AcuityBrands 1009 PWREP DIN P4 RDM 4-Way DMX RDM Repeater Instruction Manual

AcuityBrands 1009 PWREP DIN P4 RDM 4-Way DMX RDM Repeater Instruction Manual

Contents

OVERVIEW

The Pathway DIN-mount DMX/RDM Splitter supports the bidirectional communications necessary for E1.20 Remote Device Management in DMX512 installations requiring starwiring.
Full opto-isolation between all ports adds maximum protection against common mode voltages or ground faults for connected equipment.

CONNECTIONS

The PWREP DIN P4 RDM features terminal strips that can be removed from the card to facilitate easy wiring installation or replacement. Make the following connections, WITH THE POWER TURNED OFF, and observe ESD precautions by ensuring the installer is properly grounded before handling the device.

POWER
The DMX/RDM Splitter is designed to run on a range of voltages from 9-30 volts DC. Each DMX/RDM Splitter requires 6 watts. Observe the correct polarity when connecting to V+ and V-.
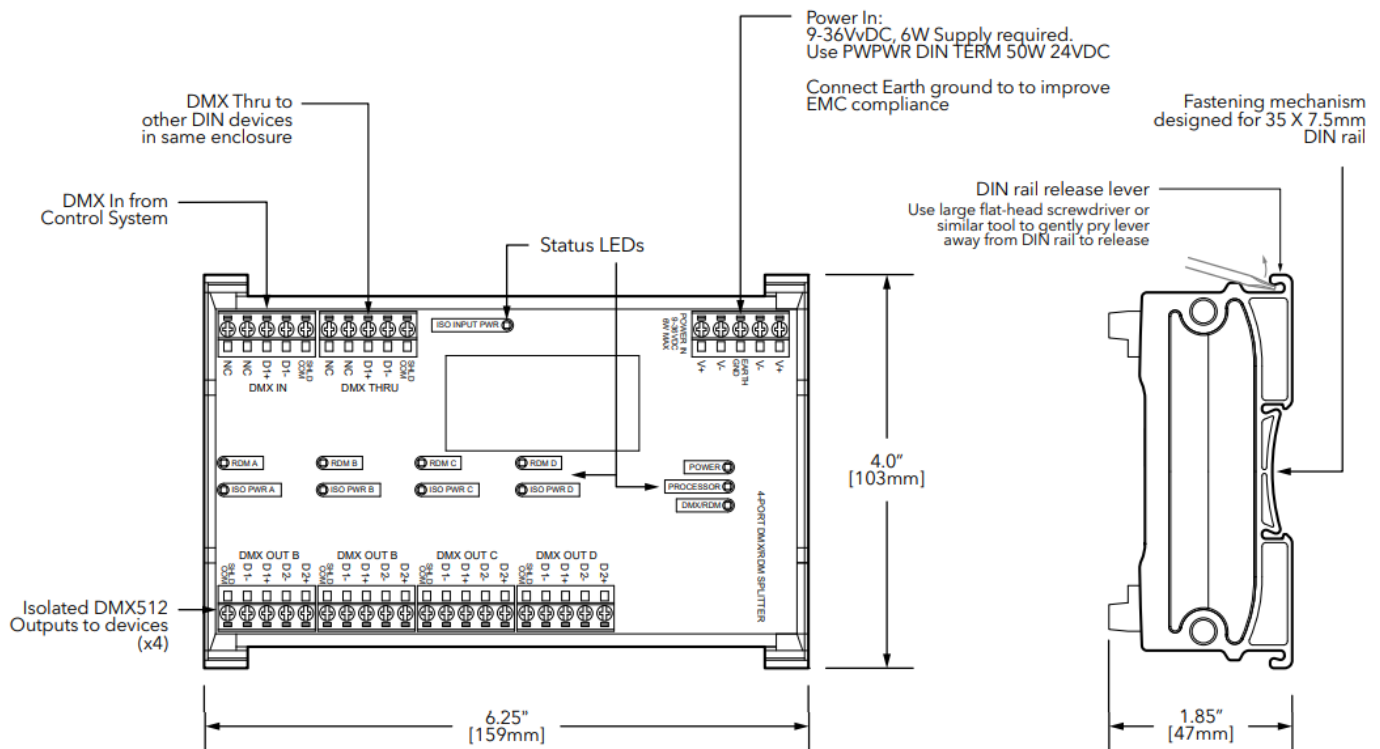
A second set of terminals are provided as a DC power-through connection to other DIN devices. The EARTH GND terminal may be connected to the enclosure's chassis or electrical ground terminal to improve EMC compliance.

