DMX Interface - PWINF DIN D2A 16-Channel Demultiplexer

Manual

OVERVIEW

The PWINF DIN D2A DIN demultiplexer converts DMX512 signals into 16 channels of analog control voltage. The demultiplexer can also control Mark7-type fluorescent ballasts, solid state relays or LEDs.

The module is RDM discoverable and configurable.

CONNECTIONS

The PWINF DIN D2A 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.***

POWER

The module will run on a range from 9 to 30 VDC at a maximum of 6 Watts. Observe the correct polarity when connecting the V+ and V-. A second set of terminals are provided on the connector to daisy-chain power to other DIN modules. The EARTH GROUND terminal must be connected to the enclosure's chassis or electrical ground terminal to improve EMC compliance.

DMX512

DMX connections consist of a shield and data pair. Connect the DATA+ and DATA- wires to D1+ and D1- respectively for each of DMX IN and DMX THRU. Observe the same polarity convention throughout the system. Connect the cable shield to the SHLD COM terminal.

DMX THRU may be daisy-chained to the DMX IN of other DIN modules.

ANALOG OUTPUTS

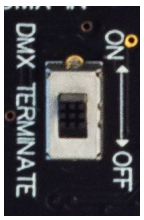
Sixteen analog output terminals are provided in groups of four, each with a common terminal. All common terminals are internally connected, so only one needs to be tied to the device being controlled.

Outputs are rated up to 15 VDC, 10mA per channel, sourcing; or 30mA per channel, sinking. Maximum wire run is 150 meters (500 ft).

STATUS INDICATORS

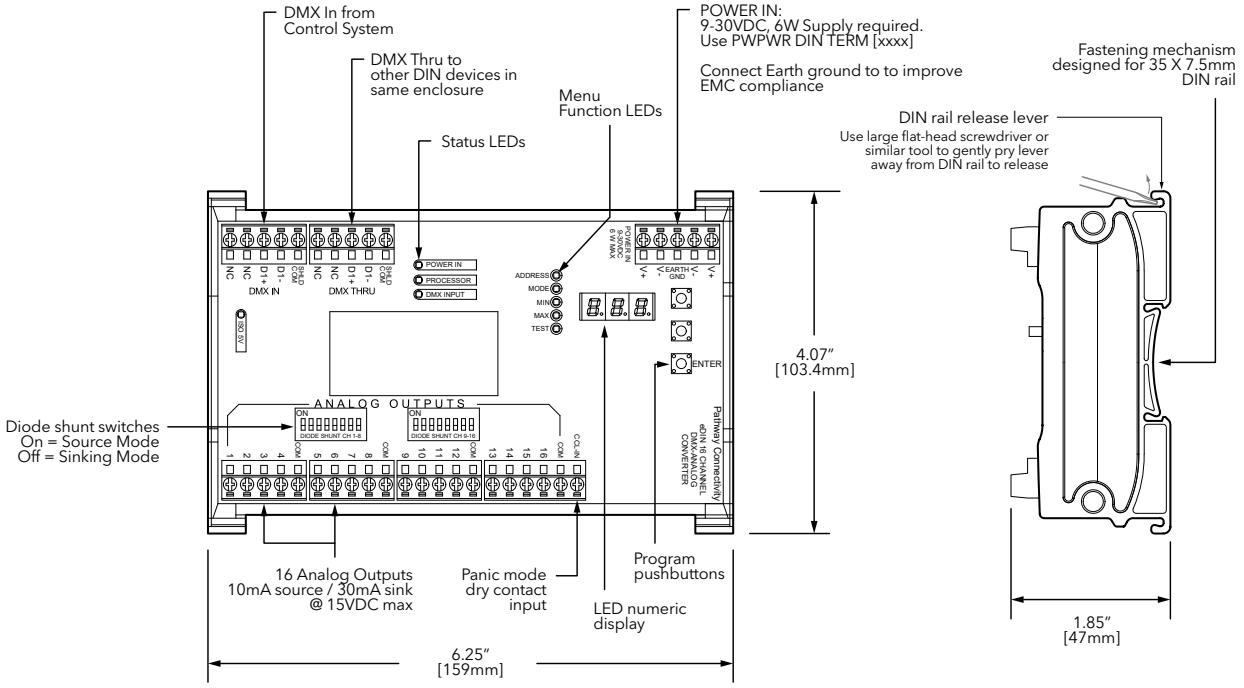
POWER IN	*Blue*. Steady glow indicates power supply OK; off indicates no power.
PROCESSOR	*Green*. Steady glow indicates processor is OK; off when POWER IN is lit indicates processor failure.
DMX INPUT	*Amber*. Steady glow indicates port latched to active DMX source; off indicates no signal present.
FUNCTION	*Amber*. Indicates the function associated with the numeric display.

DMX TERMINATE



DMX rules require the last device on a DMX line to be terminated with a 120Ω resistor between pins 2 and 3 to prevent signal reflection. If there is no connection to the DMX THRU terminals, the DMX Terminate switch should be ON.

If there are other devices connected to the DMX THRU terminal, the DMX Terminate switch should be OFF and termination be applied to the final device in the daisy-chain.



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CONFIGURATION

To configure, first press the ▲ or ▼ buttons to select the desired function, indicated by the LED next to ADDRESS, MODE, MIN, MAX, or TEST. Once selected, press and hold the ENTER button until a dot appears in the lower right-hand corner of the display. The card is now in EDIT mode.

