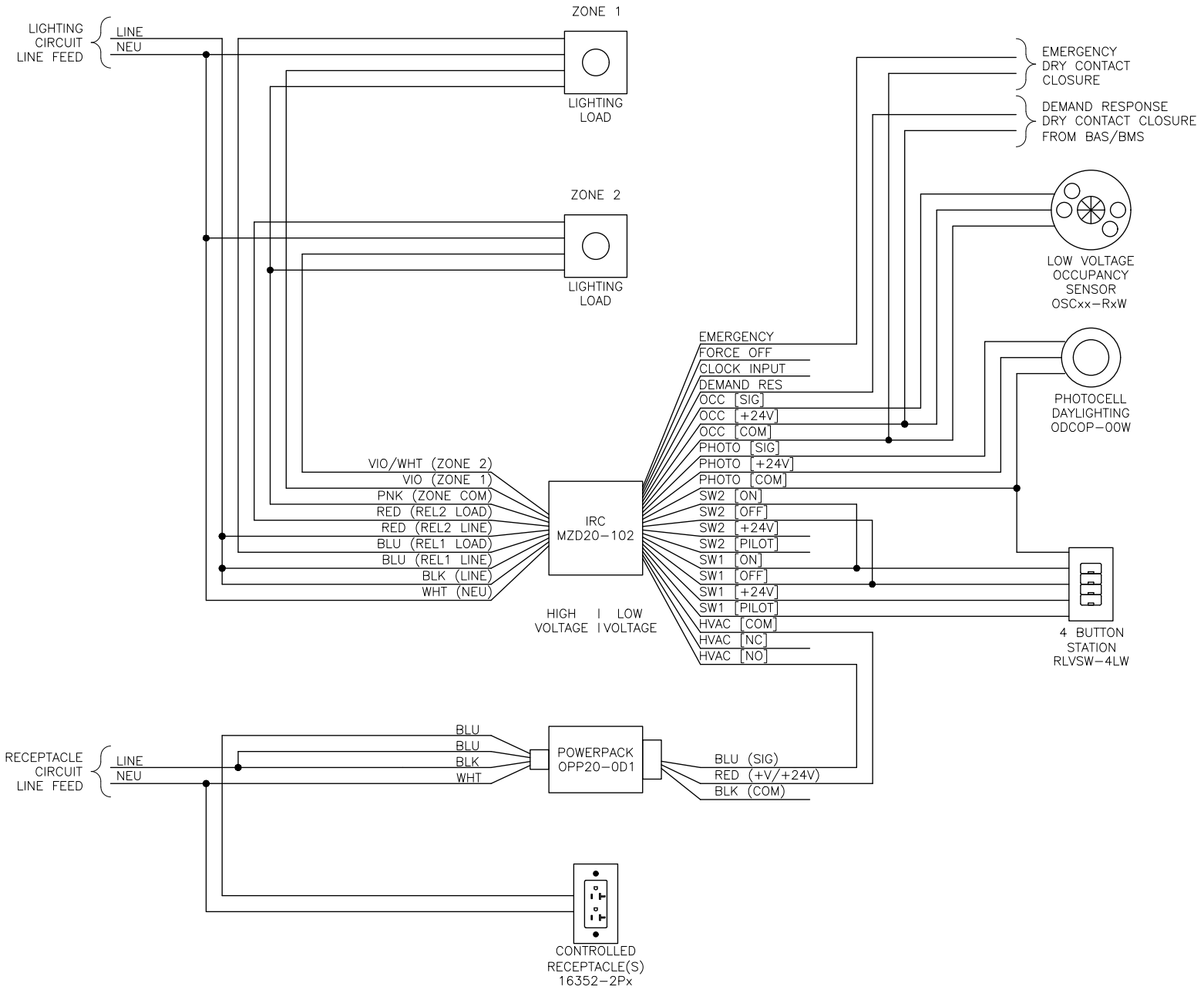

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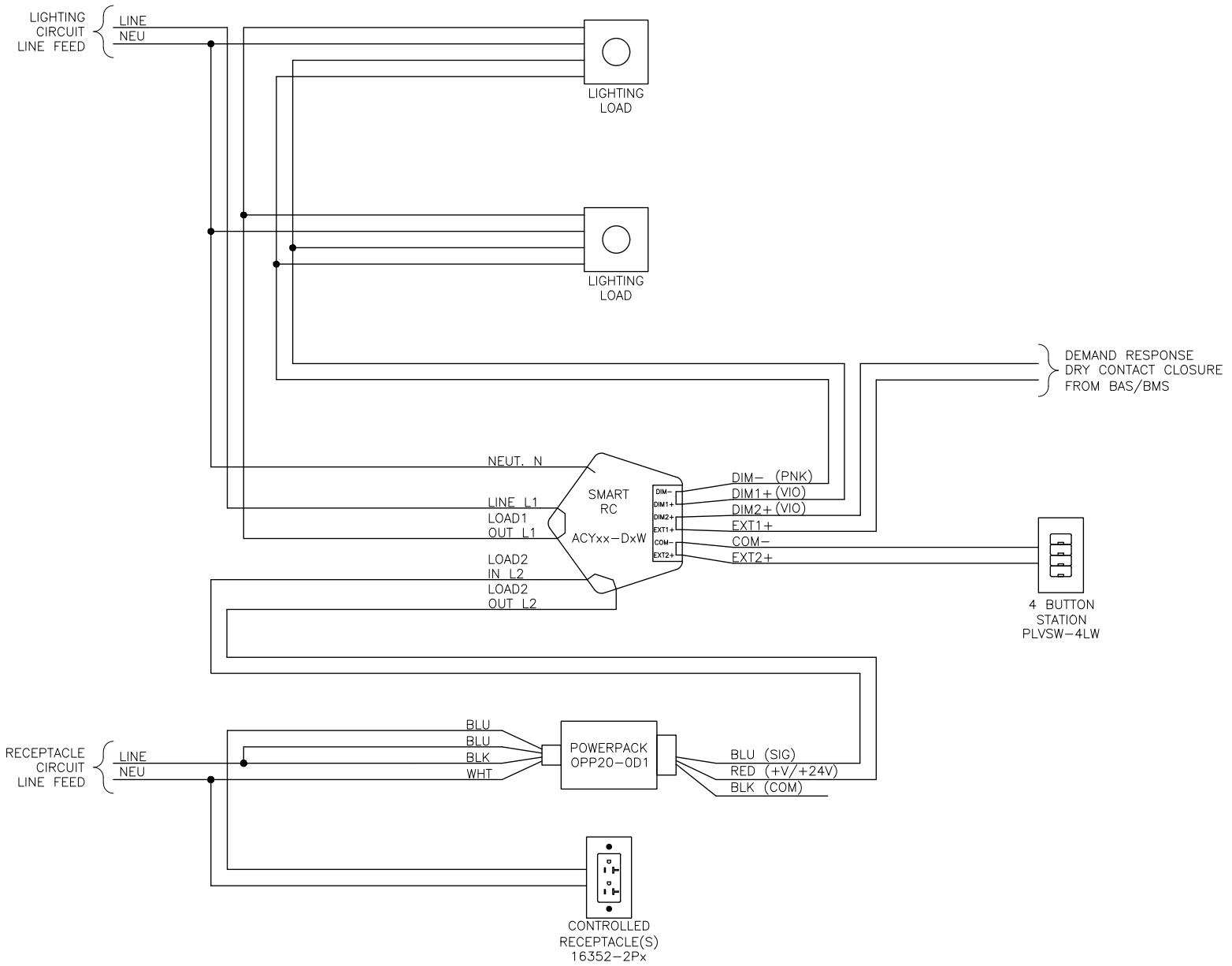
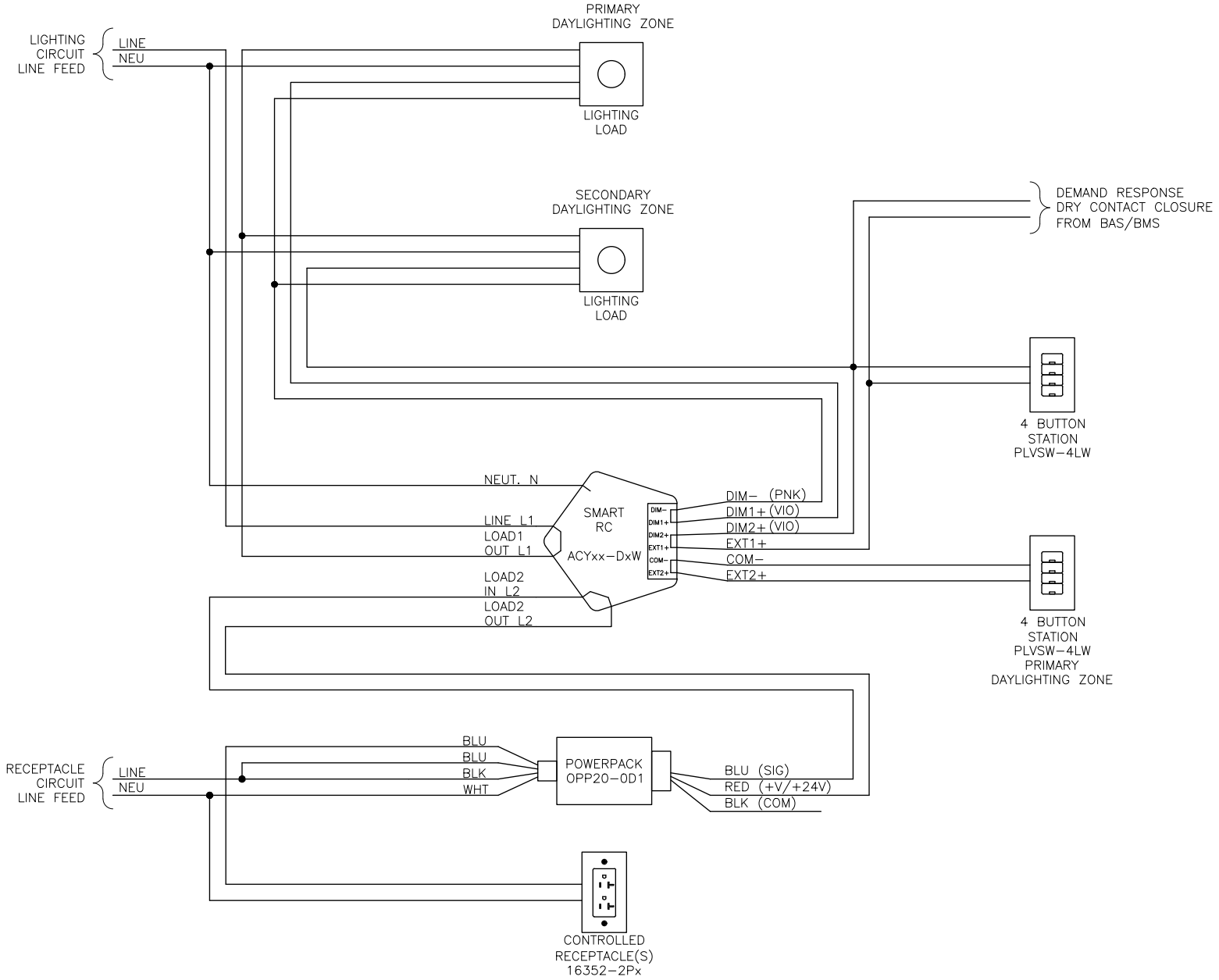



NOTES:

1. 0-10V PINK WIRE MAY BE GRAY.

# TITLE 24 SMALL OFFICE, SMART ROOM CONTROLLER (SRC), DUAL ZONE




NOTES:

1. 0-10V PINK WIRE MAY BE GRAY.

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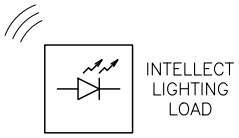
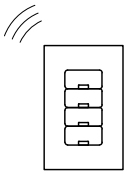
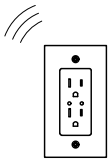


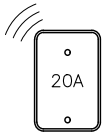
INTELLECT
LIGHTING
LOAD



GREENMAX DRC WIRELESS
KEYPAD ROOM CONTROLLER
DRKDN–U4W



ZIGBEE CONTROLLED
RECEPTACLE
ZSTLR–1HW

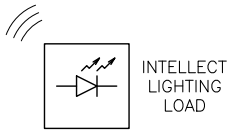



WIRELESS 20A
SWITCHING POWER PACK
LU20S–DNW

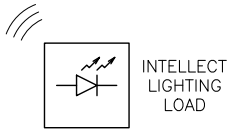
NOTES:

1. ALL DEVICES REQUIRE CONSTANT INPUT POWER. REFER TO PRODUCT LITERATURE (DATA SHEETS, INSTALLATION MANUALS, ETC) FOR MORE INFORMATION.