DMX512
DMX connections consist of a shield and a data pair. An optional second auxiliary data pair is also occasionally employed. DMX IN usually comes from a control console, Pathport® Gateway, architectural controller or opto-splitter. DMX THRU provides a means to daisy-chain DMX to other DIN devices.

Connect DATA+ and DATA- to D1+ and D1− on the DMX IN terminal.
Connect the cable shield or common to the SHLD COM terminal.
Observe the same polarity convention throughout the system while connecting the four outputs.

Connect wires for DATA2+ and DATA2− to D2+ and D2−, if desired. It is not necessary to connect these wires for DMX or RDM to function.

DMX Thru to
other DIN devices
in same enclosure

Power In:
9-36VvDC, 6W Supply required.
Use PWPWR DIN TERM 50W 24VDC

Connect Earth ground to to improve
EMC compliance

Fastening mechanism
designed for 35 X 7.5mm
DIN rail

DMX In from
Control System

Status LEDs

DIN rail release lever
Use large flat-head screwdriver or
similar tool to gently pry lever
away from DIN rail to release

ISO INPUT PWR

NC NC D1+ D1- SHLD COM   NC NC D1+ D1- SHLD COM   POWER IN 9-36VDC 6W MAX   V+ V- V- EARTH GND V- V+

DMX IN   DMX THRU

RDM A   RDM B   RDM C   RDM D   POWER
ISO PWR A ISO PWR B ISO PWR C ISO PWR D   PROCESSOR
                                              DMX/RDM

4-PORT DMX/RDM SPLITTER

4.0"
[103mm]

DMX OUT B   DMX OUT B   DMX OUT C   DMX OUT D
SHLD COM D1- D1+ D2- D2+ (×4)

Isolated DMX512
Outputs to devices
(x4)

6.25"
[159mm]

1.85"
[47mm]

STATUS INDICATORS

POWER IN
Blue. Glowing steadily indicates power supply OK; off indicates no power.

PROCESSOR
Green. Glowing steadily indicates processor is OK; off when POWER IN is lit indicates processor failure.

DMX INPUT
Amber. Glowing steadily indicates data signal received; off indicates no signal present.

ISO POWER IN
Red. Internally isolated power supply for input processing working correctly. Off indicates no power.

ISO POWER A/B/C/D
Red. Internally isolated power supply to that output port is working correctly. Off means no power to that port.

RDM A/B/C/D
Amber. Flickering indicates presence of RDM data packets. Off indicates no RDM activity on the network.

RDM CONTROLLER

A compliant RDM controller must be used to get and set RDM information and commands. The PWREP DIN P4 RDM does not provide controller functions, but simply allows RDM messages within a star-wiring network.
A Pathport Gateway and suitable software can be used to provide RDM controller functions.

DMX TERMINATION

The PWREP DIN P4 RDM is internally terminated and does not require any further termination at the device. However, the last DMX device on each output leg must still be properly terminated in accordance with the E1.11 DMX512-A standard, to ensure correct device operation.

DMX THRU CONNECTOR

The DMX THRU connector is an active pass-through and fully supports RDM. In effect, it is a fifth output port. If power is lost to the device, the DMX THRU connector will no longer function.
Due to timing restrictions in the RDM standard, no more than seven (7) PWREP DIN P4 RDM devices may be daisy-chained together in one run.

