legrand®

Wiremold

Convia® Enabled Walkerflex® System

INSTALLATION INSTRUCTIONS

Installation Instruction No.: 1 008 478 – August 2009

Wiremold electrical systems conform to and should be properly grounded in compliance with requirements of the current National Electrical Code or codes administered by local authorities.

All electrical products may present a possible shock or fire hazard if improperly installed or used. Wiremold electrical products may bear the mark as UL Listed and/or Classified and should be installed in conformance with current local and/or the National Electrical Code.

IMPORTANT: Please read all instructions before beginning.

Products Covered: *NVHUB, LVHUB, NRD1, NRD2, LRD1, LRD2, NPM12, NPM22, NPM24, NPM44, NPM24PF, NPM44PF, CNDU, CLDU, CNWC, CLWC, CNPA, CLPA, CNCS, CLCS, CNCBS, CLCBS, CNCW, CLCW, CAP3456 & CAP810*

NOTE: Label on product indicates which products are suitable for use in air handing spaces in accordance with Sec. 300-22(C) of the National Electric Code.

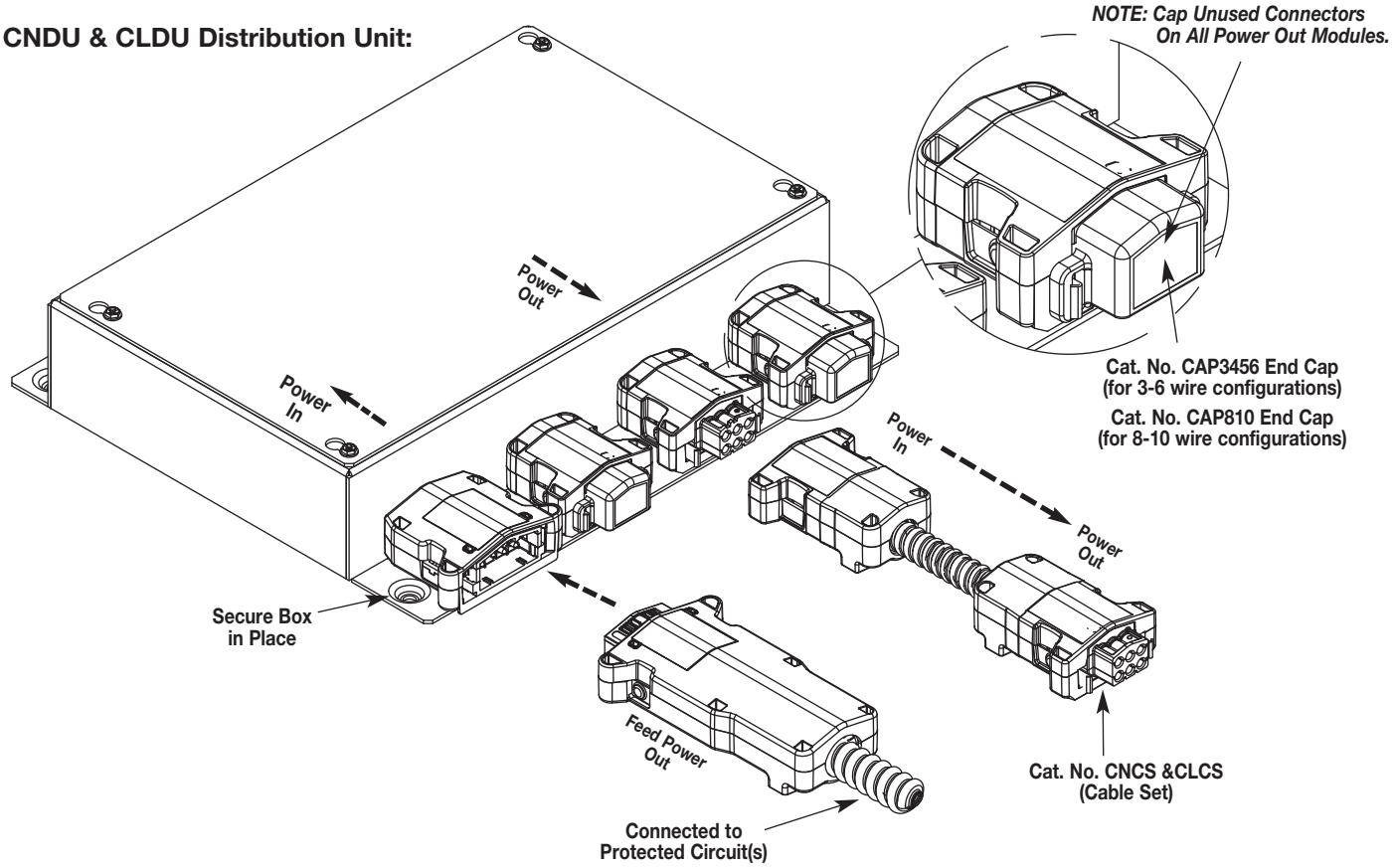
GENERAL INFORMATION

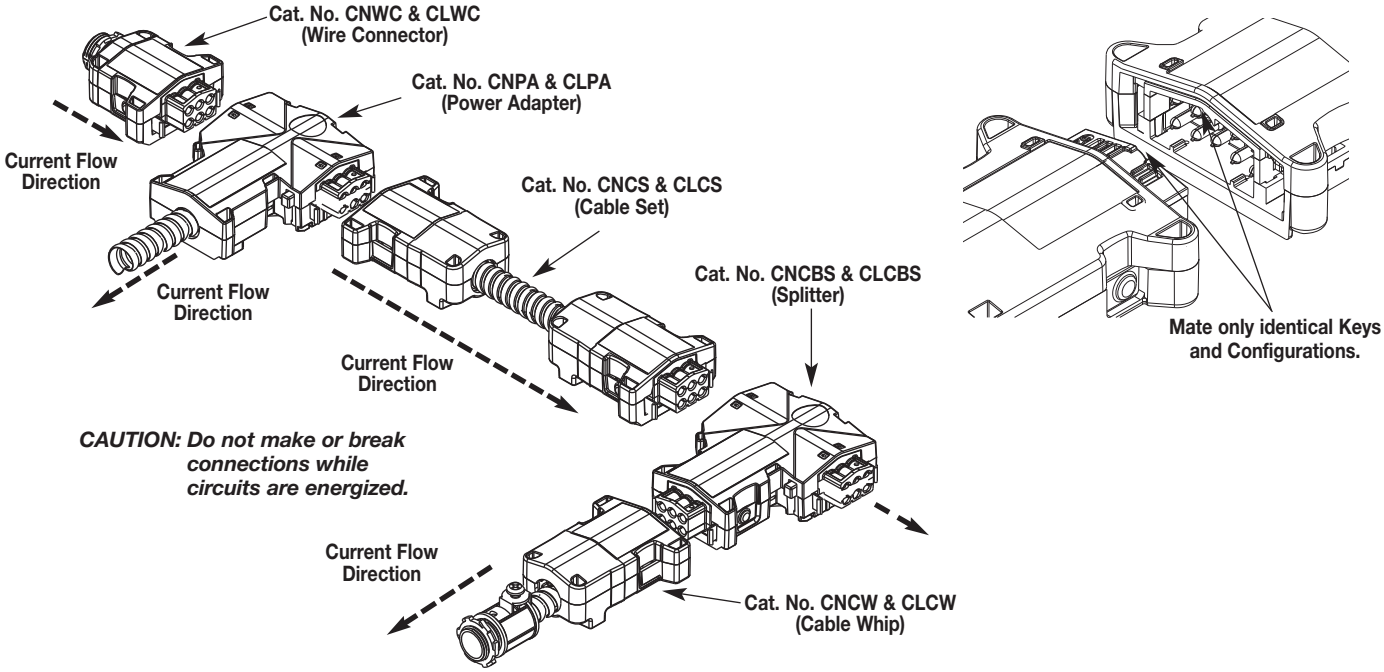
1. Each Convia® Enabled Walkerflex® System connector contains a color coded key that indicates rating, conductor location and orientation. Only like colored keys can be mated. See Key Configuration and Color Chart on page 11 for available options. Each key is comprised of one or more configurations.
2. Disconnect power from source prior to wiring any Walkerflex component into the building's electrical power system.
3. Installer to determine the maximum power cable length based on wire gauge and circuit load.
4. Installer to ensure adequate overload protection based on the system key, rating and circuit load.
5. Refer to appropriate Wiring Diagram and System Key Configuration Conductor Location Chart for field connections of Cat. Nos. CNWC/CLWC (Wire Connector) and CNCW/CLCW (Cable Whips). Refer to wiring diagram supplied with CNDU/CLDU (Distribution Unit) for field termination.