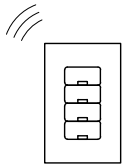
# TITLE 24 SMALL OFFICE, GREENMAX DRC WIRELESS WITH INTELLECT-ENABLED FIXTURES AND WIRELESS DEVICES, DUAL ZONE



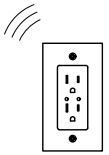
INTELLECT
LIGHTING
LOAD



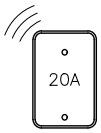
INTELLECT
LIGHTING
LOAD



GREENMAX DRC WIRELESS
KEYPAD ROOM CONTROLLER
DRKDN–U4W



ZIGBEE CONTROLLED
RECEPTACLE
ZSTLR–1HW




WIRELESS 20A
SWITCHING POWER PACK
LU20S–DNW

NOTES:

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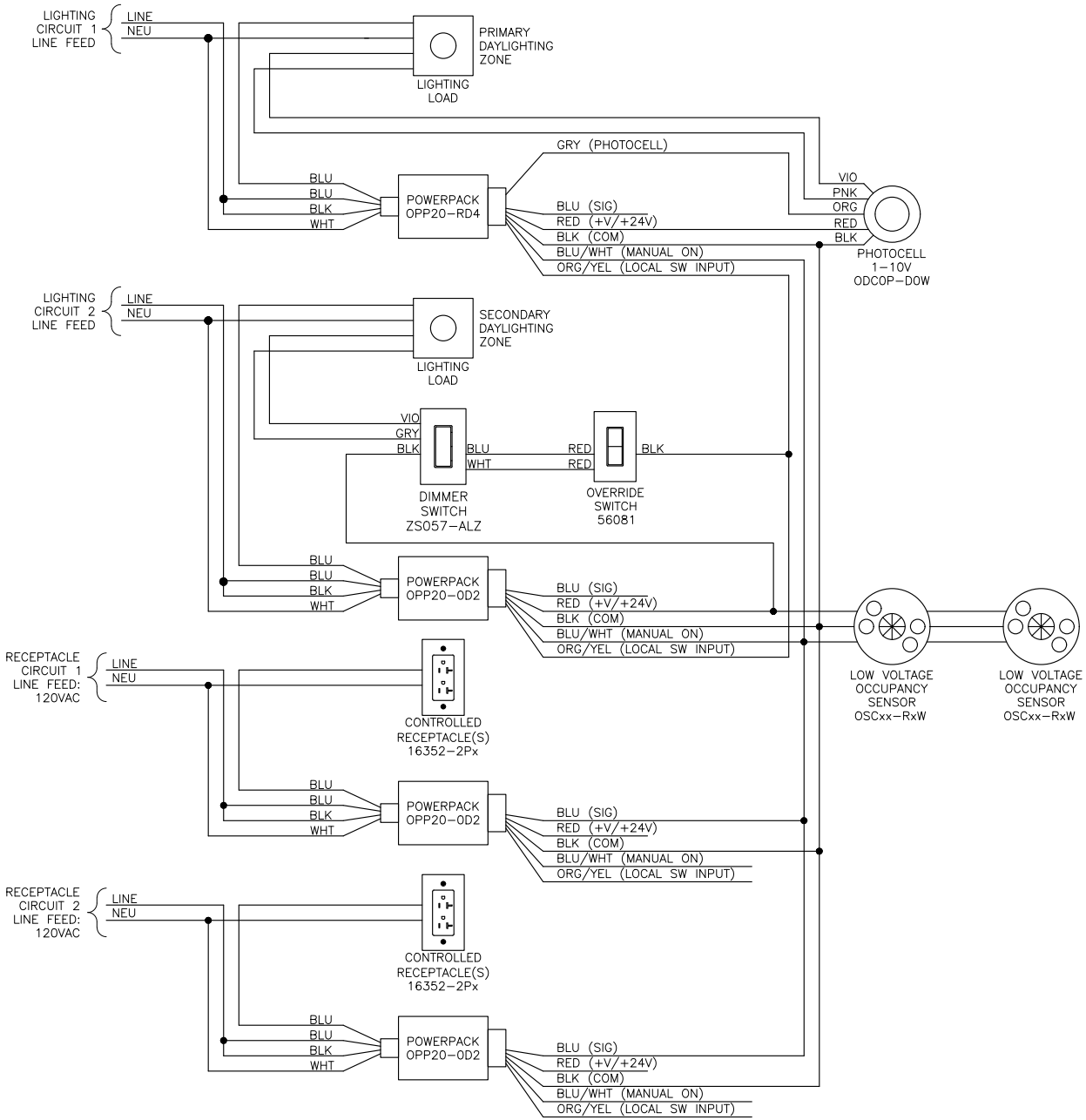
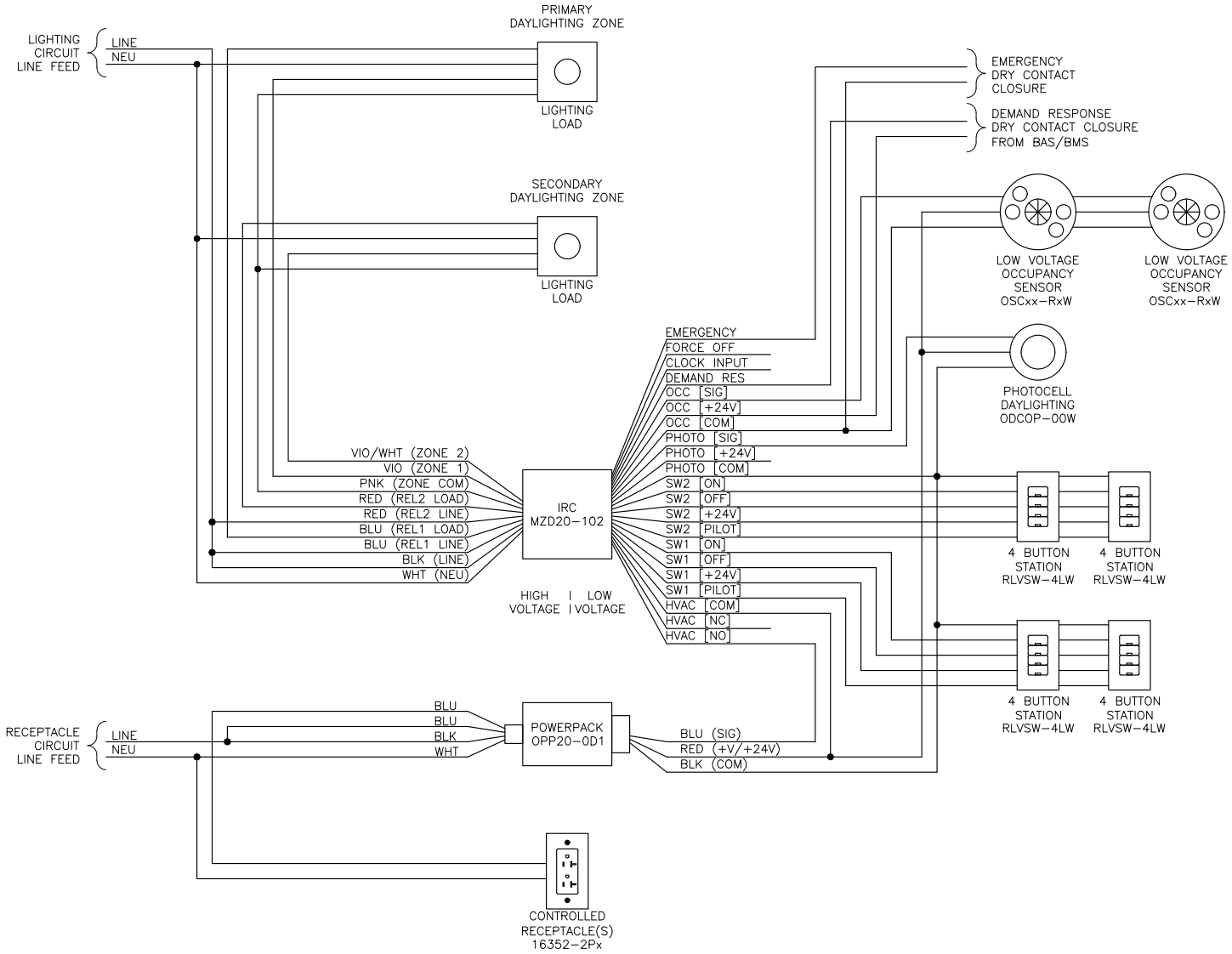
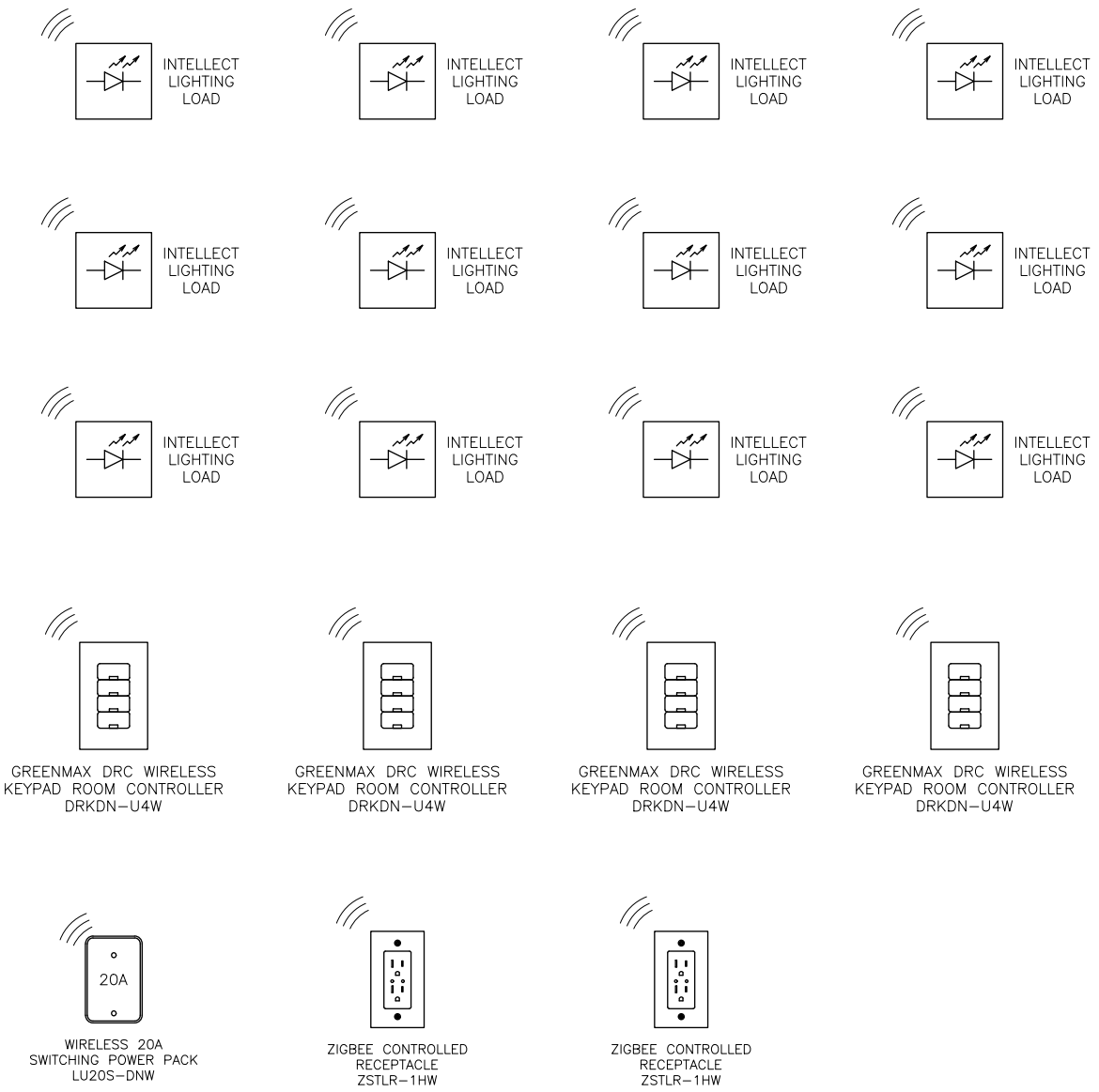
# TITLE 24 OPEN OFFICE, POWER PACKS



# TITLE 24 OPEN OFFICE, IRC



# TITLE 24 OPEN OFFICE, GREENMAX DRC WIRELESS WITH INTELLECT-ENABLED FIXTURES AND WIRELESS DEVICES




NOTES:

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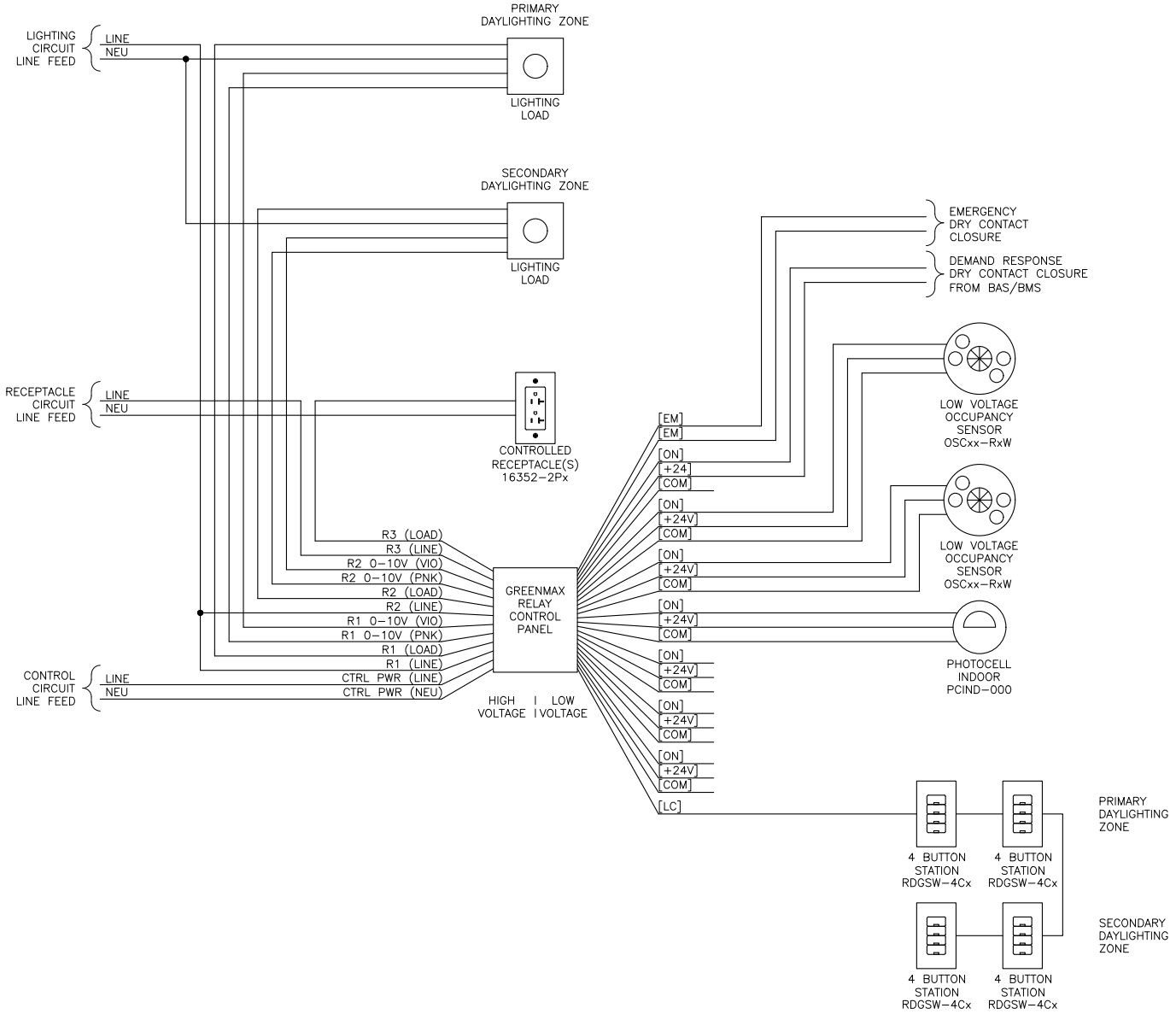
# TITLE 24 OPEN OFFICE, GREENMAX AND DRC



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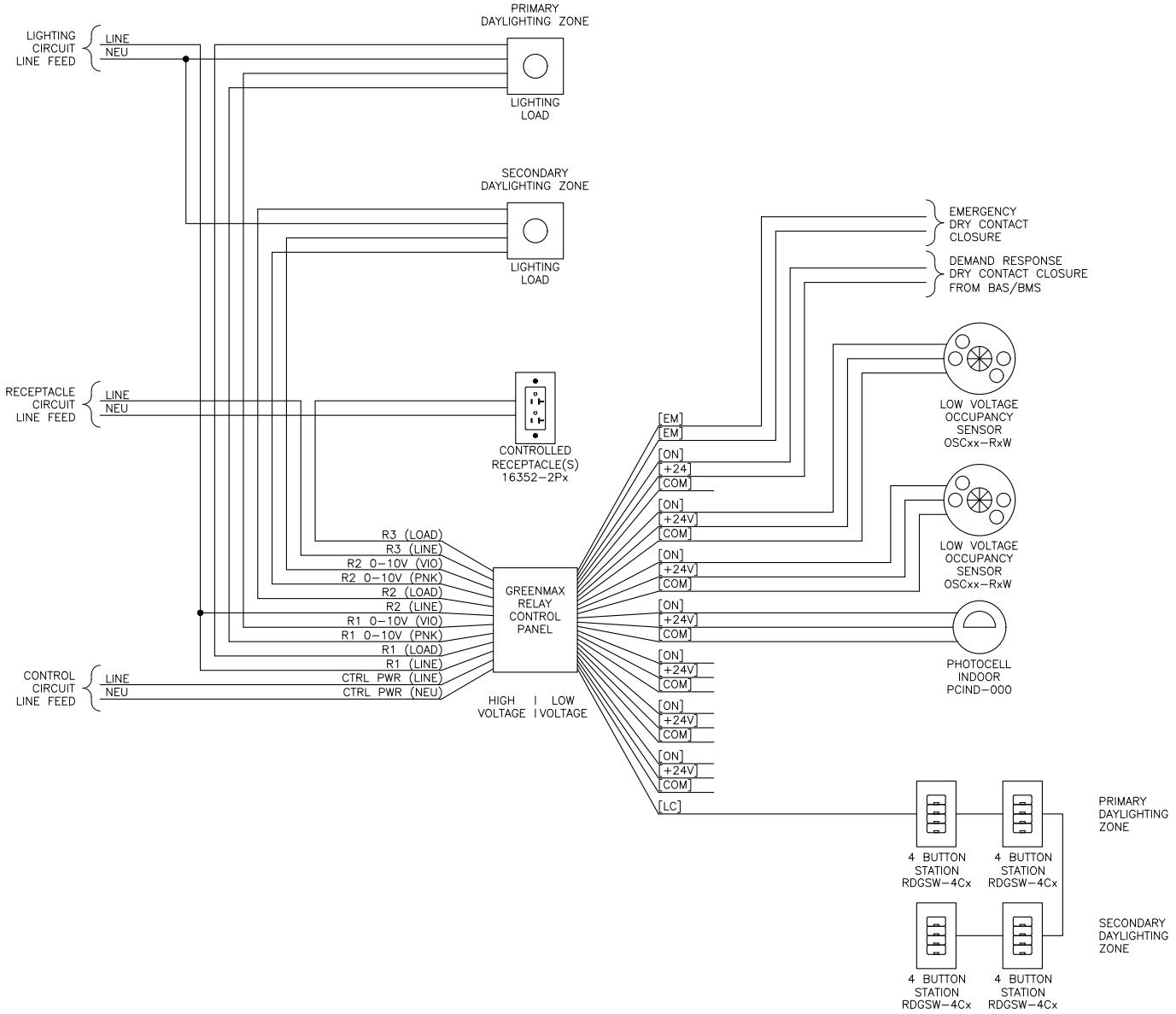

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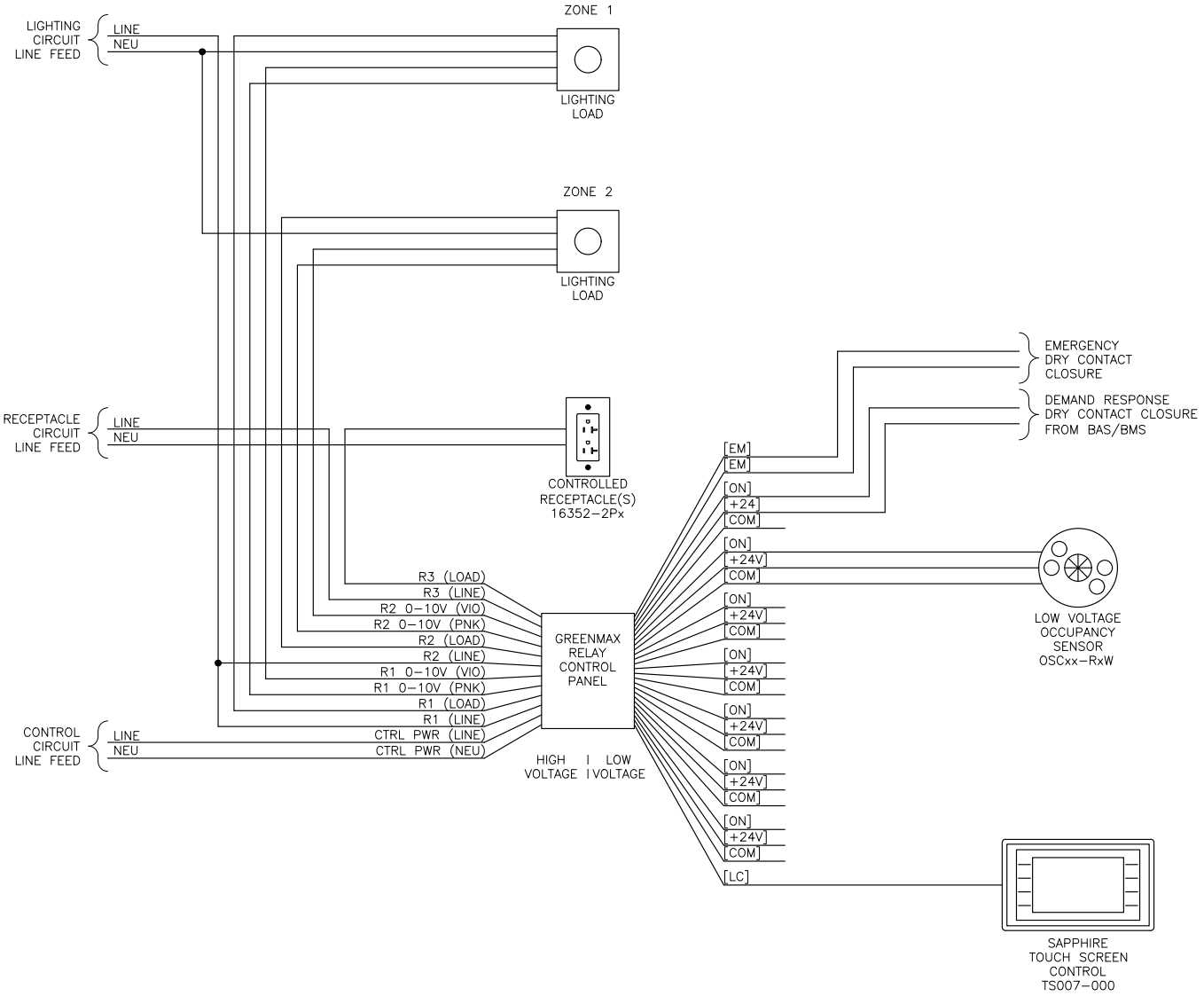

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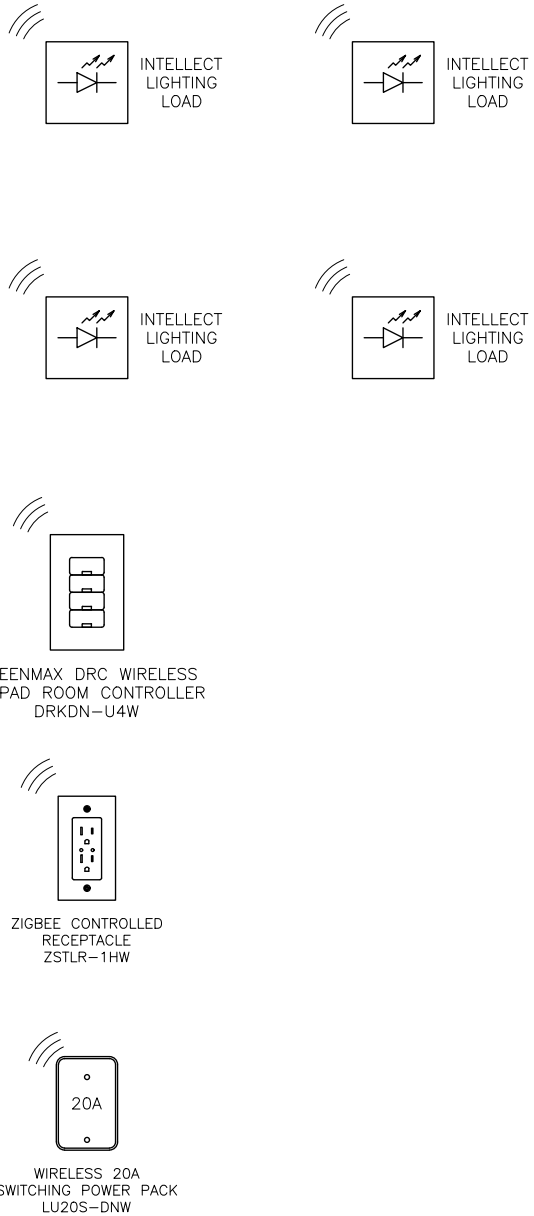


NOTES:

