coloronix®

RGBW RECESSED LIGHTING MANUAL

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Contents

Summary

Introduction

RGBW Color Changing Downlights are active, top-of-the-line color changing fixtures. They draw on solid-state elements in order to produce highlights and washes in architectural spaces.

More specifically, "RGBW" is an acronym for "Red, Green, Blue, and White". RGBW LED color mixing luminaires have the potential to produce 4.3 billion colors, and 16.7 million white light tones.

When installed and operated according to this manual, these downlights will operate safely and dependably for their rated lifespan.

These luminaries require a USITT DMX 512 control signal on four consecutive channels total. The unit includes a DATA OUT output for connection to additional units or other DMX512 devices. A Color Ray Signal from the internal stand-alone controller or external controller can be used as well.

The downlights are UL 1598 damp location rated for use in indoor or outdoor environments.

Scope

The purpose of this manual is to properly install and use color changing downlights at peak performance.

This manual must be complimented by additional references, consultation from qualified professional(s), and observance of state and local codes and regulations. This rule applies to any interior structure, exterior structure, or environment.

Therefore, it is important to: *"please read and comply with all instructions and warnings in this manual when installing or using this product."*

Who Is This Manual Intended for?

This manual is intended for electrical contractors, electrical engineers, and licensed electricians.

Additional Supplies

DMX control cable: Belden© 9841 or CAT5 RJ45 Cable
DMX512 compatible controller or Coloronix Color Ray Device (optional)

Safety

Hazard Icon Key:

The "⚠ **DANGER**" icon means avoiding *pending* danger will result in serious injury, or death.

The "⚠ **WARNING**" icon means avoiding this warning may result may in serious injury, or death.

The "⚠ **CAUTION**" icon means not exercising caution here may result in minor to moderate injury, or property damage.

The precautions are:

⚠ **DANGER**: Not turning off the main power before wiring, installing, connecting, or disconnecting this product may result in serious injury, or death.

⚠ **WARNING**: Not following NEC codes, local codes, or consulting a certified professional may result in property damage, serious injury, or death.

⚠ **WARNING**: Not following instructions, or safety labels may result in property damage, or serious injury.

⚠ **WARNING**: Modifying, servicing, or ignoring these safety indications may void the warranty.

⚠ **WARNING**: Inspect product before use. DO NOT use if damaged.

⚠ **WARNING**: Install safety cables per local and structural engineer's code.

⚠ **CAUTION**: Hot swapping, not turning off fixtures before connection or disconnection, will void the warranty, and damage property.

⚠ **CAUTION**: Do not go beyond the specified voltage, input current, maximum number of fixtures, or run length.

⚠ **CAUTION**: Do not use sharp tools near the reflector or lens.

⚠ **CAUTION**: Do not look directly into beam, with or without optical instruments.

Specifications

Power Input: Direct 120VAC 50Hz/60Hz or 24VDC Option Available 0.15A Max.
Power Consumption: 0.1-9W (40W for 4x9 and 6" round).
Environment: IC rated for direct contact with loose insulation in Damp and Wet Locations under a covered ceiling.
L70 Life: 35,000 Hours.
Temperature Rating: 0°F - 120°F Ambient.
LED Die Colors: Red (620-635nm)
                Green (520-535nm)
                Blue (450-465nm)
                Neutral White (4000k)
Safety: ETL Listed Complies to UL1598 and ANSI/UL 8750.

Planning for Installation

Unpacking

The data enabler and trim are shipped assembled with no additional assembly needed. Housing and trim are shipped in two different boxes.

Any optional accessories are included in the package. Use the packing list located on the outside of the box to ensure all accessories are included.

Survey the unit to make sure the data enabler/trim are all intact—not cracked or damaged. Any damages to the package or its contents are of the buyer's responsibility; please follow protocol for filing damage claims. Please recycle or appropriately discard of any packing materials.