6. Securing and Supporting of Cables and Components: Refer to NEC Article 604, Manufacturing Wiring Systems and any local codes.
7. Cap all unused connector openings with Cat. No. CAP3456 (for 3 through 6 wire system) or Cat. No. CAP810 (for 8 and 10 wire system).
8. All Convia Enabled accessories are available in a 3-6 wire and 8-10 wire system and are rated 20A, 120V.
9. 277V Convia Enabled Walkerflex components are only available in 3-6 wire configurations.
10. The Convia Enabled Walkerflex system is compatible with the standard Walkerflex system of the same configuration and key.

CNDU and CLDU Module & Flex Cables:

The CNDU and CLDU (CLDU is available for 3-6 wire configurations only) module is the main power source and interface to the Convia Enabled Walkerflex System. It is to be fed from a distribution panel outfitted with appropriate circuit breakers to protect wiring.

CNDU & CLDU Distribution Unit:





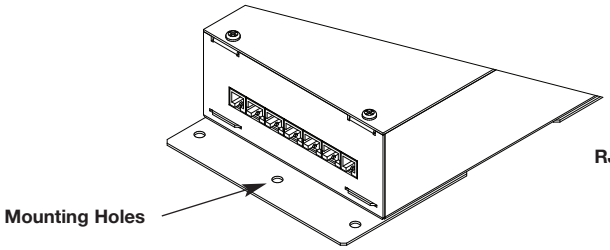
Network Hubs

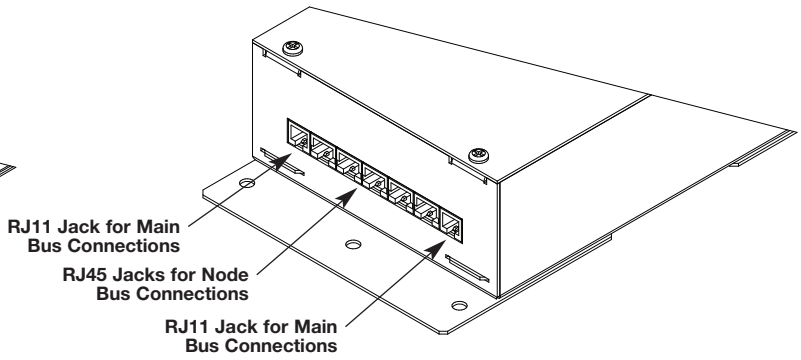
The Network Hub module makes up the backbone or Main Bus of the network. Multiple Network Hubs can be configured to increase the size of the network or to increase the number of available ports in an installation location. Up to 50 Network Hubs can be connected on a single network with a patch cable length of up to 2000 feet. Refer to the ConviaNet Design Guide for more information.

Table A – NETWORK HUB POWER CONFIGURATIONS

120V SYSTEM			277V SYSTEM		
Part Number	Phase	Walkerflex Configurations	Part Number	Phase	Walkerflex Configurations
NVHUBA	A	111, 211, 311	LVHUBA	A	111, 211, 311
NVHUBB	B	211, 311	LVHUBB	B	211, 311
NVHUBC	C	311	LVHUBC	C	311
NVHUBD		222	LVHUBF		Field Wired
NVHUBF		Field Wired			

Step 1: Mount Network Hub securely using appropriate screws and anchors.

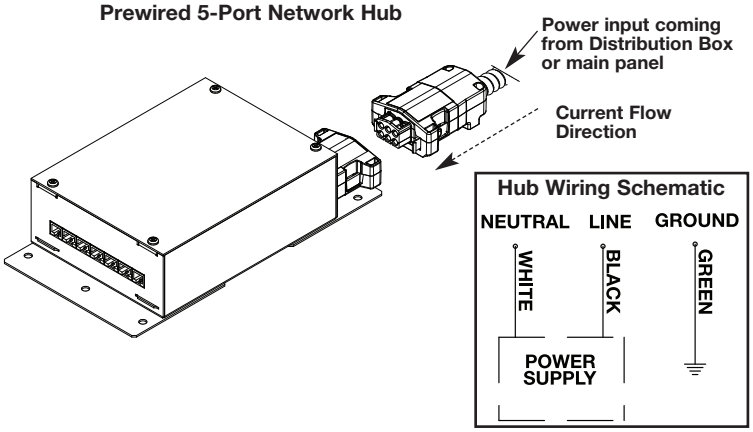




Step 2: Connect Power to Network Hub.

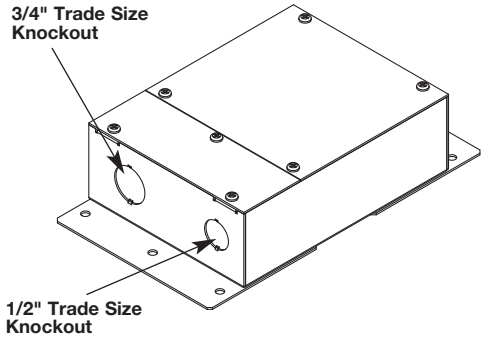
For Modular Connection: Connect Convia Enable Walkerflex Modular Cable to modular input.