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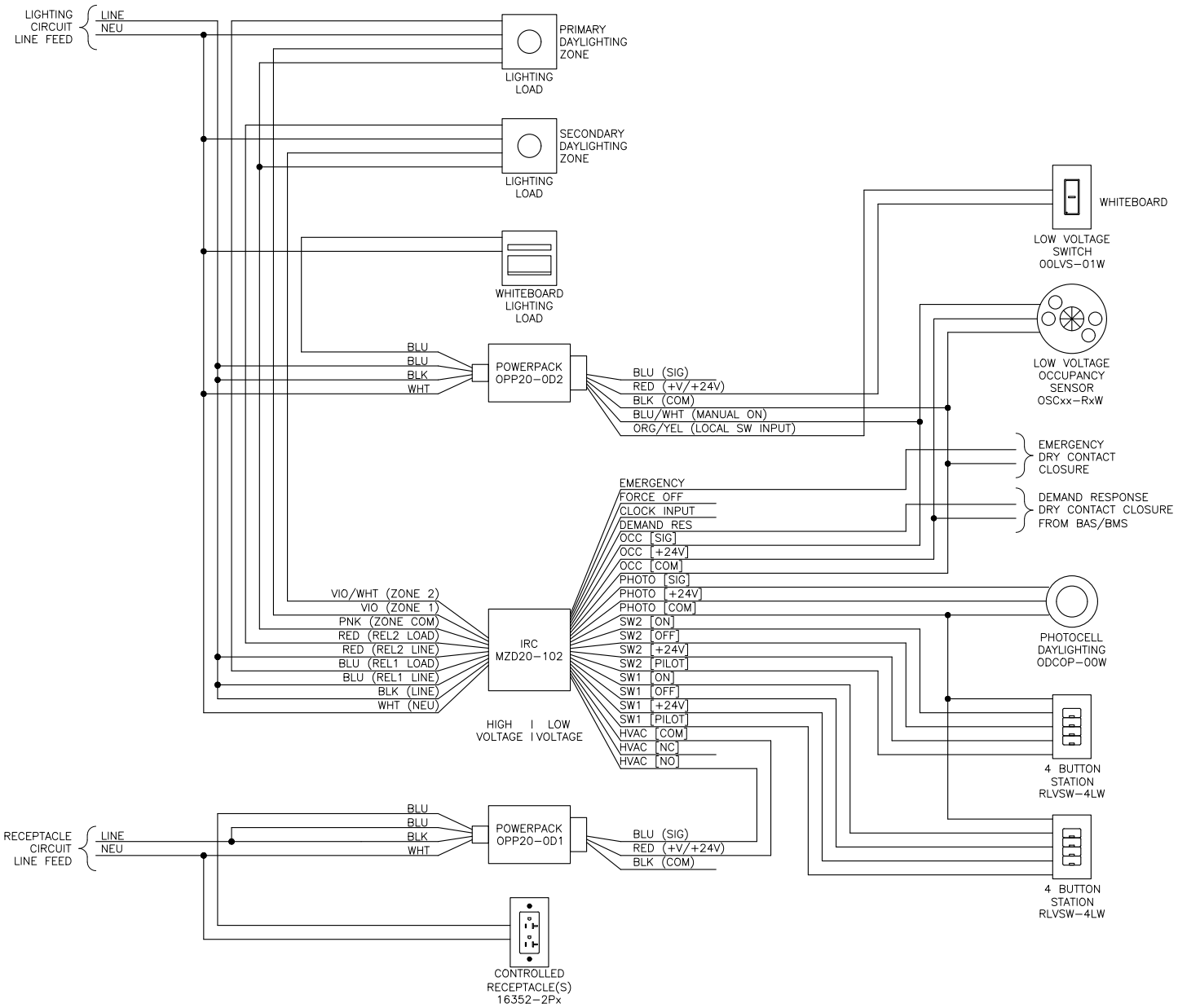
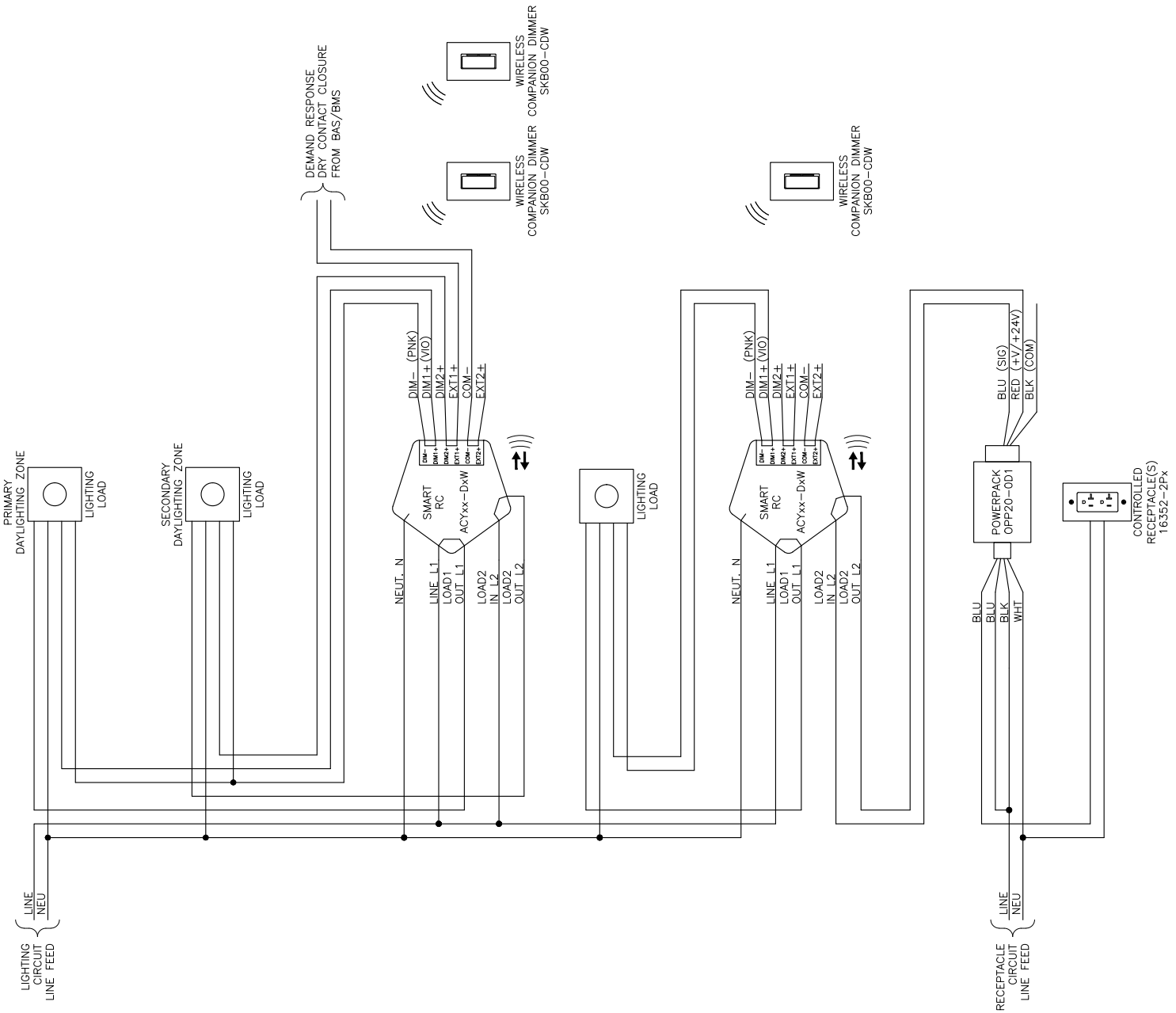
# TITLE 24 CLASSROOM, IRC

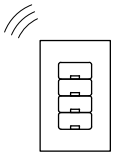


# TITLE 24 CLASSROOM WITH DEMAND RESPONSE, SMART ROOM CONTROLLER (SRC)

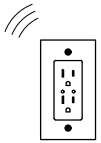



NOTES:
1. 0-10V PINK WIRE MAY BE GRAY.

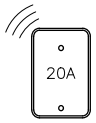
# TITLE 24 CLASSROOM, GREENMAX DRC WIRELESS WITH INTELLECT-ENABLED FIXTURES AND WIRELESS DEVICES



GREENMAX DRC WIRELESS
KEYPAD ROOM CONTROLLER
DRKDN–U4W



ZIGBEE CONTROLLED
RECEPTACLE
ZSTLR–1HW




WIRELESS 20A
SWITCHING POWER PACK
LU20S–DNW

NOTES:

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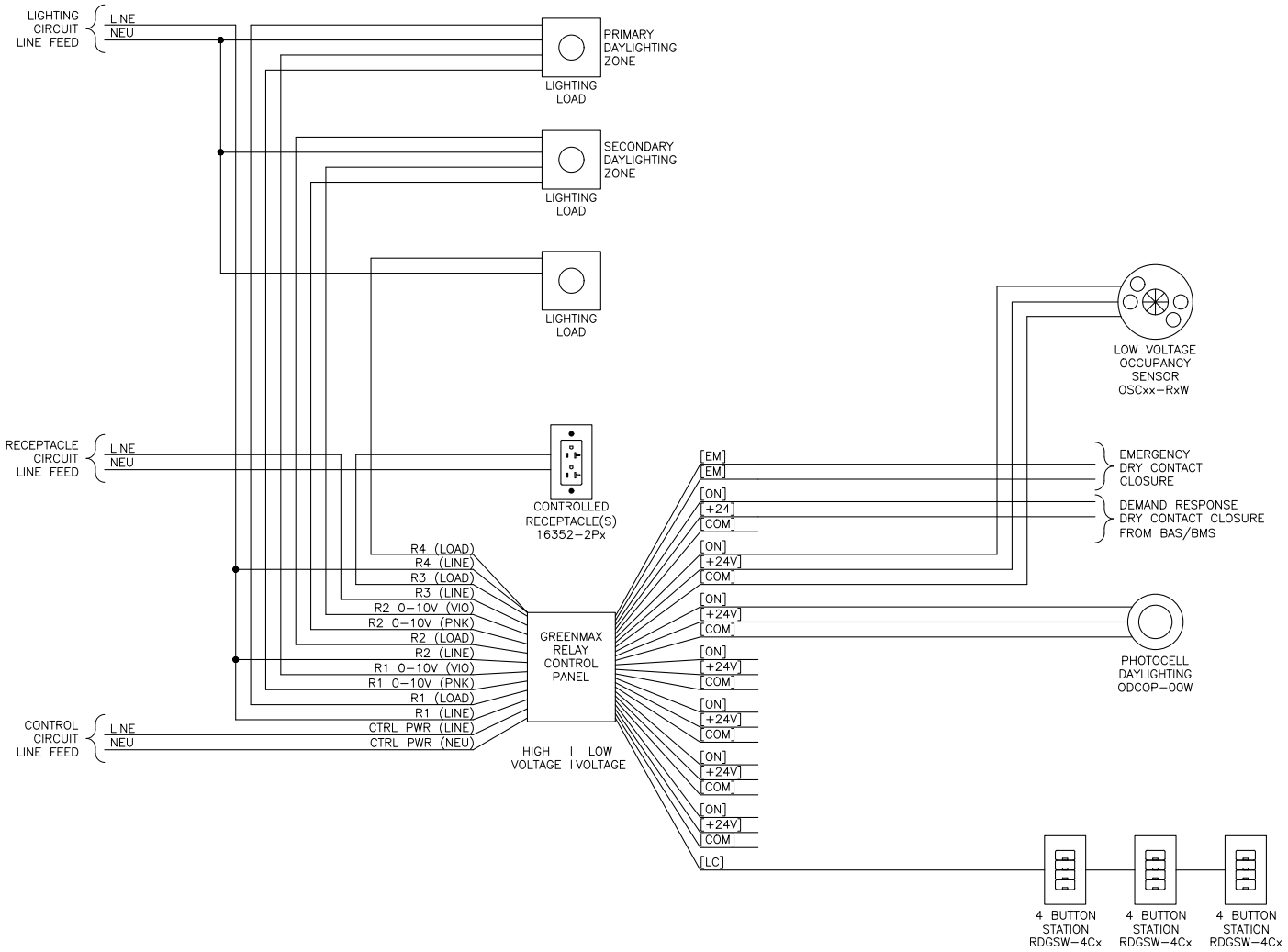
# TITLE 24 CLASSROOM, GREENMAX