E1.20 REMOTE DEVICE MANAGEMENT

ANSI E1.20 Remote Device Management (RDM) is an open standard data protocol that provides DMX512-A networks with the option of bidirectional communication (aka "talkback"). By using half-duplex data communications, RDM operates over the same wire pair (pines 2 and 3) as DMX, ensuring backward compatibility with all DMX installations.

SYSTEM TOPOLOGY

System layout is critical for successful use of the RDM standard.
Wire type and installation methodology must be correct as the timing restrictions required by RDM are much more strict than for DMX.

RDM devices are classified as "controllers", "responders", or "in-line" devices. Only one controller may be active on a given network. When the controller issues a command, it listens for a response within a prescribed time. During this period, "in-line" devices like the PWREP DIN P4 RDM prepare to pass data back to the controller.

Due to timing constraints imposed to ensure integrity of the DMX signal, a maximum of seven in-line devices are allowed between the controller and an output with a responder attached.

The PWREP DIN P4 RDM is considered an "in-line" device. The signal path may never include more than seven DIN splitters. Anything greater will prevent devices further downstream from being able to respond.

ELECTRICAL INFORMATION

- **Power input:** 9-36VDC; 6W maximum power consumption
- **Isolation:** 3000V isolation between DMX Ports (1500V Isolation from any DMX port and DMX Thru)
- **Fault protection:** 250V fault protection on DMX ports

WARNING: DO NOT install other RDM responders between the controller and the PWREP DIN P4 RDM, or between the THRU connector on one DIN device and the DMX IN on the next.

DMX WIRING PINOUT REFERENCE

Standard R422/485 Conductor Pinouts (ie. Belden, Proplex, etc)

Terminal Pin	Function
Pin 1	Shield
Pin 2	Data – (pair 1 complement)
Pin 3	Data + (pair 1 true)
Pin 4	Optional Data – (pair 2 complement)
Pin 5	Optional Data + (pair 2 true)

Cat5, Cat5e and Cat6 Wiring Pinouts

Wire Color and #	Function	Pin Number
White/Orange (1)	Data +	3
Orange (2)	Data –	2
White/Green (3)	Optional Data +	5
Green (6)	Optional Data –	4
Blue (4)	Not Used	N/A
White/Blue (5)	Not Used	N/A
White/Brown (7)	Data signal common	1
Brown (8)	Not Used	N/A

COMPLIANCE

- ANSI E1.11 DMX512-A R2013
- ANSI E1.20 RDM – Remote Device Management
- CE
- RoHS 2011/65/EU + A1 2015/863

PHYSICAL

- 6.25"W x 4"H x 1.85"D (159mm x 103mm x 47mm)
- 0.7 lbs (0.32 kg)
- Operating Conditions: 14°F-113°F (-10°C to 45°C); 5-95% relative humidity, non-condensing

Support

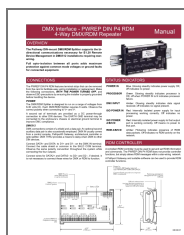**© 2021 Acuity Brands, Inc.**
One Lithonia Way, Conyers GA 30012
Pathway Connectivity | #103 – 1439 17th Ave SE Calgary, AB Canada T2G 1J9
Phone: + 1 866 617 3074
www.pathwayconnect.com

Documents / Resources

AcuityBrands 1009 PWREP DIN P4 RDM 4-Way DMX RDM Repeater [pdf] Instruction Manual
1009, PWREP DIN, P4 RDM 4-Way DMX RDM Repeater, 1009 PWREP DIN P4 RDM 4-Way DMX RDM Repeater, RDM 4-Way DMX RDM Repeater, 4-Way DMX RDM Repeater, DMX RDM Repeater, RDM Repeater, Repeater

References

- **DMX Lighting & Networking | Pathway Connectivity**