Prewired 5-Port Network Hub

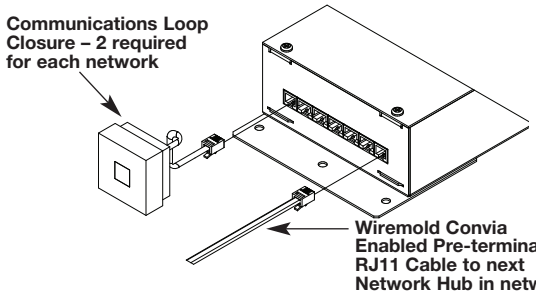


For Field Wired Units: Connect conduit to appropriate conduit opening and wire per the National Electric Code. (See Wiring Schematic below or on product label for connections.

Field Wired 5-Port Network Hub

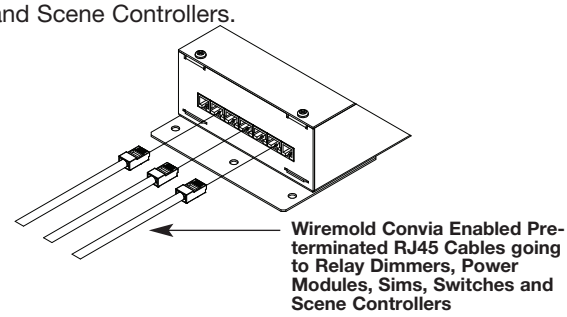


Step 3: Connect Wiremold Convia Enabled pre-terminated RJ11 cables between the Network Hubs. Install Communication Loop Closures into RJ11 ports at the beginning and end of the network run (Main Bus).



NOTE: To ensure proper network functioning, Communication Loop Closures need to be installed into the beginning and end of the Main Bus of the network. If there is only one Network Hub in the installation, then Communication Loop Closures must be installed in both RJ11 ports on the Network Hub.

Step 4: Install Wiremold Convia Enabled pre-terminated RJ45 cables between the Network Hubs and the Relay Dimmers, Power Modules, Sims, Switches, and Scene Controllers.



Step 5: Move on to the installation of Relay Dimmers and Power Modules.

Relay Dimmer

The Relay Dimmer Modules are used to control lighting and other devices, (maximum 20A load) via the Convia Enabled Walkerflex System. They connect to the Network Hub to create the Node Bus of the network. Up to 25 nodes can be connected on a single Node Bus with a maximum patch cable length of 1000 feet. Refer to the ConviaNet Design Guide for more information.

Table B – RELAY DIMMER POWER CONFIGURATIONS

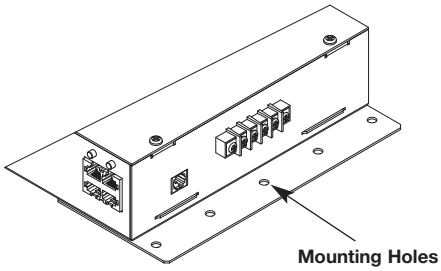
120V SYSTEM			277V SYSTEM		
Part Number	Phase	Walkerflex Configurations	Part Number	Phase	Walkerflex Configurations
NRD1A, NRD2A	A	111, 211, 311	LRD1A, LRD2A	A	111, 211, 311
NRD1B, NRD2B	B	211, 311	LRD1B, LRD2B	B	211, 311
NRD1C, NRD2C	C	311	LRD1C, LRD2C	C	311
NRD1F, NRD2F		Field Wired	LRD1F, LRD2F		Field Wired

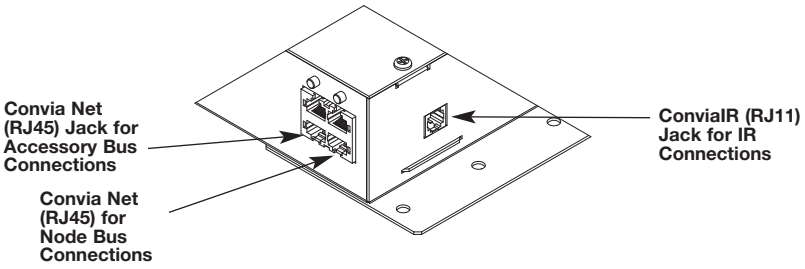
NRD1/LRD1 has one (1) controlled Walkerflex 111 output.
NRD2/LRD2 has two (2) controlled Walkerflex 111 outputs.

NOTE: For proper dimming function, use only approved dimming ballasts. Additional ballasts are being added as they become available. For updated ballast information, visit www.wiremold.com. If a qualified 0-10 VDC dimming ballast is not on the list, please contact your sales representative for verification.

APPROVED DIMMING BALLASTS	
Manufacturer	Name
Advanced Transformer	Mark
Osram Sylvania	Quiktronic
Universal Technologies	SuperDim
General Electric	UltraMax

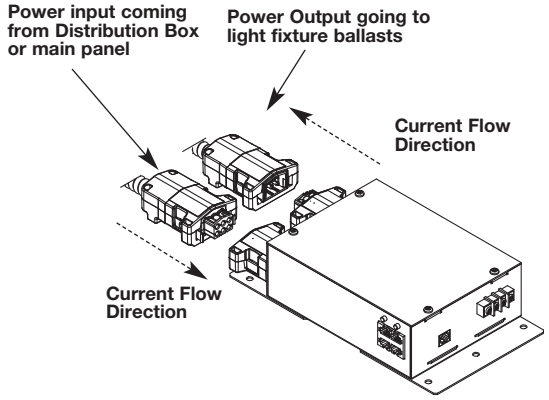
Step 1: Mount Relay Dimmer securely using appropriate screws and anchors.

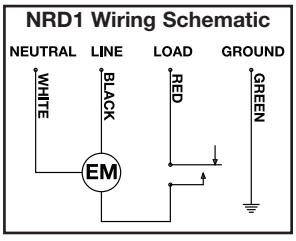




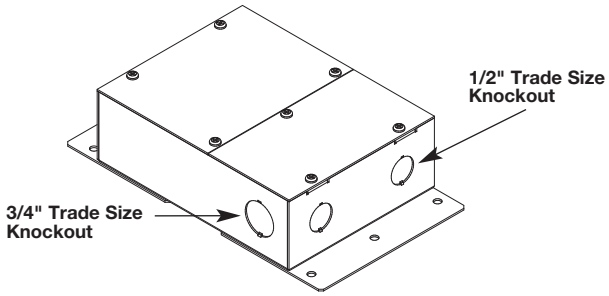
Step 2: Connect Power to Relay Dimmers.

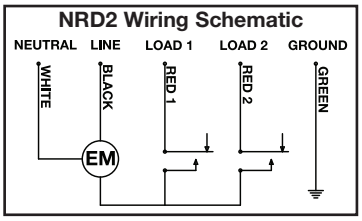
For Modular Connection: Connect Convia Enabled Walkerflex Modular Cable to modular input and output.





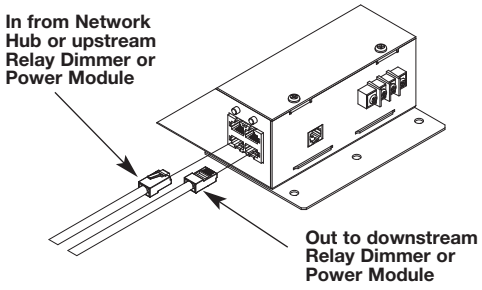
For Field Wired Units: Connect conduit to appropriate conduit opening and wire per the National Electric Code. (See Wiring Schematic below or on product label for connections.