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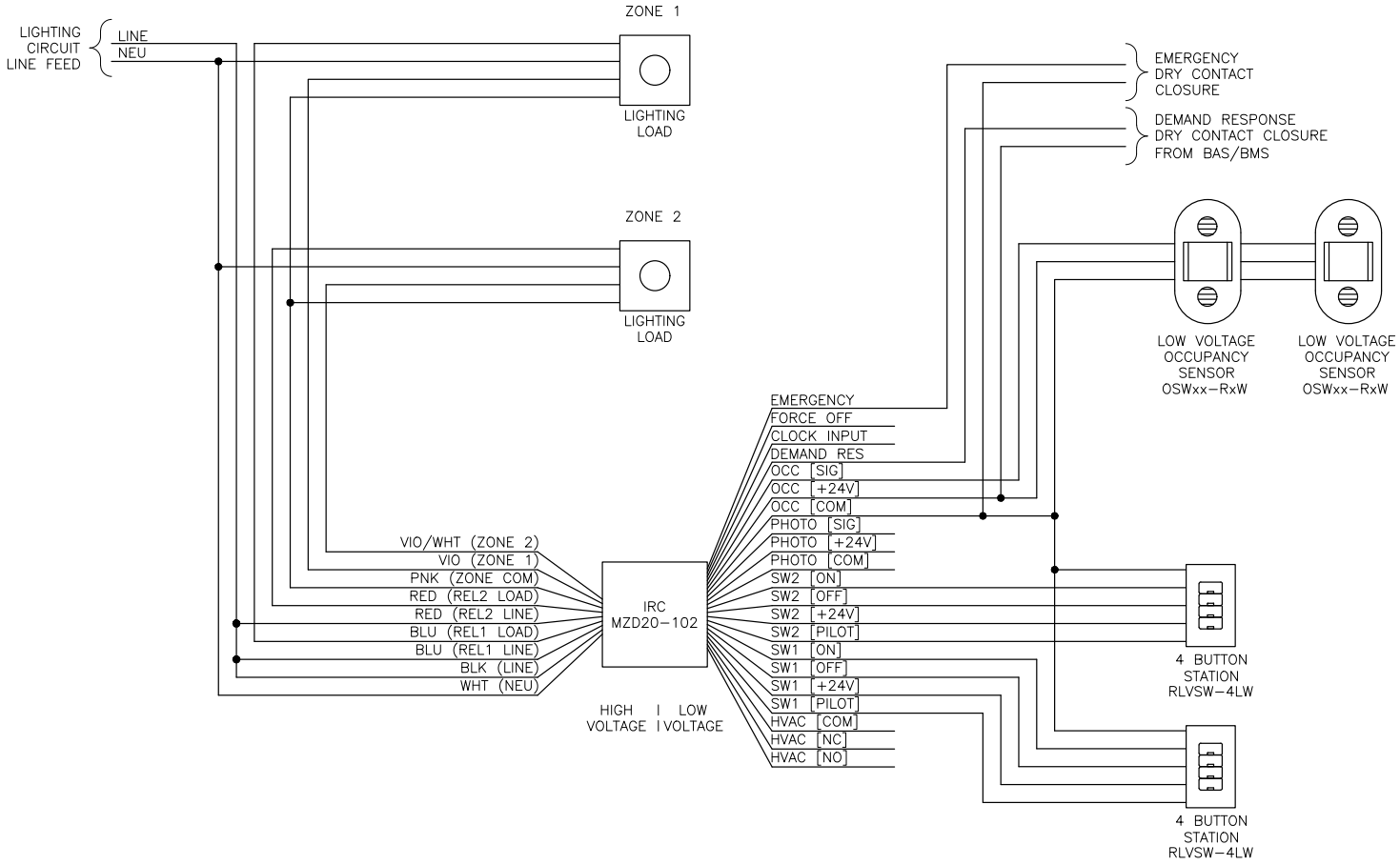
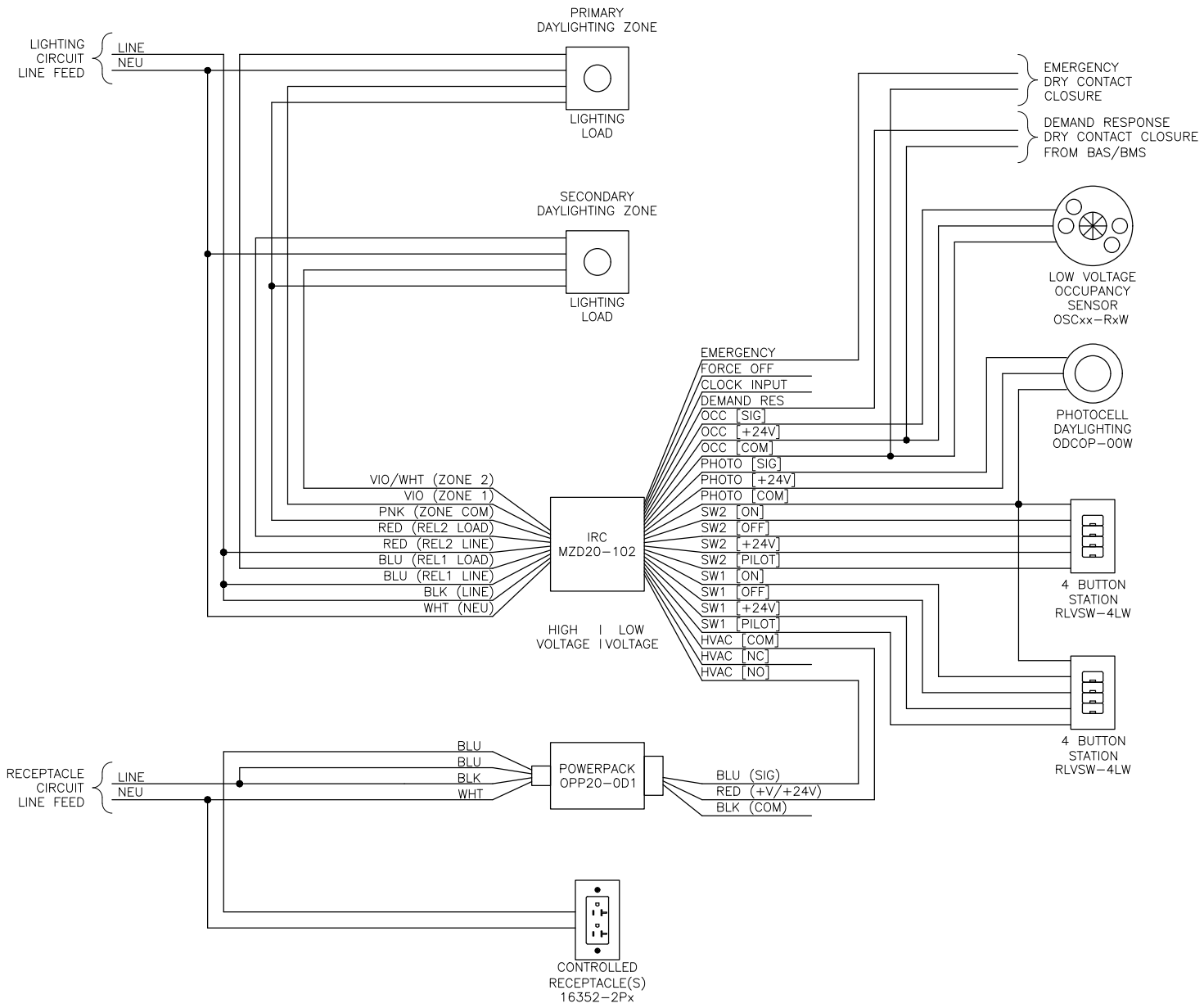
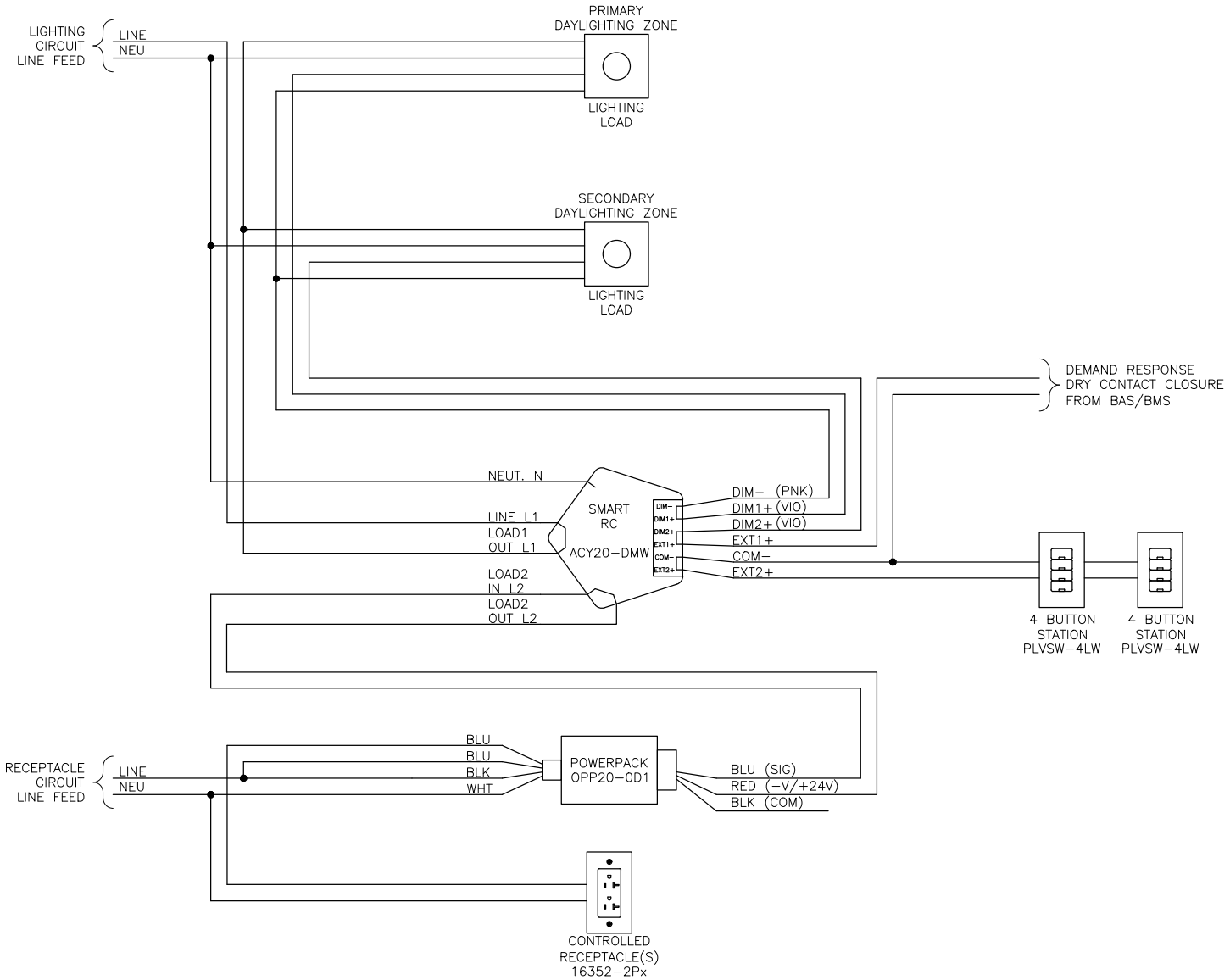


# TITLE 24 COMMON AREA, IRC



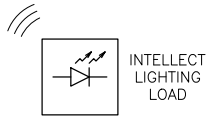
# TITLE 24 COMMON AREA, SMART ROOM CONTROLLER (SRC)

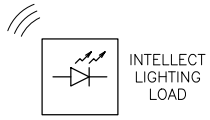


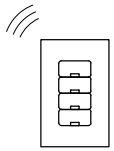

NOTES:

1. 0-10V PINK WIRE MAY BE GRAY.

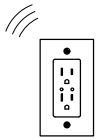
# TITLE 24 COMMON AREA, GREENMAX DRC WIRELESS WITH INTELLECT-ENABLED FIXTURES AND WIRELESS DEVICES