Preparation

Before Installation, Coloronix suggests:

- Consulting the provided submittal drawings to recognize layouts of luminaries, power supplies, and wiring layouts.
- Drawing out a layout plan consisting of locations of luminaries and wiring.
- Record DMX addresses on a mapping grid for easy reference and addressing (where applicable).
- An electrical inspector reviews all wiring plans.

Points to Consider About Data

- Use a Belden© 9481 or similar cable for DMX data connectivity or Plenum rated CAT5 8-wire cable.
- AC Power and DATA cables may NOT run in the same conduit due to possible induced errors.
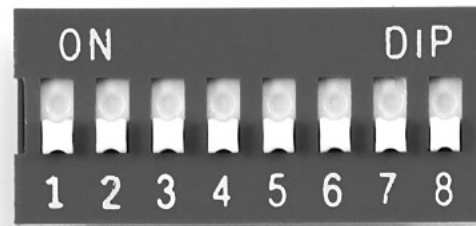
Quick Step-by-Step Instructions

To successfully install RGBW Recessed Lighting, the steps are:

1. Setting Color Mode or Setting Stand Alone Color Ray mode
2. Mounting and Alignment of data enabler
3. Installing Power Connections
4. Installing Data Connections
5. Installing Ceiling
6. Installing Trim
7. Ready to Go!

Setting Color Mode (Optional)

Dip Switch Inside Housing

For installations requiring DMX control, set the personalized DMX address using the address table (Below) for address dip switch position settings. The Dip Switch Board can be found inside the housing accessible below the ceiling. See figure. Note: Up to 128 unique 4-channel addresses can be set per DMX universe.

Dip Switch Setting	DMX Channels	Dip Switch Setting	DMX Channels
1	1-4	1,4,8	137-140
1,3	5-8	1,3,4,8	141-144
1,4	9-12	1,5,8	145-148
1,3,4	13-16	1,3,5,8	149-152
1,5	17-20	1,4,5,8	153-156
1,3,5	21-24	1,3,4,5,8	157-160
1,4,5	25-28	1,6,8	161-164
1,3,4,5	29-32	1,3,6,8	165-168
1,6	33-36	1,4,6,8	169-172
1,3,6	37-40	1,3,4,6,8	173-176
1,4,6	41-44	1,5,6,8	177-180
1,3,4,6	45-48	1,3,5,6,8	181-184
1,5,6	49-52	1,4,5,6,8	185-188
1,3,5,6	53-56	1,3,4,5,6,8	189-192
1,4,5,6	57-60	1,7,8	193-196
1,3,4,5,6	61-64	1,3,7,8	197-200
1,7	65-68	1,4,7,8	201-204
1,3,7	69-72	1,3,4,7,8	205-208
1,4,7	73-76	1,5,7,8	209-212
1,3,4,7	77-80	1,3,5,7,8	213-216
1,5,7	81-84	1,4,5,7,8	217-220
1,3,5,7	85-88	1,3,4,5,7,8	221-224
1,4,5,7	89-92	1,6,7,8	225-228
1,3,4,5,7	93-96	1,3,6,7,8	229-232
1,6,7	97-100	1,4,6,7,8	233-236
1,3,6,7	101-104	1,3,4,6,7,8	237-240
1,4,6,7	105-108	1,5,6,7,8	241-244
1,3,4,6,7	109-112	1,3,5,6,7,8	245-248
1,5,6,7	113-116	1,4,5,6,7,8	249-252
1,3,5,6,7	117-120	1,3,4,5,6,7,8	253-256
1,4,5,6,7	121-124	1,9	257-260
1,3,4,5,6,7	125-128	1,3,9	261-264
1,8	129-132	1,4,9	265-268
1,3,8	133-136	1,3,4,9	269-272