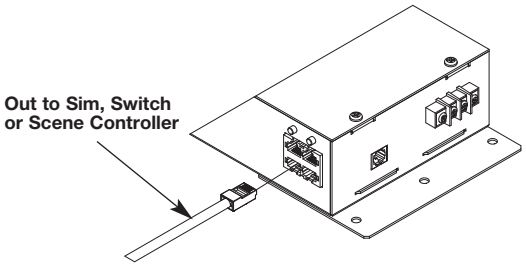


CONVIA ENABLE WALKERFLEX SYSTEM INSTALLATION (continued)

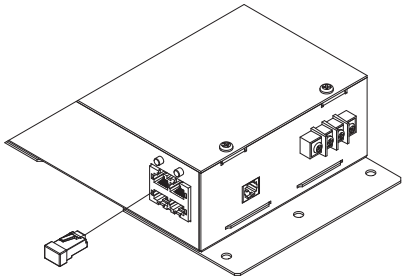
Step 3: Connect Wiremold Convia Enabled Pre-terminated RJ45 cables between the Network Hub and the Relay Dimmers to create the Node Bus. The top ConviaNet RJ45 jack is IN, the bottom ConviaNet RJ45 jack is OUT.



Step 4: Connect Wiremold Convia Enabled Pre-terminated RJ45 cables between the Relay Dimmers and the Sims, Sensors, Switches, and Scene Controllers to create the Accessory Bus. An Accessory Bus can contain up to 50 devices with a maximum patch cable length of 500 feet.

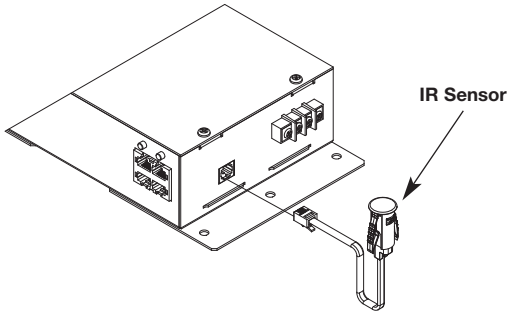


Step 5: Install End Terminators in all ConviaNet RJ45 Node Bus Terminals not being used.



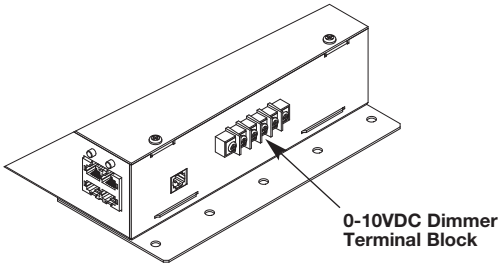
NOTE: To ensure proper network functioning, End Terminators need to be installed in all unused Node ports, and Inline Terminators need to be installed at the end of all Accessory Bus Runs.

Step 6: Install IR Sensors into ConvialR RJ11 Port.



NOTE: IR Sensor can be installed using a RJ11 In-Line Connector (PNRJ11LC) and a Wiremold Convia Enabled pre-terminated RJ11 Cable when necessary. IR Sensors are needed in all boxes for commissioning and are recommended to aid in reconfiguring or troubleshooting network setups.

Step 7: Connect Class 2 cable to Dimming Terminal Block. See Product Label for dimming connections.



NOTE: Connect appropriate Class 2 cable (Plenum rated if installed in an Air Handling Space) to terminals on the Relay Dimmer Modules in accordance with Article 725 of the National Electric Code.

Step 8: Connect system to light fixtures per the National Electric Code.

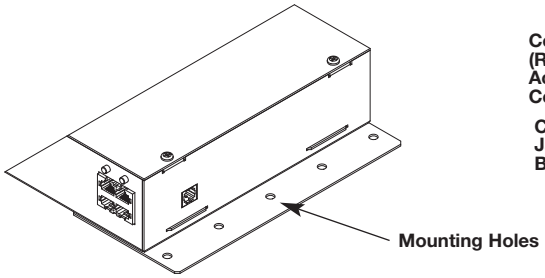
Power Modules

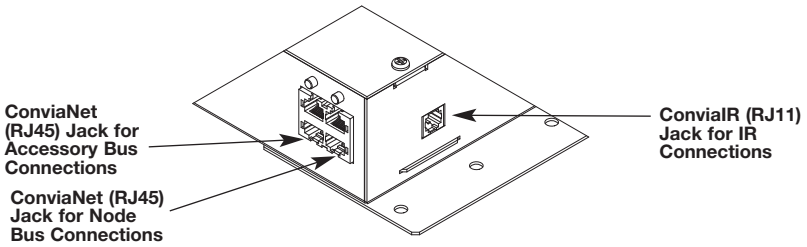
The Power Modules are used to control general purpose loads, (maximum 20A load) via the Convia Enabled Walkerflex System. They connect to the Network Hub to create the Node Bus of the network. Up to 25 nodes can be connected on a single Node Bus with a maximum patch cable length of 1000 feet. Refer to the ConviaNet Design Guide for more information.

Table C – POWER MODULE CONFIGURATIONS

Part Number	Number of Controlled Circuits	Number of Total Circuits	Walkerflex Input(s)	Walkerflex Output(s)
NPM12	1	2	222	222
NPM22	2	2	222	222
NPM12F	1	2	Field Wired	
NPM22F	2	2	Field Wired	
NPM24	2	4	422	(2) 222
NPM44	4	4	422	(2) 222
NPM24F	2	4	Field Wired	
NPM44F	4	4	Field Wired	
NPM24PF	2	4	422	422
NPM44PF	4	4	422	422

Step 1: Mount Power Modules securely using appropriate screws and anchors.

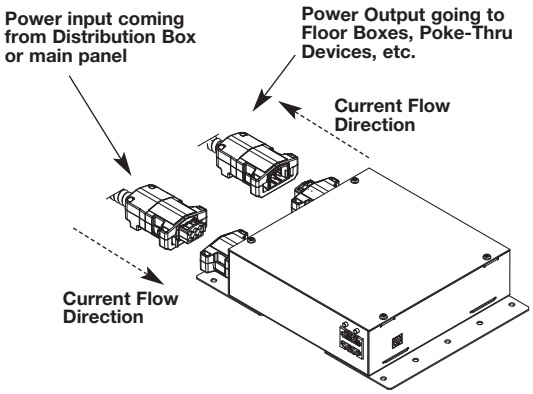




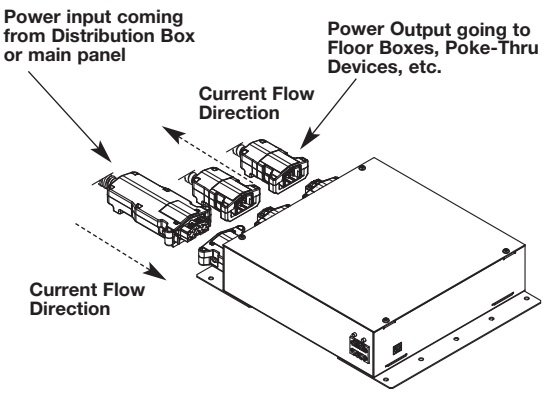
Step 2: Connect Power to Power Modules.