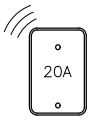



GREENMAX DRC WIRELESS
KEYPAD ROOM CONTROLLER
DRKDN–U4W



ZIGBEE CONTROLLED
RECEPTACLE
ZSTLR–1HW

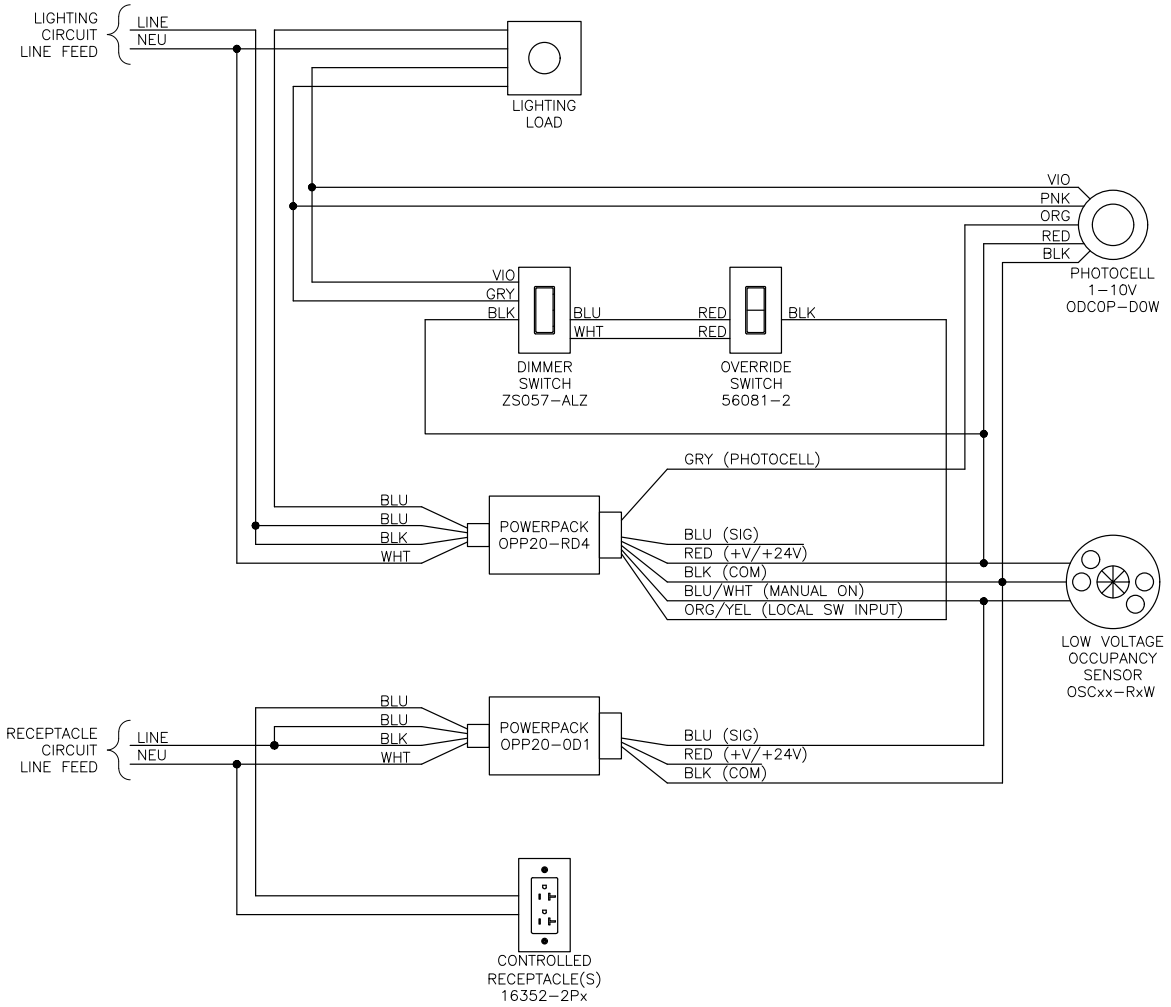



WIRELESS 20A
SWITCHING POWER PACK
LU20S–DNW

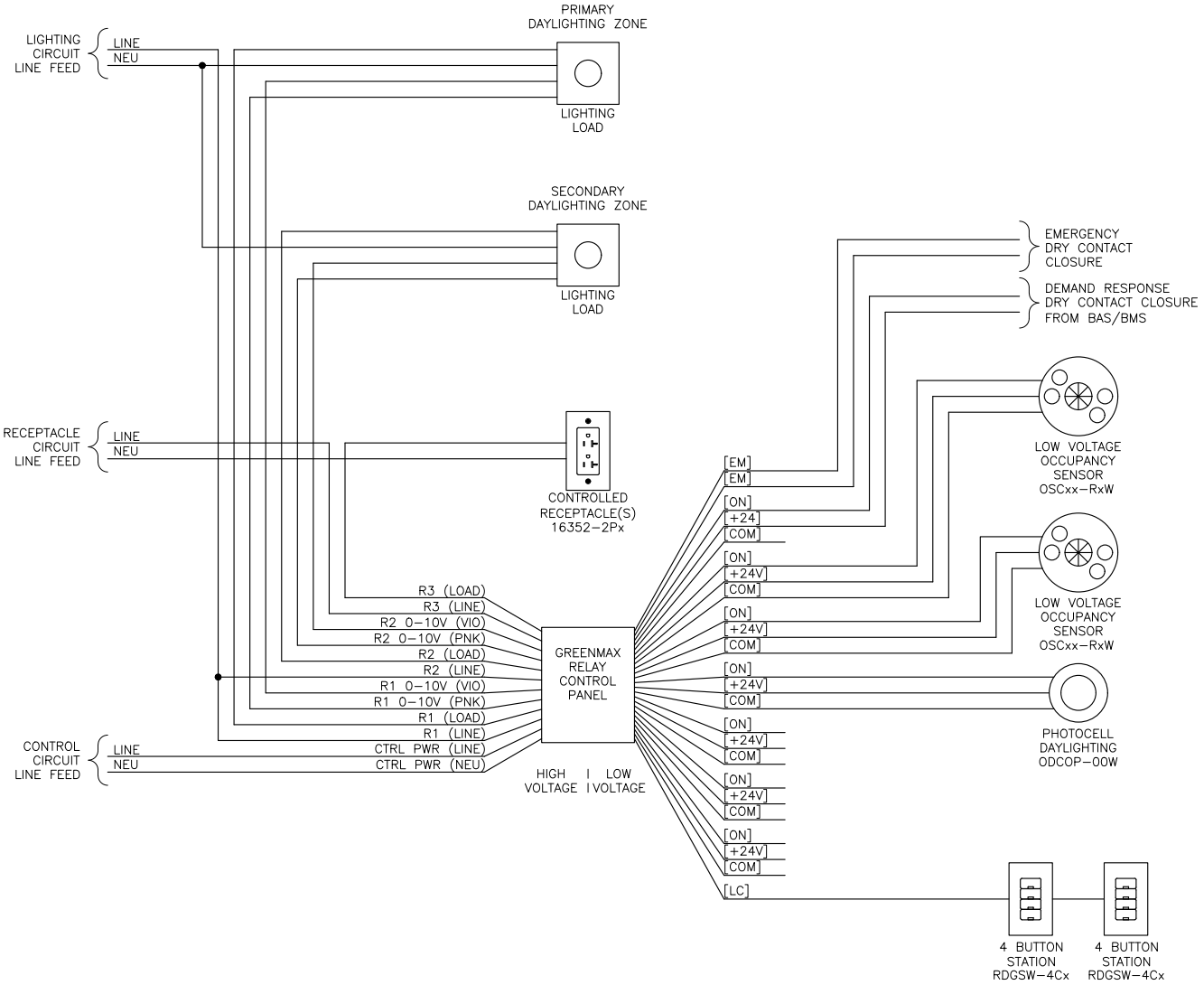
NOTES:

1. ALL DEVICES REQUIRE CONSTANT INPUT POWER. REFER TO PRODUCT LITERATURE (DATA SHEETS, INSTALLATION MANUALS, ETC) FOR MORE INFORMATION.

# TITLE 24 COMMON AREA, 0-10V PHOTOCELL

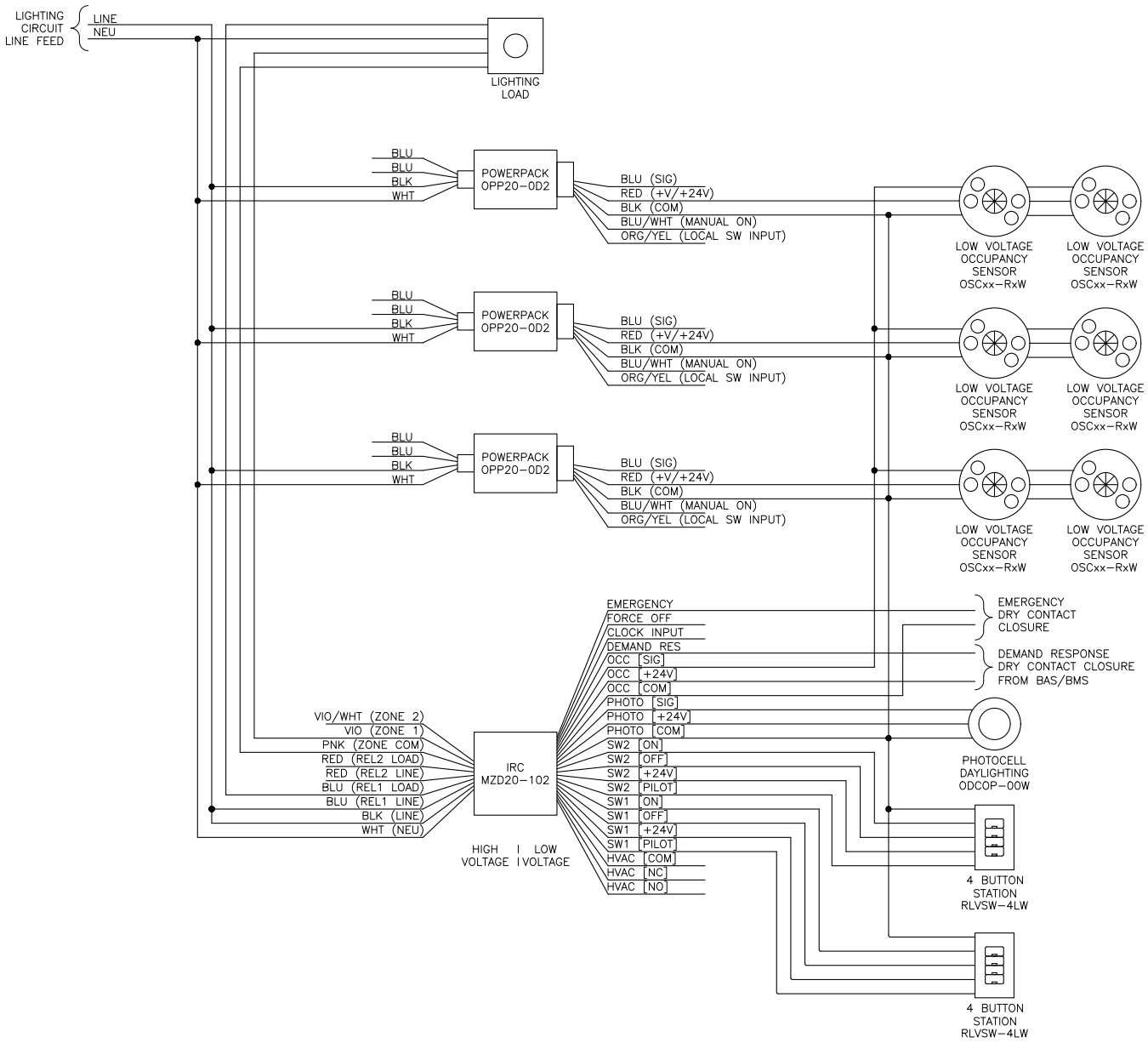


# TITLE 24 COMMON AREA, GREENMAX

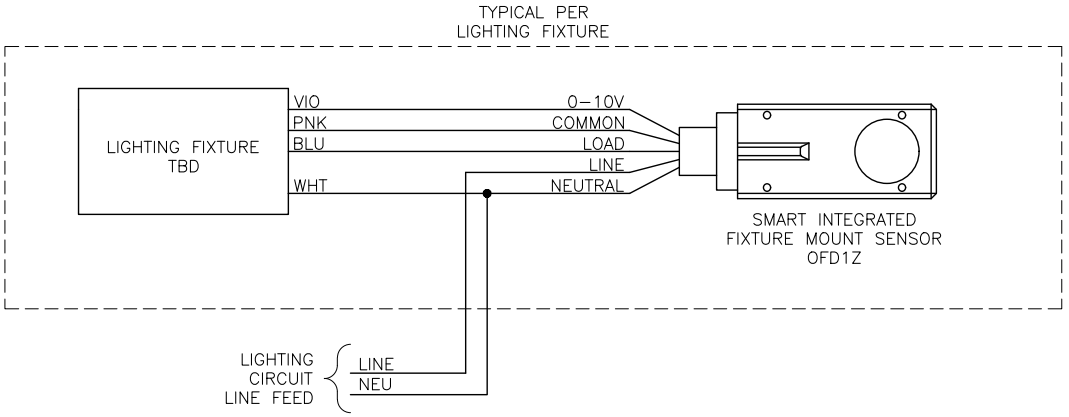



NOTES:
1. 0-10V PINK WIRE MAY BE GRAY.

# TITLE 24 PARKING GARAGE, IRC



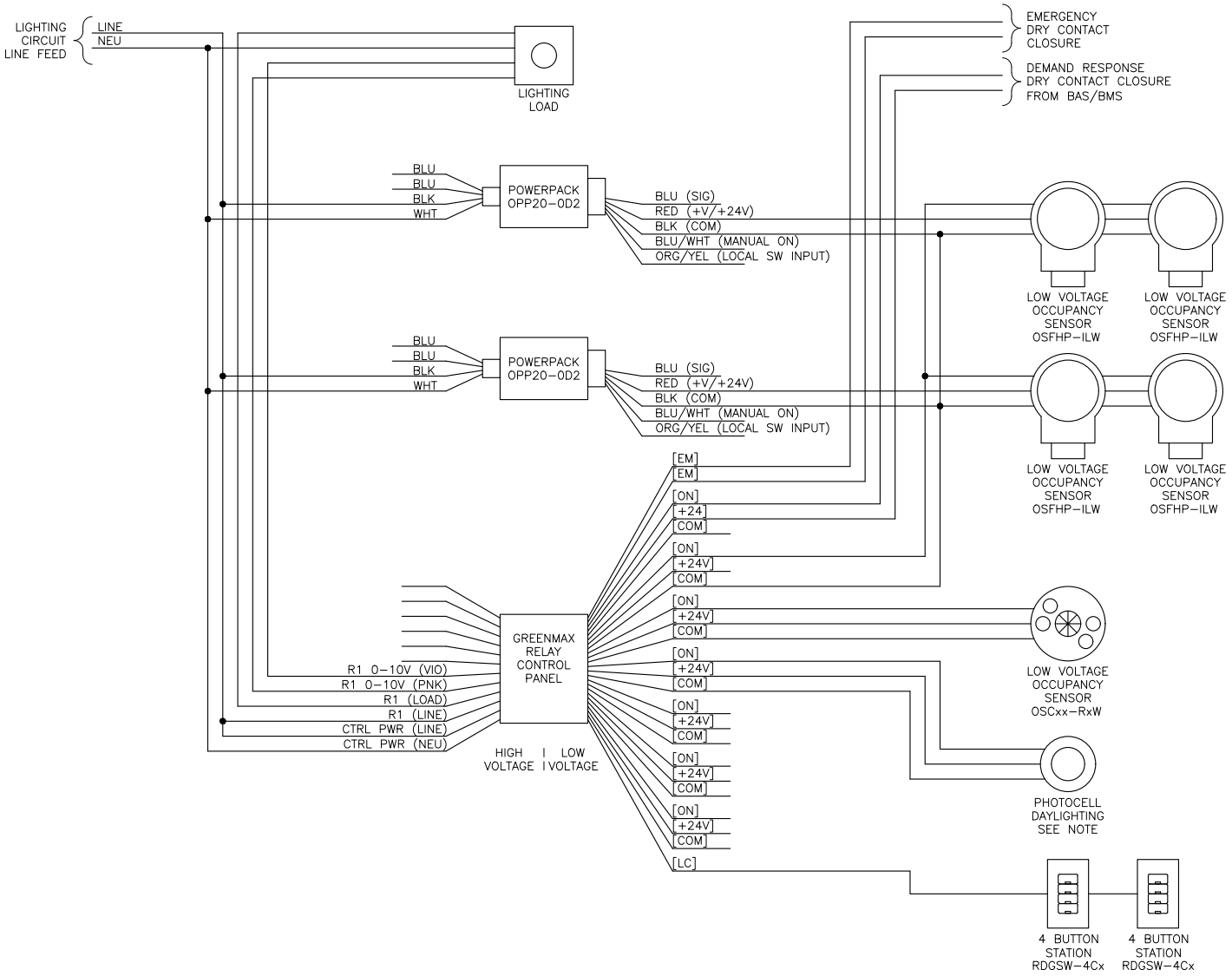
# TITLE 24 PARKING GARAGE, SMART INTEGRATED FIXTURE MOUNT SENSOR




NOTES:

1. REFER TO PRODUCT LABELS AND INSTALL SHEETS FOR ADDITIONAL INSTALLATION DETAILS.
2. INDIVIDUALLY CAP OFF UNUSED CONDUCTORS.
3. DIAGRAM ASSUMES LIGHTING LOAD IS WITHIN DEVICE SPECIFICATIONS.
4. INSTALLING CONTRACTOR TO PROVIDE ENVIRONMENTALLY RATED ENCLOSURES FOR EQUIPMENT AND TERMINATIONS PER APPLICABLE CODES AND BEST PRACTICES.

