coloronix®

RGBW MODULAR LIGHTING MANUAL

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Contents

Summary

Introduction

RGB/RGBW Color Changing Modular Lights 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 mini-data enablers 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 ColorRay Signal from the internal stand-alone controller or external controller can be used as well.

The modular lights 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 modular color changing lights 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 ColorRay Device (optional)

Safety

- Do not make any inflammable liquids, water or metal objects enter the unit.
- To prevent or reduce the rise of electric shock, DO NOT OPEN THE TOP COVER.
- This unit must only be operated by adults; do not allow children to play with it.
- There are no user serviceable parts inside this unit. Do not attempt any repairs yourself.
- Should you experience any problems during use, please contact your local dealer immediately.
- Do not discard the shipping carton in the trash. Please recycle whenever possible.
- Always consult authorized personnel for any repairs and maintenance.

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.

Specifications

Power Input: Direct 24VDC
Environment: Dry location
Estimated Life: 25,000 Hours.
Temperature Rating: 0°C - 70°C (32°F -158°F)
Safety: ETL Listed Complies to UL1598 and ANSI/UL 8750 (pending)
Weight: 250g (0.55 lbs)

Planning for Installation

Unpacking

Every SDC has been thoroughly tested and has been shipped in perfect operation condition. Carefully check the shipping carton for damage that may have occurred during shipping. If the carton appears to be damaged, carefully inspect your controller for any damage and be sure all equipment necessary to operate the unit has arrived intact. In case damage has been found or parts are missing, please contact us or your nearest dealer/distributor for further instructions.

To optimize performance of this product, please read instructions in this manual and on the case of this product carefully to familiarize yourself with the basic operations. Once the manual has been thoroughly read, we recommend you file it for future reference.

Caution: There are no user serviceable parts inside this unit. Do not attempt any repairs yourself: doing so will void your manufacturer's warranty. In the unlikely event your unit may require service, please contact Coloronix customer support.

Do not discard the packing carton in the trash. Please recycle whenever possible.

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 CAT5 8-wire cable with RJ45 terminators.
- AC Power and DATA cables may NOT run in the same conduit due to possible induced errors.

Quick Step-by-Step Instructions

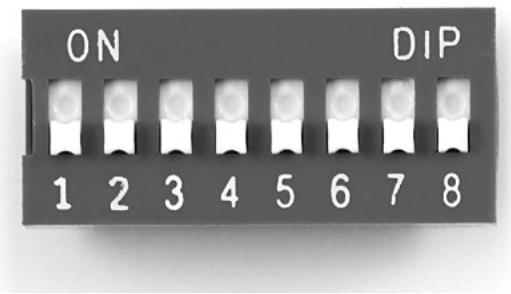
To successfully install RGBW Recessed Lighting, the steps are:

1. Setting Color Mode or Setting Stand Alone ColorRay mode
2. Mounting Miniature Data Enabler
3. Installing Power Connections
4. Installing Data Connections
5. Connect RGB/RGBW Modules
6. Installing Trim
7. Ready to Go!

Setting Color Mode (Optional)

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 Inside Housing



Dip Switch Setting	DMX Channels
1	1-4
1,3	5-8
1,4	9-12
1,3,4	13-16
1,5	17-20
1,3,5	21-24
1,4,5	25-28
1,3,4,5	29-32
1,6	33-36
1,3,6	37-40
1,4,6	41-44
1,3,4,6	45-48
1,5,6	49-52
1,3,5,6	53-56
1,4,5,6	57-60
1,3,4,5,6	61-64
1,7	65-68
1,3,7	69-72
1,4,7	73-76
1,3,4,7	77-80
1,5,7	81-84
1,3,5,7	85-88
1,4,5,7	89-92
1,3,4,5,7	93-96
1,6,7	97-100
1,3,6,7	101-104
1,4,6,7	105-108
1,3,4,6,7	109-112
1,5,6,7	113-116
1,3,5,6,7	117-120
1,4,5,6,7	121-124
1,3,4,5,6,7	125-128
1,8	129-132
1,3,8	133-136