When done editing a parameter, press ENTER. The dot will disappear, the new value will be saved and the unit will be ready for operation.

SET DMX ADDRESS

One in ADDRESS edit mode, press ▲ or ▼ to change the start address to the desired value. Press ENTER to save the address. Valid addresses range from 1 to 512.

SET OPERATING MODE

Once in MODE edit, choose from the following:

- **MODE 1: *0-10VDC Output* (MAX will read 158)**
- **MODE 2: *0-5VDC Output* (MAX will read 79)**
- **MODE 3: *0-15VDC Output* (MAX will read 237)**
- **MODE 4: *0-2.5VDC Output* (MAX will read 40)**
- **MODE 5: *Custom D-to-A* (set your own voltage)**
- **MODE 6: *EFBC/LED Control* - 10% threshold**
- **MODE 7: *Non-Dim* (see below)**
- **MODE 8: *EFBC/LED Control* - 1% threshold**

SET MIN AND MAX VOLTAGE OUTPUT LEVELS

To set a custom output voltage, confirm the DMX start address is set to 1. Connect a voltmeter between output 1 and COM on the card. Connect a DMX source to DMX IN. Using your source, vary the DMX level on channel 1 and confirm that the voltage output is changing. Set the DMX level to full.

Use the ▲ or ▼ buttons and ENTER to select MAX for editing. Use ▲ or ▼ while observing the output on the voltmeter. Once the voltage is at the level you desire, press ENTER to save. Repeat this process to set a MIN level. Valid MIN levels are between 0 and 254. Valid MAX levels are between 1 and 255. 255 roughly corresponds to an output of 16VDC. Customizing these values will place the card in Mode 5. MIN and MAX should be checked in Modes 6, 7 and 8, with **MAX set as a value of 158 to ensure proper operation of the solid state relays.**

NON-DIM CONTROL

Mode 7 provides non-dim control of solid state relays or LEDs. At a DMX level of 0%, each channel outputs +10VDC. The output voltage drops to zero when DMX passes 50%. All blocking diodes must be shunted (bypassed) in this mode.

EFBC / LED CONTROL

Mode 6 and 8 allow unified control of up to eight circuits of LED fixtures or Mark 7-type electronic fluorescent ballasts, with a maximum of 20 fixtures/ballasts on each circuit. Two channels are used for each circuit. Channels are paired: 1 with 9, 2 with 10, and so on.

The lower channel provides 0-10VDC dimming control, while the higher acts as a non-dim, when connected to a solid state relay controlling the circuit's AC supply. In mode 6, the non-dim triggers when DMX passes through 10%. In mode 8, the non-dim threshold is 1%. All blocking diodes must be shunted (bypassed) in this mode.

TEST MODE

Once in TEST mode, using the ▲ or ▼ buttons will toggle each output on and off. The output number is shown on the right hand display. DMX input is ignored while in TEST mode.

CCL PIN (PANIC INPUT)

Shorting the CCL pin to COM will drive all outputs to full. The CCL input overrides the DMX input level.

SELF-TEST

Press the ▲ button while turning power on to enter self-test mode. All LEDs will flash sequentially. The display will cycle 0 through 9, then show the serial number and firmware version. Cycle power to end self-test.

DIODE SHUNTS

The behavior of the diode shunts is dependent on the module's revision level .The revision number is shown on the product label, next to the part number.

The diodes prevent the control signal from back-feeding into the output and damaging the module. The diodes must removed from the circuit to allow sinking control. The 16 DIP switches are wired as shunts, allowing the diodes to be engaged or disengaged output-by-output.

REV 4 and below: The blocking diodes are engaged by default. With the shunt switches in the "off" position, the diodes will prevent current backflow. This is the correct arrangement for driving analog dimmers. With the shunts in the "on" position, the diodes are bypassed. This is the correct arrangement for sinking control of EFBCs and LED dimmers.

REV 5 and above: The blocking diodes are bypassed by default. With the DIP switches in the "off" position, current will backflow through the card. This is the correct arrangement to allow sinking control of EFBCs and LED dimmers. With the DIP switches in the "on" position, the diodes will block backflow current. This is the correct arrangement for driving analog dimmers.

Pathway® Connectivity Solutions

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E1.20 RDM RESPONDER FEATURES

The PWINF DIN D2A is fully compliant with ANSI E1.20 Remote Device Management as a responder device. An RDM Controller can discover and set the card's DMX start address, firmware version and operating mode.

With Pathscape software, the user can upgrade the firmware in the field. Download Pathscape from the Pathway website.

ELECTRICAL INFORMATION

- 1500V opto-isolation between DMX input and analog outputs
- 250V fault protection on DMX input port
- Input operating voltage: 9-30VDC
- 6W power consumption

Exceeding this rating may result in personal injury or damage to this and other connected devices.

PHYISCAL

- 0.7 lbs (0.316 kg)
- 6.25"W x 4"H x 1.85"D (159mm x 103mm x 47mm)
- Operating conditions: 14°F-113°F (-10°C-45°C), 5-95% relative humidity, non-condensing

COMPLIANCE

- ANSI E1.11 DMX512-A R2013
- ANSI E1.20 RDM - Remote Device Management
- ANSI E1.3 - 2001 (R2021), Lighting Control Systems - 0-10V Analog Control (with diode shunts on)
- ANSI C82.11 Fluorescent Ballast Control (diode shunts off)
  - Suitable for many LED drivers using pink and purple wires
- RoHS 2011/65/EU + 2015/863
- CE
- Class 2 Low Voltage

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