Dip Switch Setting	DMX Channels
1,5,9	273-276
1,3,5,9	277-280
1,4,5,9	281-284
1,3,4,5,9	285-288
1,6,9	289-292
1,3,6,9	293-296
1,4,6,9	297-300
1,3,4,6,9	301-304
1,5,6,9	305-308
1,3,5,6,9	309-312
1,4,5,6,9	313-316
1,3,4,5,6,9	317-320
1,7,9	321-324
1,3,7,9	325-328
1,4,7,9	329-332
1,3,4,7,9	333-336
1,5,7,9	337-340
1,3,5,7,9	341-344
1,4,5,7,9	345-348
1,3,4,5,7,9	349-352
1,6,7,9	353-356
1,3,6,7,9	357-360
1,4,6,7,9	361-364
1,3,4,6,7,9	365-368
1,5,6,7,9	369-372
1,3,5,6,7,9	373-376
1,4,5,6,7,9	377-380
1,3,4,5,6,7,9	381-384
1,8,9	385-388

Dip Switch Setting	DMX Channels
1,3,8,9	389-392
1,4,8,9	393-396
1,3,4,8,9	397-400
1,5,8,9	401-404
1,3,5,8,9	405-408
1,4,5,8,9	409-412
1,3,4,5,8,9	413-416
1,6,8,9	417-420
1,3,6,8,9	421-424
1,4,6,8,9	425-428
1,3,4,6,8,9	429-432
1,5,6,8,9	433-436
1,3,5,6,8,9	437-440
1,4,5,6,8,9	441-444
1,3,4,5,6,8,9	445-448
1,7,8,9	449-452
1,3,7,8,9	453-456
1,4,7,8,9	457-460
1,3,4,7,8,9	461-464
1,5,7,8,9	465-468
1,3,5,7,8,9	469-472
1,4,5,7,8,9	473-476
1,3,4,5,7,8,9	477-480
1,6,7,8,9	481-484
1,3,6,7,8,9	485-488
1,4,6,7,8,9	489-492
1,3,4,6,7,8,9	493-496
1,5,6,7,8,9	497-500
1,3,5,6,7,8,9	501-504
1,4,5,6,7,8,9	505-508

ColorRay Stand Alone Mode

For application not using DMX control, user can preprogram shows.
The fixture's on board computer have been pre-configured with ColorRay programs. No additional software or hardware is needed to access. Set the dip switch address for stand alone use (see table below)

Dip Address	Setting	Function	Speed
0	All Down	Demo Mode: Red, Green, Blue, White	n/a
742	2,3,6,7,8,10	Static Color: Warm White	n/a
743	1,2,3,6,7,8,10	Static Color: Cool White	n/a
744	4,6,7,8,10	Static Color: Red	n/a
745	1,4,6,7,8,10	Static Color: Green	n/a
746	2,4,6,7,8,10	Static Color: Light Blue	n/a
747	1,2,4,6,7,8,10	Static Color: Dark Blue	n/a
748	3,4,6,7,8,10	Static Color: Orange	n/a
749	1,3,4,6,7,8,10	Static Color: Purple	n/a
750	2,3,4,6,7,8,10	Static Color: Pink	n/a
751	1,2,3,4,6,7,8,10	Static Color: Yellow	n/a
752	5,6,7,8,10	Full Rainbow: Full Color Fade, Repeat	0.5 seconds
753	1,5,6,7,8,10	Full Rainbow: Full Color Fade, Repeat	5 seconds
754	2,5,6,7,8,10	Full Rainbow: Full Color Fade, Repeat	5 minutes
755	1,2,5,6,7,8,10	Full Rainbow: Full Color Fade, Repeat	30 minutes
756	3,5,6,7,8,10	Christmas Colors: Red, Green, Repeat	0.5 seconds
757	1,3,5,6,7,8,10	Christmas Colors: Red, Green, Repeat	5 seconds
758	2,3,5,6,7,8,10	Christmas Colors: Red, Green, Repeat	5 minutes
759	1,2,3,5,6,7,8,10	Christmas Colors: Red, Green, Repeat	30 minutes
760	4,5,6,7,8,10	Cool Blue: Dark Blue, Sky Blue, Repeat	0.5 seconds
761	1,4,5,6,8,10	Cool Blue: Dark Blue, Sky Blue, Repeat	5 seconds
762	2,4,5,6,7,8,10	Cool Blue: Dark Blue, Sky Blue, Repeat	5 minutes
763	1,2,4,5,6,7,8,10	Cool Blue: Dark Blue, Sky Blue, Repeat	30 minutes
764	3,4,5,6,7,8,10	Exotic Colors: Orange, Turquoise, Neon Green, Fuchsia, Repeat	0.5 seconds
765	1,3,4,5,6,7,8,10	Exotic Colors: Orange, Turquoise, Neon Green, Fuchsia, Repeat	5 seconds
766	2,3,4,5,6,7,8,10	Exotic Colors: Orange, Turquoise, Neon Green, Fuchsia, Repeat	5 minutes
767	1,2,3,4,5,6,7,8,10	Exotic Colors: Orange, Turquoise, Neon Green, Fuchsia, Repeat	30 minutes