Dip Switch Setting	DMX Channels
1,4,8	137-140
1,3,4,8	141-144
1,5,8	145-148
1,3,5,8	149-152
1,4,5,8	153-156
1,3,4,5,8	157-160
1,6,8	161-164
1,3,6,8	165-168
1,4,6,8	169-172
1,3,4,6,8	173-176
1,5,6,8	177-180
1,3,5,6,8	181-184
1,4,5,6,8	185-188
1,3,4,5,6,8	189-192
1,7,8	193-196
1,3,7,8	197-200
1,4,7,8	201-204
1,3,4,7,8	205-208
1,5,7,8	209-212
1,3,5,7,8	213-216
1,4,5,7,8	217-220
1,3,4,5,7,8	221-224
1,6,7,8	225-228
1,3,6,7,8	229-232
1,4,6,7,8	233-236
1,3,4,6,7,8	237-240
1,5,6,7,8	241-244
1,3,5,6,7,8	245-248
1,4,5,6,7,8	249-252
1,3,4,5,6,7,8	253-256
1,9	257-260
1,3,9	261-264
1,4,9	265-268
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

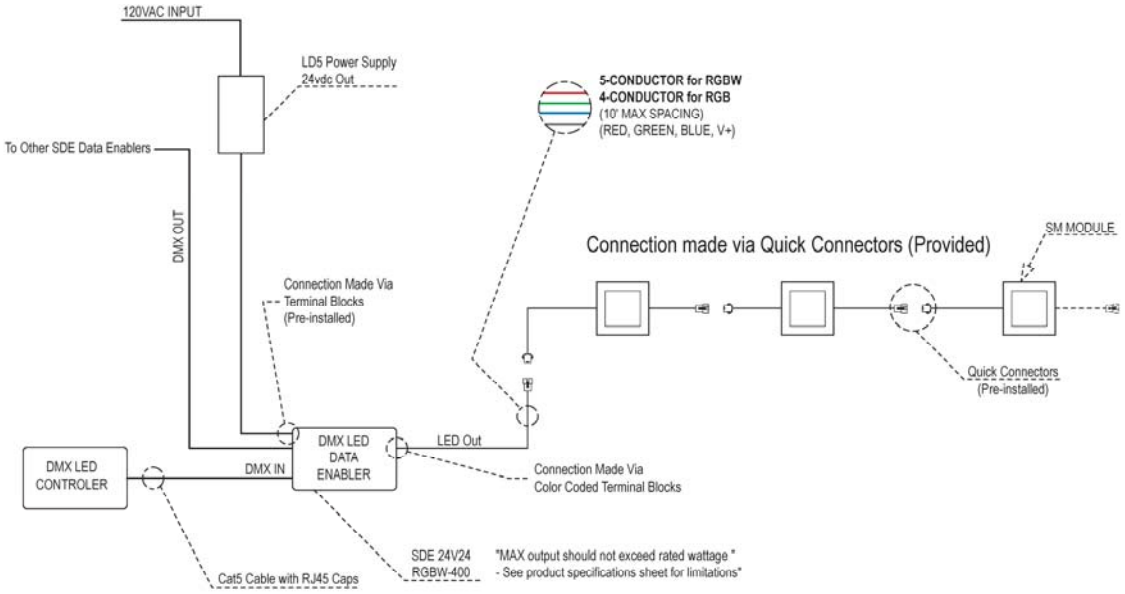
ColorRay Remote Control

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.

Installing Mini Data Enabler

1. Mount miniature data enabler using a steel L-bracket.
   Note: Install in a location with air circulation.
2. Connect appropriate wires of RGB/RGBW LED modules to screw terminal blocks.
3. Connect appropriate 24VDC power to screw terminating block.