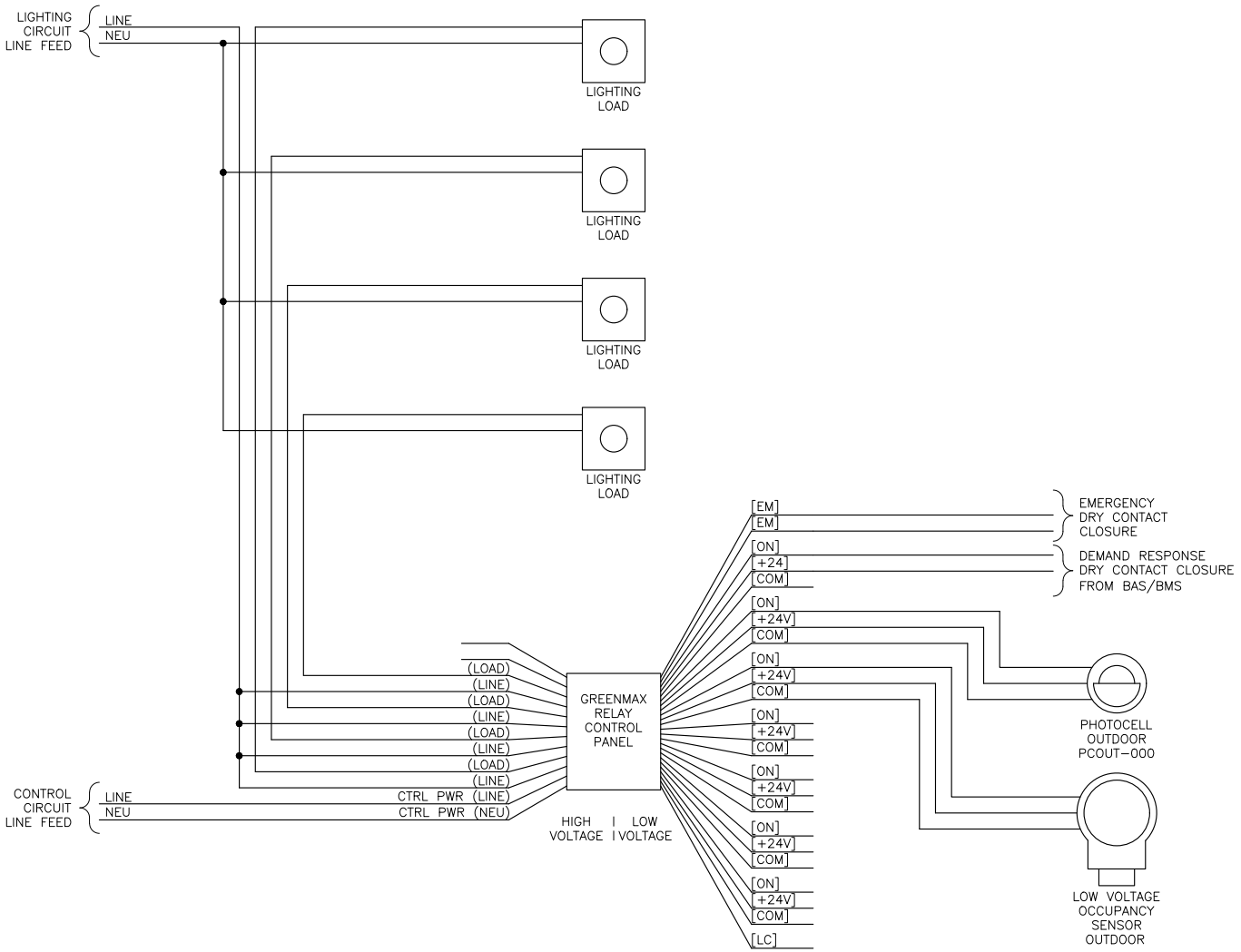
# TITLE 24 PARKING GARAGE, GREENMAX



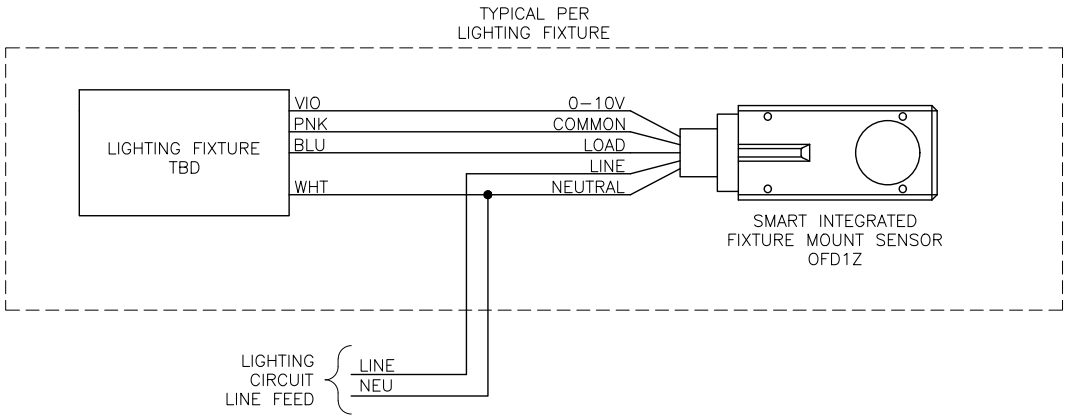

NOTES:

1. PHOTOCELL: ODCOP-00W, PCIND, PCATR, PCOUT, PCSKY.
2. 0-10V PINK WIRE MAY BE GRAY.

# TITLE 24 SITE LIGHTING, GREENMAX



# TITLE 24 SITE LIGHTING, SMART INTEGRATED FIXTURE MOUNT SENSOR




NOTES:

1. REFER TO PRODUCT LABELS AND INSTALL SHEETS FOR ADDITIONAL INSTALLATION DETAILS.
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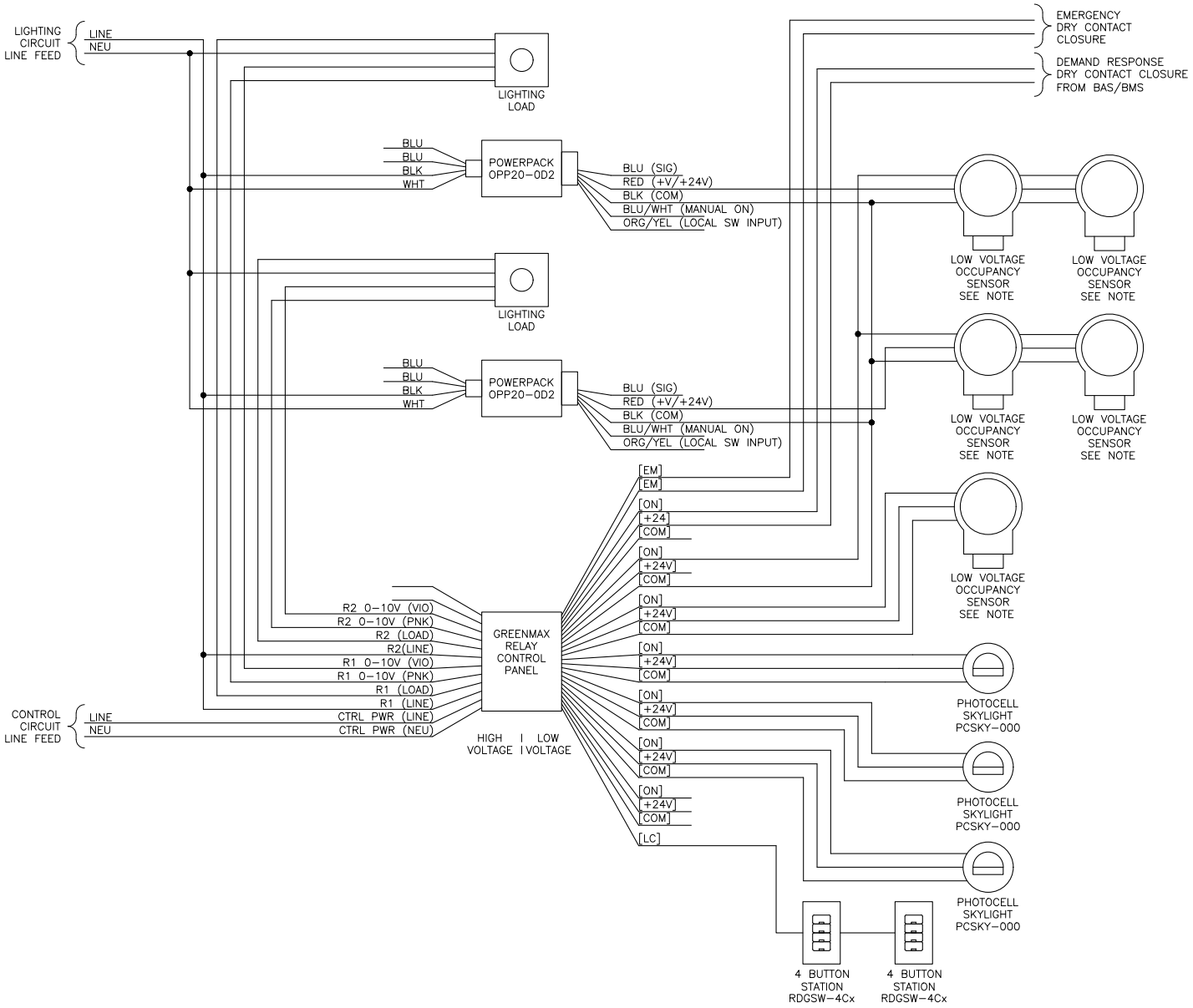
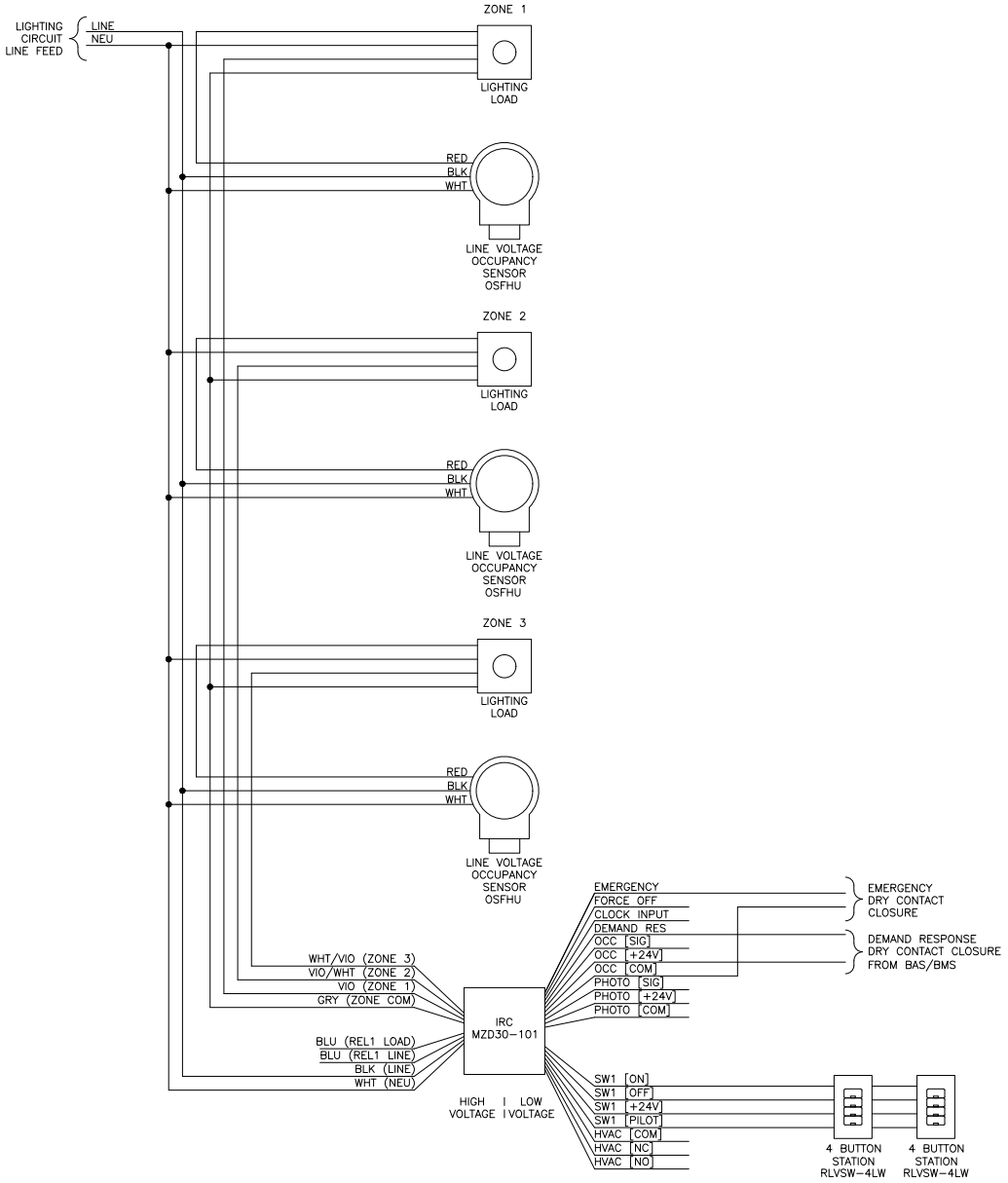
# TITLE 24 WAREHOUSE, GREENMAX