ColorRay Remote Control

For remote control of the ColorRay setting, use SCC5-In-Wall Receiver and remote control. All programs and static colors can be set via remote control.

Note: Set dip switch 1-8 off and dip switch 9, 10 on for Color Ray stand alone mode
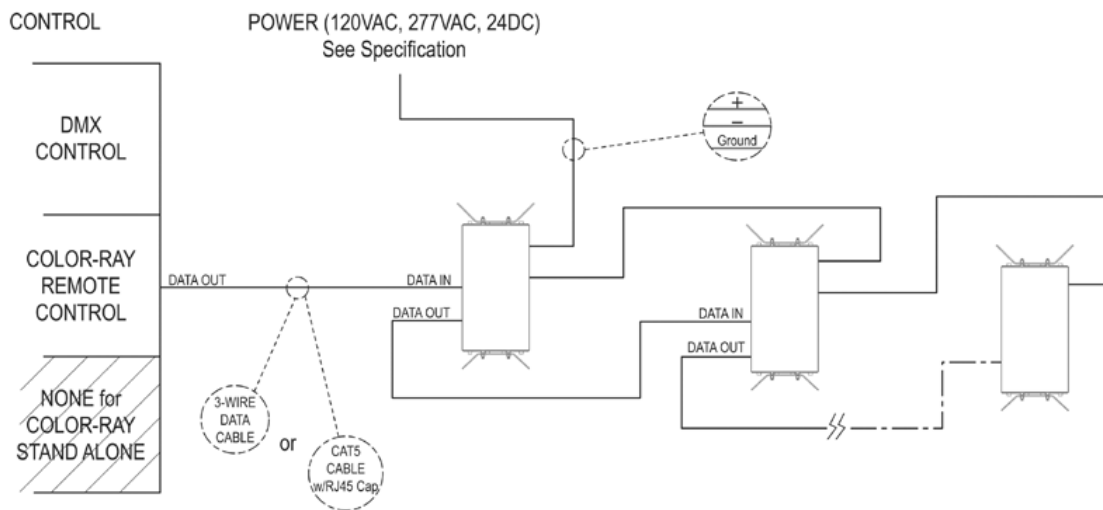
Installing Fixture

Installing Housing Rough-In Area

Using a ½" electrical conduit, install the fixture into the ceiling cavity. You may use the following as mounting rails (not included) to insert the rails through hanger brackets at both sides: ¾" channel, 1-1/2" channel, 1/8"x1/2" bar stock, or T-bar fasteners. For 6" fixture, use supplied hanger bars.