For Modular Connection: Connect Convia Enabled Walkerflex Modular Cable to modular input and output(s).

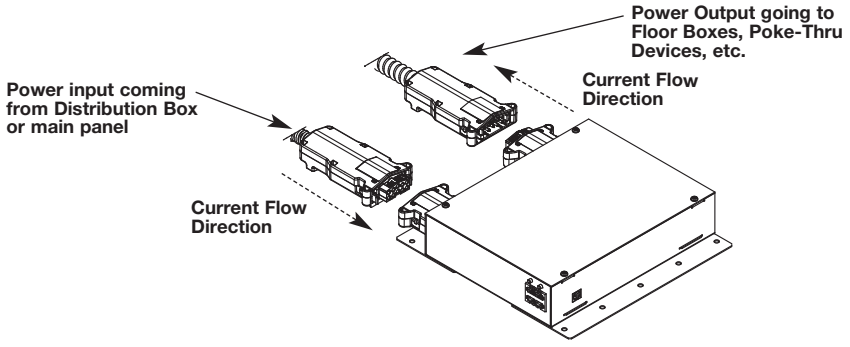
Two Circuit Power Modules



Four Circuit Power Modules



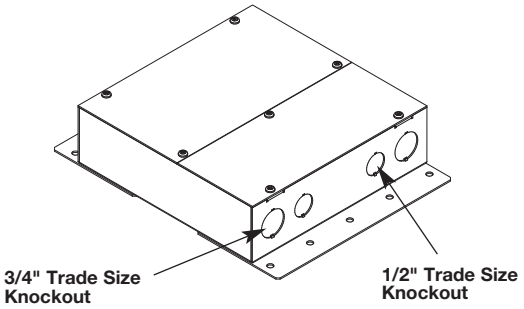
Four Circuit Partition Feed Modules



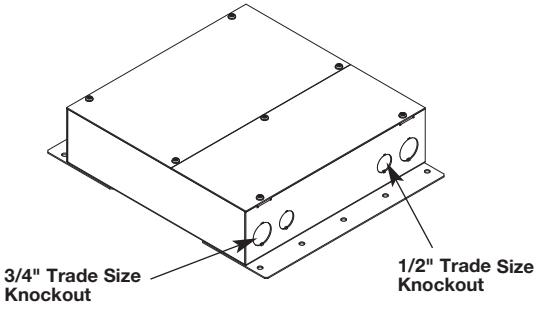
Step 2 (continued):

For Field Wired Units: Connect conduit to appropriate conduit opening and wire per the National Electric Code. (See Wiring Schematic below or on product label for connections).

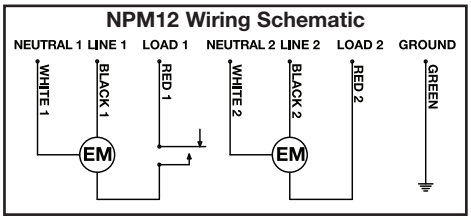
Two Circuit Power Modules – Field Wired



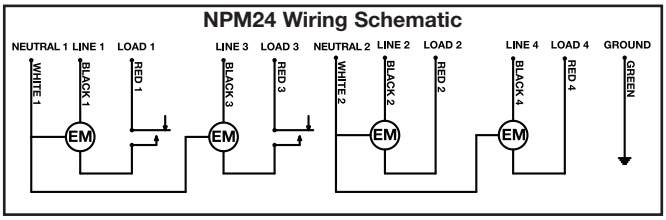
Four Circuit Power Modules – Field Wired



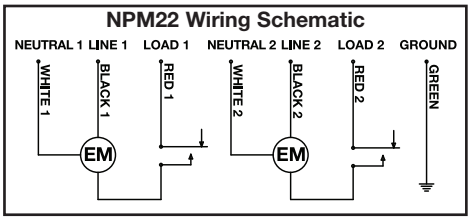
NPM12 Wiring Schematic



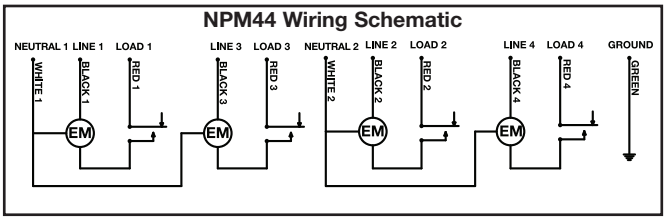
NPM24 Wiring Schematic



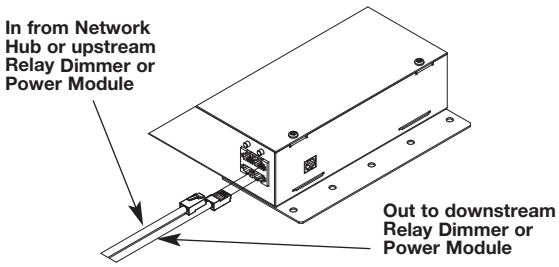
NPM22 Wiring Schematic



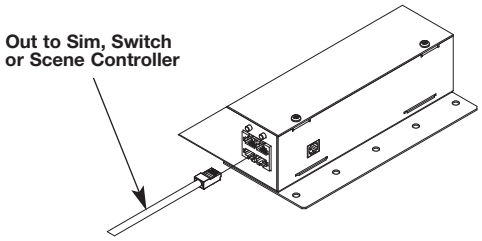
NPM44 Wiring Schematic



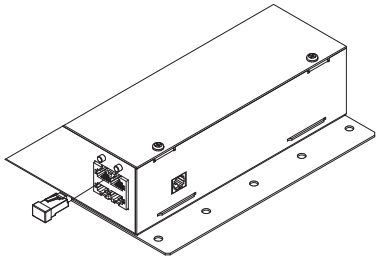
Step 3: Connect Wiremold Convia Enabled pre-terminated RJ45 cables between the Network Hubs and the Power Modules to create the Node Bus. The top ConviaNet RJ45 jack is IN, the bottom ConviaNet RJ45 jack is OUT.



Step 4: Connect Wiremold Convia Enabled pre-terminated RJ45 cables between the Power Modules and the Sims, Switches, and Scene Controllers to create the Accessory Bus. An Accessory Bus can contain up to 50 devices with a maximum patch cable length of 500 feet.