Wiring Diagram



ITEM	Number of 96W Power Supplies Connected to SDE 24V	Max Units per SDE24V24RGBW-400
SMLN5-13RGBW	1	8 Pieces (40')
	2	16 Pieces (80')
SMPS12-RGBW	1	6 Pieces (6 Sq. Feet)
	2	12 Pieces (12 Sq. Feet)
SMPS12-RGB	1	6 Pieces (6 Sq. Feet)
	2	12 Pieces (12 Sq. Feet)
SMPS08-RGB	1	6 Pieces
	2	12 Pieces
SMLNS4-12RGB	1	5 Pieces (20')
	2	10 Pieces (40')
SMLNS1-12RGB	1	20 Pieces (20')
	2	40 Pieces (40')

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 miniature data enablers should be connected on one data link. Connecting more than 32 miniature data enablers on one serial data link without the use of a DMX optically-isolated splitter may result in deterioration of the digital DMX signal.

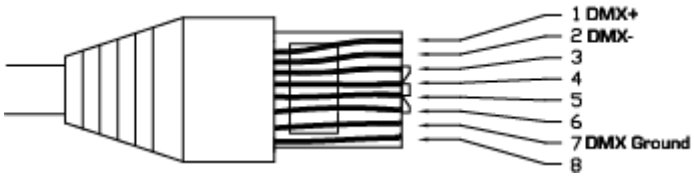
Maximum recommended serial data link distance: 500 m (1640 ft)
Maximum recommended number of fixtures on a serial data link: 32

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 miniature data enablers 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 miniature data enablers.

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 at the end of the run.

Troubleshooting Guide

Problem	Possible Issue	Possible Fixes
Does not turn on	Electrical power is not connected	
	Electrical power is less than specific voltage	
	Electrical power is greater than specific voltage	
Does not respond to DMX control signal	DMX control device and data enabler are addressed differently	Restart fixture
	DMX cable is damaged	
	DMX control device is disconnected or not operating	
	LED fixture was not reset after address change	
Not responding to DMX	DMX addressing is incorrect	Check control panel and unit addressing
	Wrong polarity settings may be on controller	Check polarity switch settings on controller
	DMX cables may be loose	Check cable connectors
DMX control operation flickers or is intermittent	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	Non-data cables are being used	Use only DMX compatible cables
	Signals are bouncing	DMX terminator is not installed as suggested
Output is less than normal	Environment temperature may be in excess of 0°C-70°C (32°F-158°F)	
	Lens may be damaged or dirty	
	DMX control or RGB/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

If a fixture needs to be replaced, the steps are as follows:

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.

Need help coming up with a layout of components for SMLN5 RGBW STRIP LIGHTS?
V.1.2

3 Easy Steps -

1. The first thing to do is layout all of the different Zones in your application and calculate the linear length required per Zone.

(Note: Every Zone will have one DMX address assigned on the data enabler(s).)

2. Make a BOM Chart
Every 40 feet of the zone will require one SDE24V24RGBW-400 Data Enabler and a 96W Power Supply.

(Note: Every Data Enabler in the same zone has the same DMX address.)
The Strips come in 5' Sections and are cuttable every 6.5"

Examples:

Zone 1: 25' RUN
BOM: 5xSMLN5-13RGBW, 1xSDE24V24RGBW, 1x96W Power Supply

Zone 2: 36' Run
BOM: 8xSMLN5-13RGBW, 1xSDE24V24RGBW, 1x96W Power Supply

Zone 3: 60’ Run
BOM: 12xSMLN5-13RGBW, 2xSDE24V24RGBW (set to same DMX address),
2x96W Power Supply

3. Decide on Controller
Our Most Popular Ones Are:
SCC1 - Maximum Control, with timers and 100+ Zones, Mobile App Connectivity
SCC5 - Remote Control operation, color mixing, Only one zone.
Wiring: One cable will go out from the controller and link through in/out ports to all Data Enablers. (32 Max)