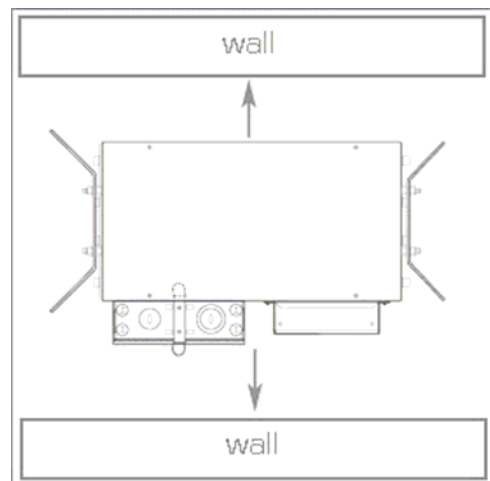|	Product Type		
	3"	4"x9"	6"
Size of Cutout	(diameter)	(square)	(diameter)
(Inches)	3-7/8"	9-3/16" x 5"	6-1/2"

DATA + POWER for RECESSED

Installing Trim

Installing assembly: insert torsion springs into spring receivers (found in housing). For 3" round, insert trim held in place by spring blades.

WARNING: Power must be off before connecting LED trim.

Option of Wall Wash

For 4"x9" wall wash trim, install frame according to diagram.

Electrical Connection

WARNING: Do not expose bare wires outside wire nut connectors.
1. Per local or "National Electric Code", provide electrical service to junction box located on the housing.
    a. The insulation of supply wire must be rated for at least 90°C.
    b. Junction boxes are rated for:
        i. Max. 8 No. 12 AWG Circuit Conductors
        ii. Also suitable for at least 90°C
2. Remove cover of junction box.
3. Remove proper round pryout, and then connect junction box with (not included) proper connector.
4. Using properly sized wire nuts, connect lead wires of junction box (line, neutral, and ground) to supply lead wires in the fixture.
    a. WARNING: Do not leave bare conductors outside wire nut connectors.
5. Connect green (from electrical service) to the supply side to the green wire in the junction box. Connect black-to-black, and white-to-white.
    a. Any excess wiring and connectors should be put in the junction box. Then, replace the cover.
NOTE: Supply lead wires should not be connected to a dimmer of any sort.

Data Connection

Note: Fixtures on a serial data link must be daisy chained in one single line. To comply with the EIA-485 standard, no more than 32 fixtures should be connected on one data link. Connecting more than 32 fixtures on one serial data link without the use of a DMX optically-isolated splitter may result in deterioration of the digital DMX signal.
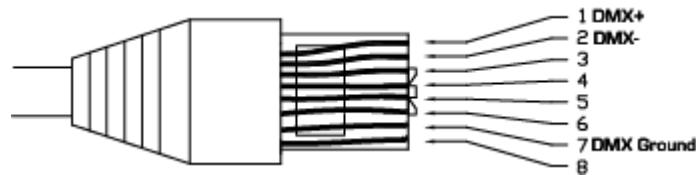
Maximum recommended serial data link distance: 500 m (1640 ft)
Maximum recommended number of fixtures on a serial data link: 32

DMX Data Cable

If installer prefers 3-wire data cables, we suggest a Belden© 9481 or equivalent cable which meets the specifications for EIA RS-485 applications (Use PCL002 DMX hardwiring DMX coupler). Standard microphone cables cannot transmit DMX data reliably over long distances. The cable must have the following characteristics:

Type: *shielded, 2-conductor twisted pair*
Maximum capacitance between conductors:
        30 pF/ft
Maximum capacitance between conductor and shield:
        55 pF/ft
Maximum resistance: *20 ohms/1000ft*
Normal impendance: *100~140 ohms*

If installer prefers a RJ45/CAT5 installation, a RJ45 jack can be used (use PCL004 RJ45 coupler).

Note: To comply with all local codes and jurisdiction, qualified communications technicians must do communications wiring.

Note: Communication cables and AC power lines must not be run in the same conduit.

A. Route Data Cables in series between housing and any communications accessories using DATA IN and DATA OUT.
B. In order that they may be easily accessed from the room once construction is complete, secure data cables in the immediate proximity of the housings.

Coloronix strongly recommends clearly marking communication cables in such a way to indicate the correct order of connection.

C. Use RJ45 DMX terminator, insert in "DATA OUT" of last fixture in series.

Note: To avoid signal transmission problems and interference, it is always advisable to connect to a DMX signal terminator.