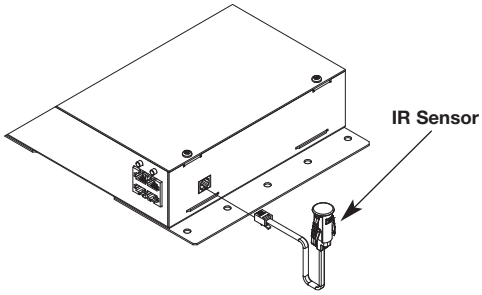


Step 5: Install End Terminators in all ConviaNet RJ45 Node Bus terminals not being used.



NOTE: To ensure proper network functioning, End Terminators need to be installed in all unused Node ports, and End Terminators or Inline Terminators need to be installed at the end of all Accessory Bus Runs.

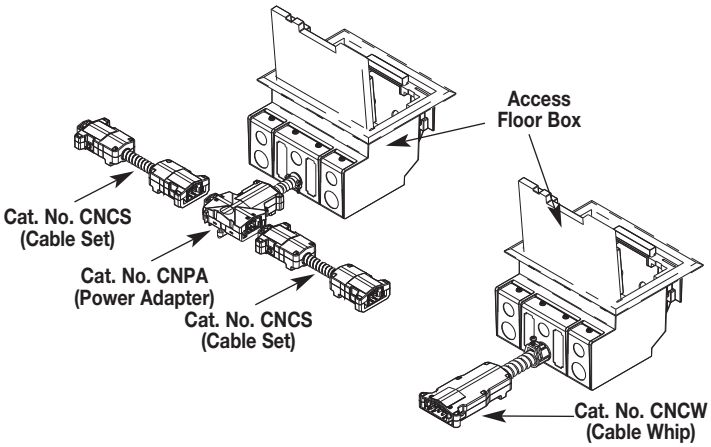
Step 6: Install IR Sensors into ConviaIR RJ11 Port.

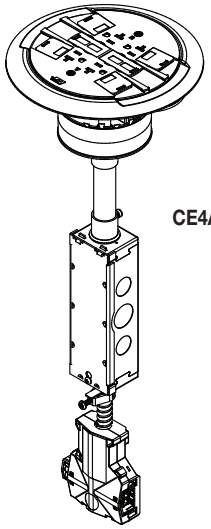


NOTE: IR Sensor can be installed using a RJ11 In-Line Connector (PNRJ11LC) and a Wiremold Convia Enabled pre-terminated RJ11 Cable when necessary. IR Sensors are needed in all boxes for commissioning and are recommended to aid in reconfiguring or troubleshooting network setups.

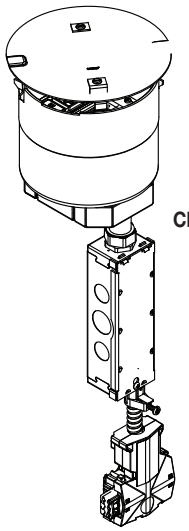
WALKERFLEX SYSTEM ACCESSORIES

TYPICAL PREWIRED ACCESS FLOOR BOX INSTALLATIONS

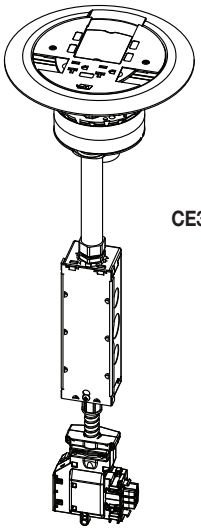




CE4ATCAL222PA



CE6STCP222PA



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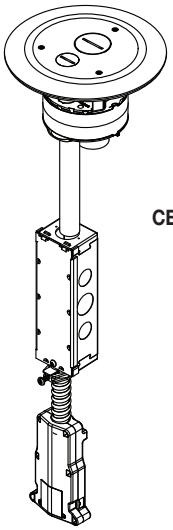
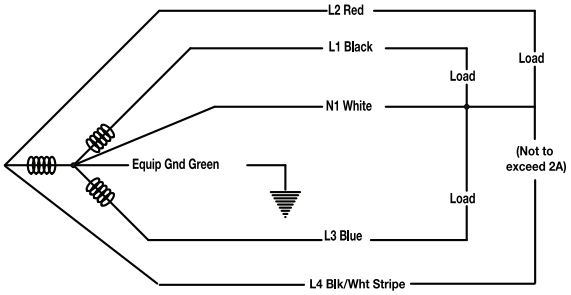


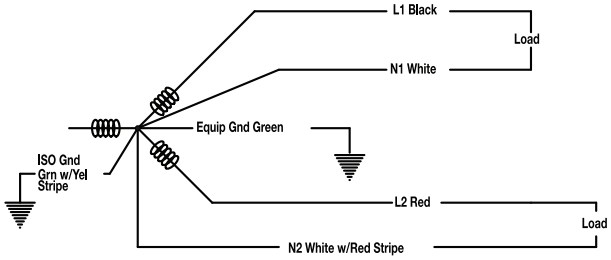
CE4FFATCAL422CW

WALKERFLEX SYSTEM WIRING DIAGRAMS

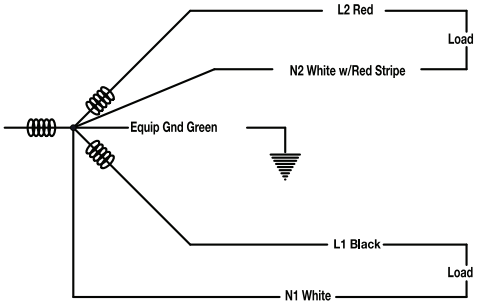
120V 20A SYSTEM FOR 1, 2, 3 OR 4 LINE CONDUCTORS CONNECTED TO A GROUNDED THREE-PHASE WYE



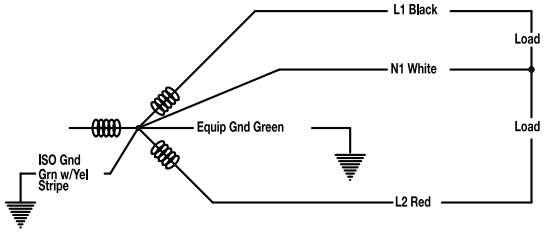
120V 20A SYSTEM FOR 1 OR 2 LINE CONDUCTORS CONNECTED TO A DUAL NEUTRAL GROUNDED THREE-PHASE WYE AND ISOLATED GROUND



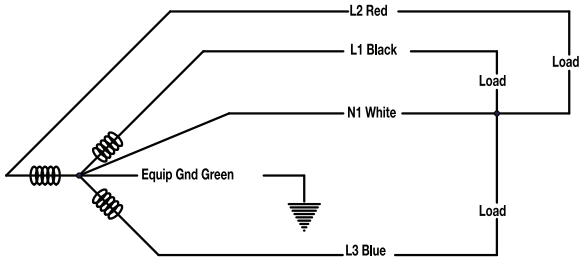
120V 20A SYSTEM FOR 1 OR 2 LINE CONDUCTORS CONNECTED TO A DUAL NEUTRAL GROUNDED THREE-PHASE WYE