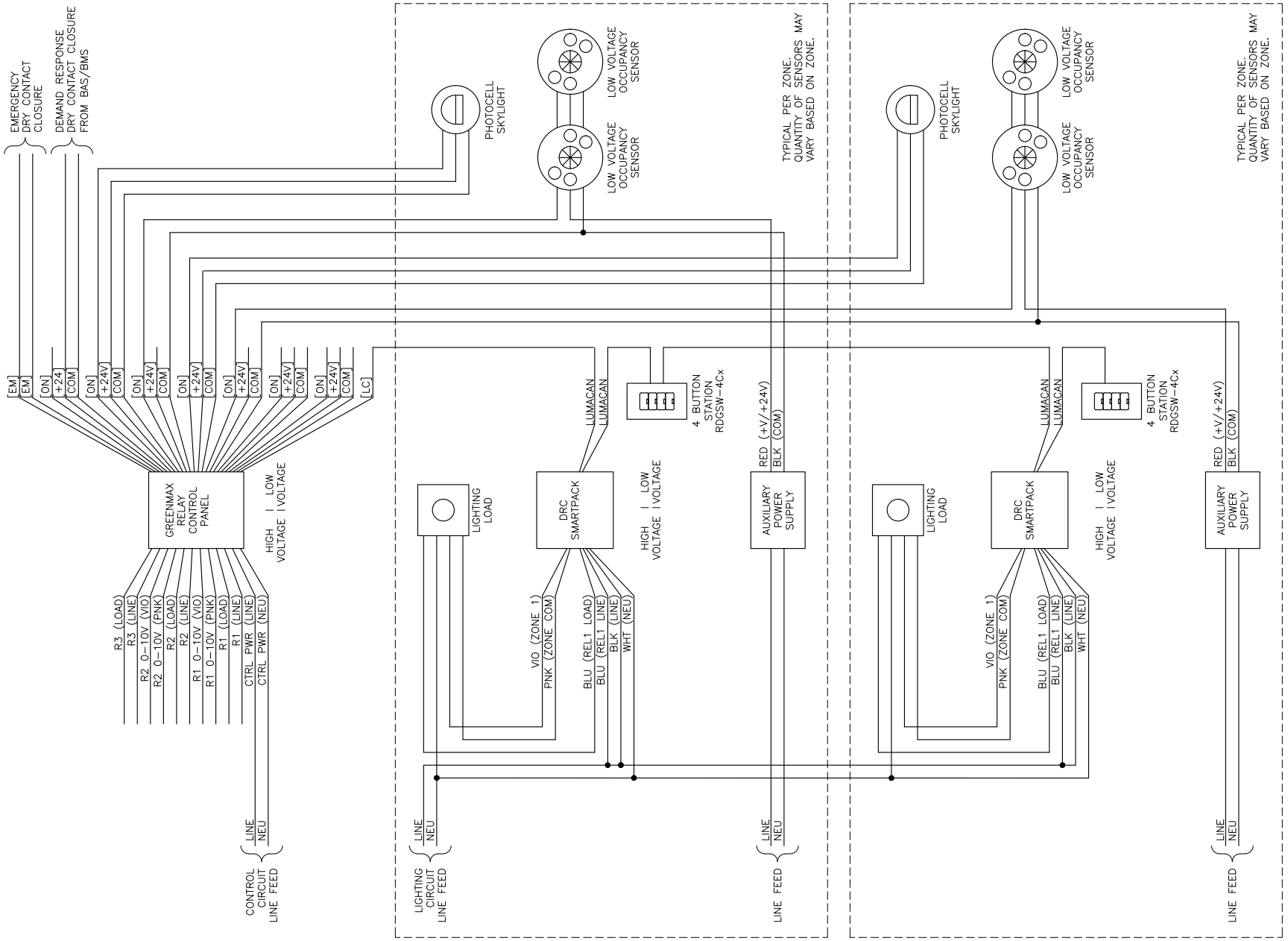

NOTES:

1. OCCUPANCY SENSORS: OSWHB FOR ROW CONTROL, OR OSFHP-ILW FOR FIXTURE CONTROL.
2. 0-10V PINK WIRE MAY BE GRAY.

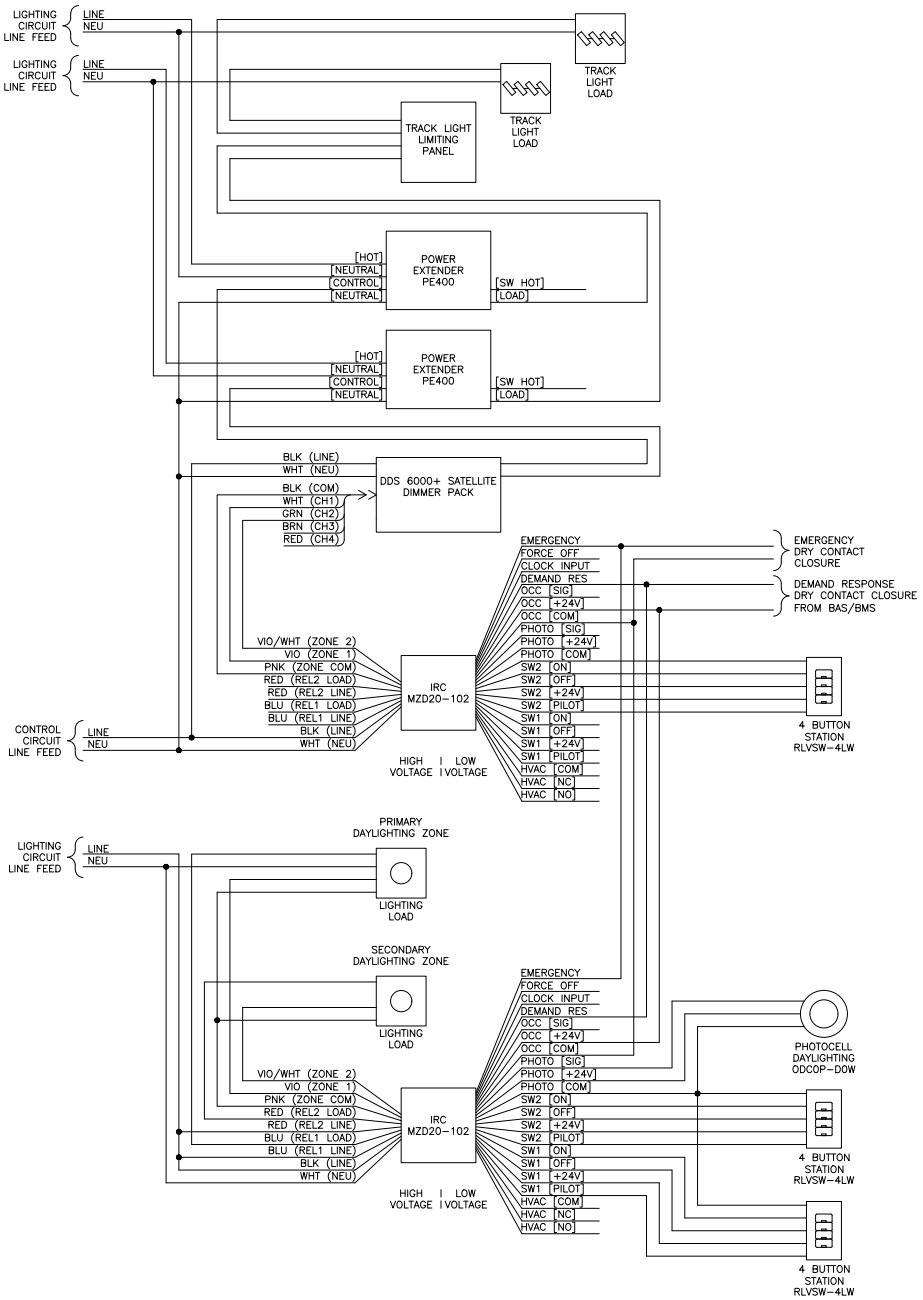
# TITLE 24 WAREHOUSE, IRC



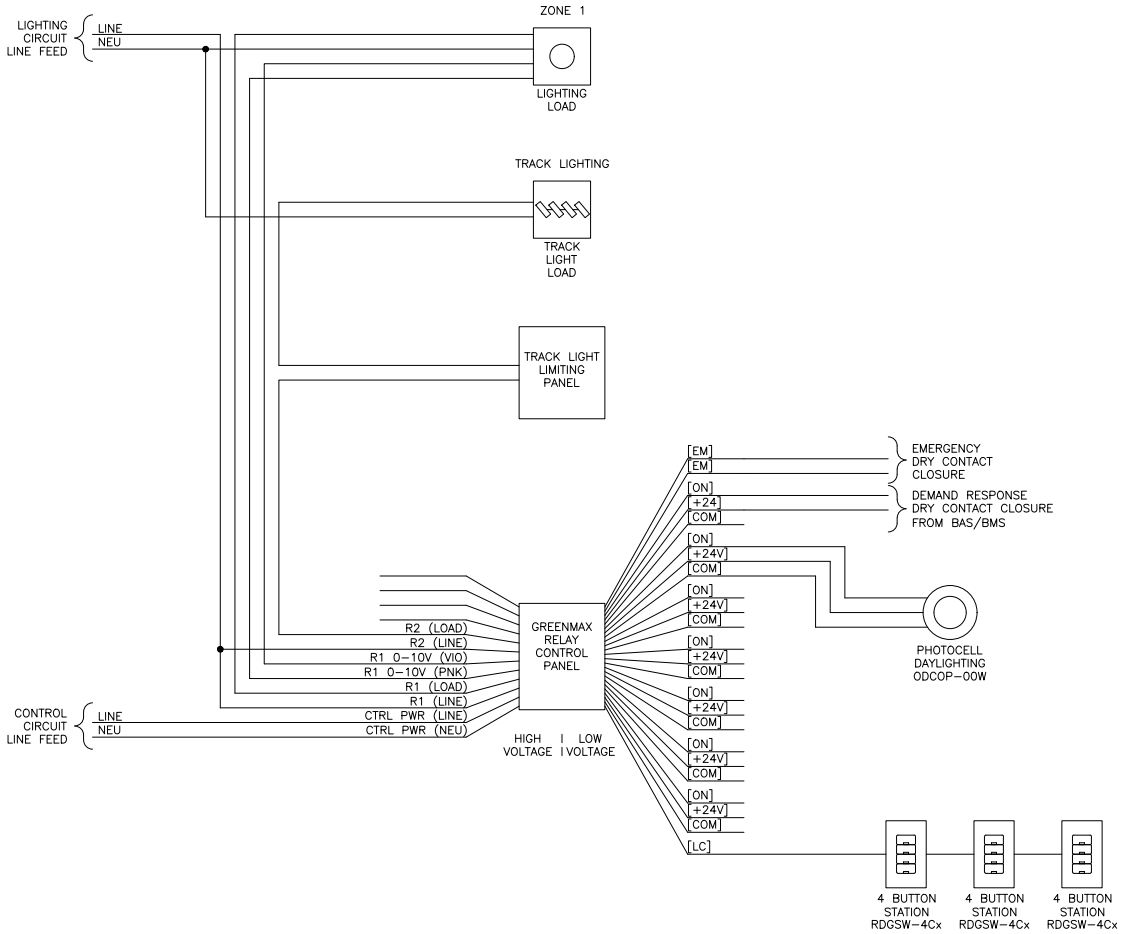
# TITLE 24 WAREHOUSE, OSF20-ILW/OSFHP-ILW



# TITLE 24 RETAIL SPACE, IRC



# TITLE 24 RETAIL SPACE, GREENMAX




NOTES:
1. 0–10V PINK WIRE MAY BE GRAY.

**Leviton Manufacturing Co., Inc. Lighting & Controls**
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**Leviton Manufacturing Co., Inc. Global Headquarters**
201 North Service Road, Melville, NY 11747-3138 **tel** 800-323-8920 **tech line** (8:00AM-10:00PM ET Mon-Fri, 9:00AM-7:00PM ET Sat, 9:00AM-5:00PM ET Sun) 800-824-3005

**Visit our Website at: www.leviton.com/title24**

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