Troubleshooting Guide

If does not light, check if:
        Electrical power is not connected.
        Electrical power is less than specific voltage.
        Electrical power is greater than specified voltage.

If does not respond to DMX control signal, check if:
        DMX control device and RGBW are addressed differently.
        DMX cable is damaged.
        DMX control device is disconnected or not operating.
        DMX device needs to be restarted.
        LED fixture was not restarted after address change.
        Restart fixture.

If the fixture is not responding to DMX, check if:
        DMX addressing is incorrect:
                Check Control Panel and unit addressing.
        The wrong polarity settings may be on the controller:
                Check polarity switch settings on the controller.
        DMX cables may be loose:
                Check cable connectors.

If DMX control operation flickers or is intermittent, check if:
        RGBW Color Changing Downlights or final DMX device in daisy chain is not
                terminated.
        DMX cable is damaged.
        DMX control device is operating at less than 25Hz.

If there is a loss of signal, check if:
        Non-DMX cables are being used:
                Use only DMX compatible cables (see page 10).
        Signals are bouncing:
                DMX terminator is not installed as suggested.

If output is less than normal, check if:
        Environment temperature may be in excess of 50°C/122°F.
        Lens may be damaged or dirty.
        DMX control or RGBW channels may be set at low level.

Further Troubleshooting

Should problems occur while using the product, unplug it at once and contact:
Coloronix, Inc.
Tech Support: (909) RGBW-555
support@coloronix.com

Replacing a Failed Fixture

"Hot Swapping" a fixture is not allowed. If a fixture needs to be replaced, the steps are to:
1. Disconnect the DMX input at the junction box of the fixture needing replacement.
2. Disconnect DMX output.
3. Replace fixture.
4. Reconnect AC negative.
5. Reconnect AC positive.
6. Reconnect DATA output.
7. Reconnect DATA input.
8. Reconnect power.
9. Make sure the replaced fixture and the entire system is in working order.

Warranty Information

3 YEAR PRODUCT LIMITED WARRANTY

Coloronix, Inc. provides a warranty to LED housings and LED trims in case of physical or assembly-related malfunctions. This warranty is valid up to three years from the product's purchase date. Furthermore, Coloronix, Inc. offers to repair products with no charge for labor, or at its own discretion, may offer to replace parts at no charge. However, any labor to remove or install fixtures is not covered. This warranty is only valid for the original purchaser of the product. Proof of date of purchase by receipt or by other means (deemed acceptable by Coloronix, Inc.) is necessary for any warranty service. The warranty only covers product failures due to failure in parts or labor resulting from normal use. The warranty does not cover product failure due to mistake, improper use, mistreatment, neglect, modification, improper installation, inappropriate application of product, or any other defect not resulting from the manufacturer's construction or labor. This warranty does not cover damages resulting from products interacted with non-Coloronix, Inc. brand products. Corrosion or discoloration in components or products are not covered. Except as written above, no other warranties are applicable.

Coloronix, Inc. is not liable for any damages—accidental, unusual, or resulting—in breach of this warranty. Any warranties, stated here or implied, are only valid for the duration of this warranty.

The length, limitation, or cancellation of a warranty, whether incidental or resulting from use, may not apply to individuals in certain states.
This warranty is the only warranty, written or verbal, accepted by Coloronix, Inc. The rights of the consumer herein may be different from state to state.

For warranty service, please write to:
Coloronix, Inc.
5461 W. Jefferson Blvd.
Los Angeles, CA 90016.

Please include the product name, a description of the product, and address and telephone contacts.

Coloronix, Inc. will offer a solution to the problem, or provide instructions for return. Any returns must include the return material authorization code (provided by Coloronix, Inc.), as well as return freight prepaid. Returns without a return authorization code will not be accepted.

Coloronix, Inc. accepts no liability for any damages incurred in shipping. All products are inspected as packed. Damages, apparent or not, must be claimed with the delivery carrier.