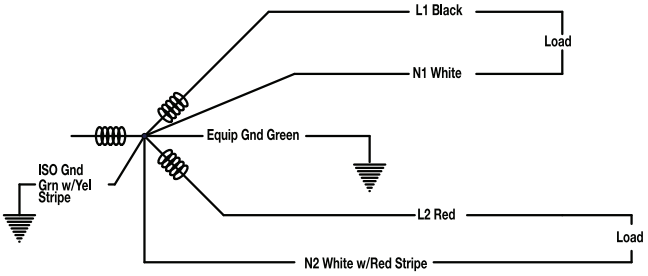
120V 20A SYSTEM FOR 1 OR 2 LINE CONDUCTORS CONNECTED TO A GROUNDED THREE-PHASE WYE AND ISOLATED GROUND



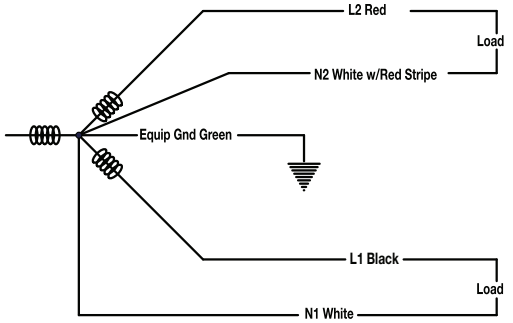
277V 20A SYSTEM FOR 1, 2, OR 3 LINE CONDUCTORS CONNECTED TO A GROUNDED THREE-PHASE WYE



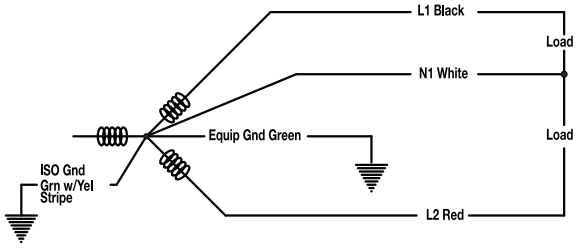
277V 20A SYSTEM FOR 1 OR 2 LINE CONDUCTORS CONNECTED TO A DUAL NEUTRAL GROUNDED THREE-PHASE WYE AND ISOLATED GROUND



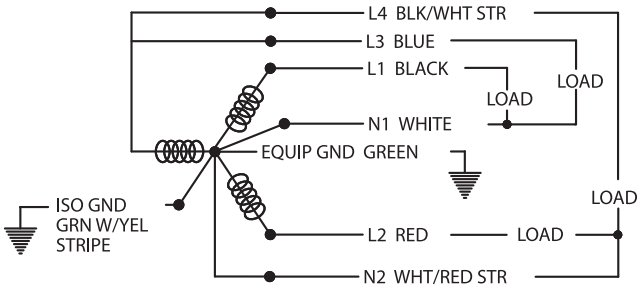
277V 20A SYSTEM FOR 1 OR 2 LINE CONDUCTORS CONNECTED TO A DUAL NEUTRAL GROUNDED THREE-PHASE WYE



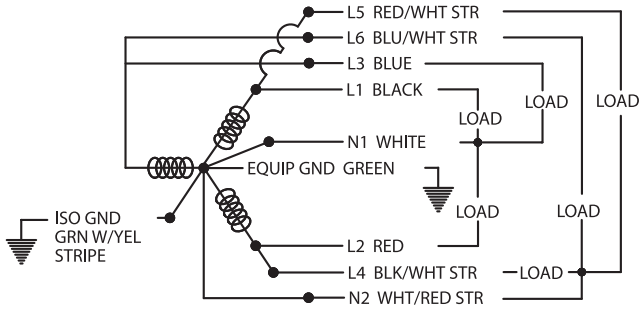
277V 20A SYSTEM FOR 1 OR 2 LINE CONDUCTORS CONNECTED TO A GROUNDED THREE-PHASE WYE AND ISOLATED GROUND



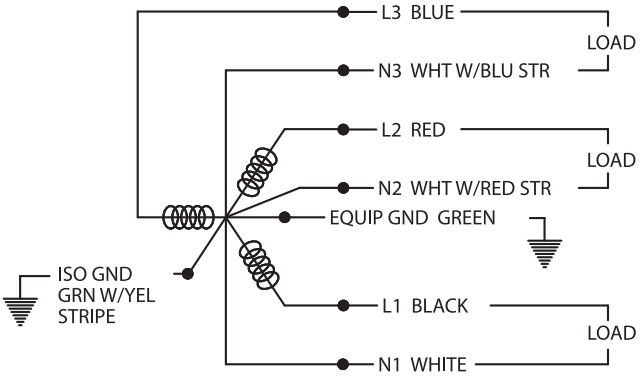
120V 20A SYSTEM FOR 4 LINE CONDUCTORS & 2 NEUTRALS CONNECTED TO AN ISOLATED GROUND THREE-PHASE WYE



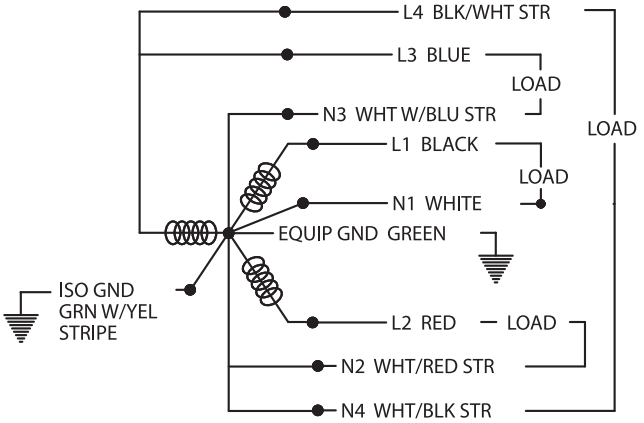
120V 20A SYSTEM FOR 6 LINE CONDUCTORS & 2 NEUTRALS CONNECTED TO AN ISOLATED GROUND THREE-PHASE WYE



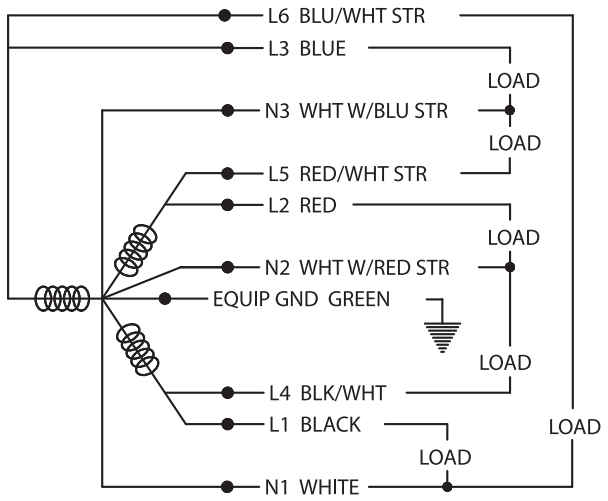
120V 20A SYSTEM FOR 3 LINE CONDUCTORS & 3 NEUTRALS CONNECTED TO AN ISOLATED GROUND THREE-PHASE WYE



120V 20A SYSTEM FOR 4 LINE CONDUCTORS & 4 NEUTRALS CONNECTED TO AN ISOLATED GROUND THREE-PHASE WYE

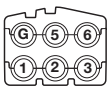
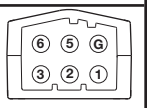
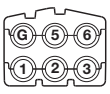
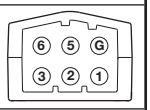
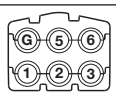
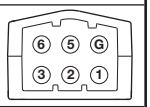
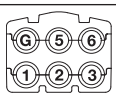
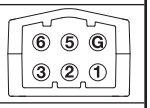
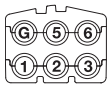
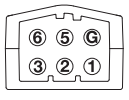
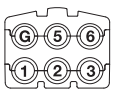
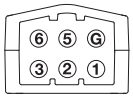


120V 20A SYSTEM FOR 6 LINE CONDUCTORS & 3 NEUTRALS CONNECTED TO A THREE-PHASE WYE

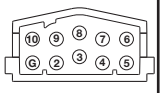
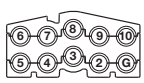
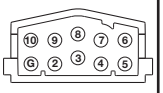
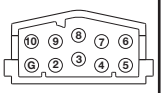


WALKERFLEX SYSTEM WIRING CONFIGURATIONS

WALKERFLEX 3-6 KEY CONFIGURATIONS

SYSTEM	TERMINAL BLOCK COLOR	KEY	POWER OUT	POWER IN
20A, 120V	Black	A		
20A, 120V, IG	Orange	B		
20A, 120V, 2N	Clear	C		
20A, 277V	Yellow	D		
20A, 277V, IG	Green	E		
20A, 277V, 2N	Blue	F		

WALKERFLEX 8-10 KEY CONFIGURATIONS

SYSTEM	TERMINAL BLOCK COLOR	KEY	POWER OUT	POWER IN
20A, 120V, 4H/2N/IG	Black	422		
20A, 120V, 4H/4N/IG	Orange	442		
20A, 120V, 3H/3N/IG	Natural	332		
20A, 120V, 6H/3N/G	Blue	631		
20A, 120V, 6H/2N/IG	Ivory	622		

8-10 SYSTEM KEYING CONFIGURATIONS & COLORS

SYSTEM	TERMINAL BLOCK COLOR	KEY	CONFIG	H		N		G	
				CONDUCTOR LOCATION	WIRE COLOR	CONDUCTOR LOCATION	WIRE COLOR	CONDUCTOR LOCATION	WIRE COLOR
120V 4H/2N/IG	Black	422	422	7 8 9 10	Line 1: Black Line 2: Red Line 3: Blue Line 4: Blk/Wht	2 3	Neutral 1: White Neutral 2: Wht/Red	1 6	Equip Gnd: Green ISO Gnd: Grn/Yel
120V 4H/4N/IG	Orange	442	442	7 8 9 10	Line 1: Black Line 2: Red Line 3: Blue Line 4: Blk/Wht	2 3 4 5	Neutral 1: White Neutral 2: Wht/Red Neutral 3: Wht/Blu Neutral 4: Wht/Blk	1 6	Equip Gnd: Green ISO Gnd: Grn/Yel
120V 3H/3N/IG	Natural	332	332	7 8 9	Line 1: Black Line 2: Red Line 3: Blue	2 3 4	Neutral 1: White Neutral 2: Wht/Red Neutral 3: Wht/Blu	1 6	Equip Gnd: Green ISO Gnd: Grn/Yel
120V 6H/3N/G	Blue	631	631	5 6 7 8 9 10	Line 1: Black Line 2: Red Line 3: Blue Line 4: Blk/Wht Line 5: Red/Wht Line 6: Blu/Wht	2 3 4	Neutral 1: White Neutral 2: Wht/Red Neutral 3: Wht/Blu	1	Equip Gnd: Green
120V 6H/2N/IG	Ivory	622	622	4 5 7 8 9 10	Line 1: Black Line 2: Red Line 3: Blue Line 4: Blk/Wht Line 5: Red/Wht Line 6: Blu/Wht	2 3	Neutral 1: White Neutral 2: Wht/Red	1 6	Equip Gnd: Green ISO Gnd: Grn/Yel

WALKERFLEX SYSTEM WIRING CONFIGURATIONS (continued)

3-6 SYSTEM KEYING CONFIGURATIONS & COLORS

TERMINAL BLOCK COLOR	KEY	CONFIG	H		N		G	
			CONDUCTOR LOCATION	WIRE COLOR	CONDUCTOR LOCATION	WIRE COLOR	CONDUCTOR LOCATION	WIRE COLOR
Black	A	111	1	Line 1: Black	6	Neutral 1: White	4	Equip Gnd: Green
		211	1 2	Line 1: Black Line 2: Red	6	Neutral 1: White	4	Equip Gnd: Green
		311	1 2 3	Line 1: Black Line 2: Red Line 3: Blue	6	Neutral 1: White	4	Equip Gnd: Green
		411	1 2 3 5	Line 1: Black Line 2: Red Line 3: Blue Line 4: Blk/Wh	6	Neutral 1: White	4	Equip Gnd: Green
Orange	B	112	1	Line 1: Black	6	Neutral 1: White	4 5	Equip Gnd: Green ISO Gnd: Grn/Yel
		212	1 2	Line 1: Black Line 2: Red	6	Neutral 1: White	4 5	Equip Gnd: Green ISO Gnd: Grn/Yel
		222	1 2	Line 1: Black Line 2: Red	6 3	Neutral 1: White Neutral 2: Wht/Red	4 5	Equip Gnd: Green ISO Gnd: Grn/Yel
Clear	C	221	1 2	Line 1: Black Line 2: Red	6 5	Neutral 1: White Neutral 2: Wht/Red	4	Equip Gnd: Green
Yellow	D	111	1	Line 1: Black	6	Neutral 1: White	4	Equip Gnd: Green
		211	1 2	Line 1: Black Line 2: Red	6	Neutral 1: White	4	Equip Gnd: Green
		311	1 2 3	Line 1: Black Line 2: Red Line 3: Blue	6	Neutral 1: White	4	Equip Gnd: Green
		411	1 2 3 5	Line 1: Black Line 2: Red Line 3: Blue Line 4: Blk/Wh	6	Neutral 1: White	4	Equip Gnd: Green
Green	E	112	1	Line 1: Black	6	Neutral 1: White	4 5	Equip Gnd: Green ISO Gnd: Grn/Yel
		212	1 2	Line 1: Black Line 2: Red	6	Neutral 1: White	4 5	Equip Gnd: Green ISO Gnd: Grn/Yel
		222	1 2	Line 1: Black Line 2: Red	6 3	Neutral 1: White Neutral 2: Wht/Red	4 5	Equip Gnd: Green ISO Gnd: Grn/Yel
Blue	F	221	1 2	Line 1: Black Line 2: Red	6 3	Neutral 1: White Neutral 2: Wht/Red	4 5	Equip Gnd: Green

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