DMX Interface - PWINF DIN CC
12-Channel Contact Closure

Manual

OVERVIEW

The Pathway DIN Contact Closure interface (PWINF DIN CC) provides twelve DMX-controlled, form-C relay closures for low voltage power or signal switching.

RDM discoverable and configurable, with a DIN-rail mount that makes installation fast and easy.

CONNECTIONS

The PWINF DIN CC 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.

DMX PRESENT RELAY CLOSURE

Starting with firmware 1.5.5, the J13 DMX present relay closure is supported. Wire RCOM to RNO or RNC for normally-open or normally-closed, as desired.

CONTACT OUTPUTS

The PWINF DIN CC can be thought of as twelve DMX controllable switch closures. As switches, they need two connections each, as the switches provide no voltage or current on their own. One connection is to the supply and one to the load. Each relay has three sets of contacts; normally-open (NO), normally-closed (NC), and common (C).

Generally, the normally-open contacts are used; providing an open switch that closes when the relay is energized. Normally-closed contacts operate in the opposite manner, providing a closed switch that opens when the relay is energized.

All common terminals are independent of one another.

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.
RELAY	*Red*. Steady glow indicates relay is energized. Flickers for momentary action.
FUNCTION	*Amber*. Indicates the function associated with the numeric display.

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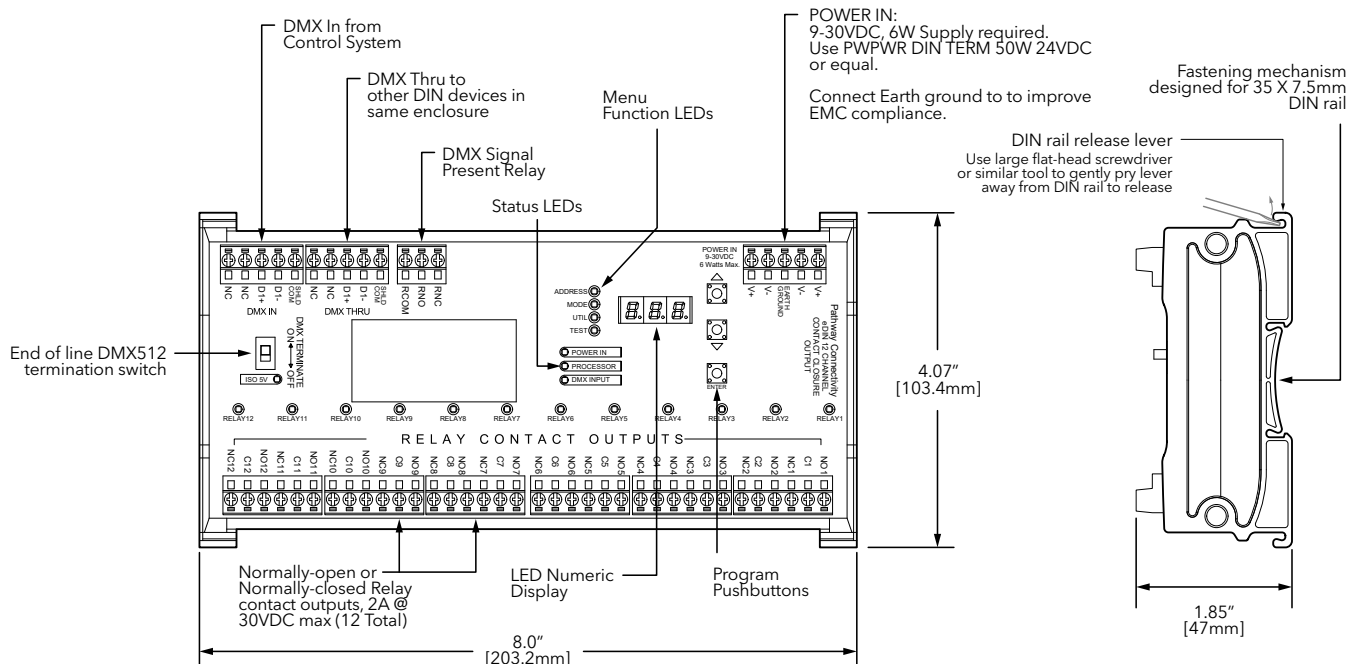
CONFIGURATION

The DIN user interface has two operating modes: Function and Edit. Press the ▲ or ▼ buttons to select a function, indicated by the LED next to ADDRESS, MODE, UTIL, 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.

ADDRESS changes the DMX start address. MODE sets one of nine different operating modes. TEST allows the user to test the contact closures using the ▲ or ▼ buttons. Test patterns depend on what mode the card is operating in. For UTIL mode, see the section labeled "UTIL MODE" to the right.

SET OPERATING MODE

Once in EDIT mode, choose from the following:

- **MODE 1:** *12-Channel Maintained Control*
  Each relay is maintained "on" as long as the DMX value of its associated channel is above 50%.

- **MODE 2:** *12-Channel Momentary Control*
  When the DMX channel for a given relay passes through the 50% threshold, either increasing or decreasing, the relay will close for 100mS.

- **MODE 3:** *12-Channel Momentary "ON"*
  When the DMX channel for a given relay is increasing and passes through the 50% threshold, the relay will close for 100mS.

- **MODE 4:** *6-Channel Momentary Split*
  Each adjacent pair of relays are associated with a single DMX channel. When the DMX level of the channel for a given relay pair passes through the 50% threshold, increasing, the lower number relay will close for 100mS. When the DMX level for a given pair passes through the 50% threshold, decreasing, the higher number relay will close for 100mS.

- **MODE 5:** *6-Channel Maintained Split*
  Each adjacent pair of relays are associated with a single DMX channel. When the DMX level of the channel for a given pair passes through the 50% threshold, increasing, the lower number relay will close and maintain state, while the higher number relay will open. When the DMX level for a given pair passes through the 50% threshold, decreasing, the lower number relay will open while the higher number relay will close and maintain state.

- **MODE 6:** *12-Channel Momentary Split with Secondary 'Reset'*
  2 sequential DMX channels are associated with each adjacent pair of relays. When the lower DMX channel increases through 50%, the lower numbered relay will close for 100mS. When the lower DMX channel decreases through 50%, the higher-numbered relay will close for 100mS. To provide a secondary reset, when the higher DMX channel passes through 50%, increasing, the higher relay will close for 100mS. If the higher DMX channel decreases through 50%, the relays remain unchanged.

- **MODE 7:** *Chase*
  Each relay will be triggered for two seconds. This mode is intended as a test feature, independent of the user-initiated TEST mode.

- **MODE 8:** *Single Channel Select*
  Raising the DMX level of the start channel will maintain each relay in turn, from none up to the twelfth. At a DMX percentage between 0-8%, no relays will be triggered; a DMX percentage between 9-16% will maintain relay 1 only; a DMX percentage between 17% and 24% will maintain relay 2 only; and so on. In this mode, the Contact Closure Interface has a DMX footprint of one channel.

- **MODE 9:** *Single Channel Build*
  Raising the DMX level of the start channel will trigger each relay additionally. At zero percent, no contact closures will trigger, while at full, all twelve contact closures are triggered. At a DMX percentage between 0-8%, no relays will be triggered; a DMX percentage between 9-16% will maintain relay 1 only; a DMX percentage between 17% and 24% will maintain relay 1 and relay 2; and so on. In this mode, the Contact Closure Interface has a DMX footprint of one channel.

UTIL MODE

Firmware 1.6.0 and higher: UTIL adjusts the DMX trigger threshold. Valid range is 2 to 253, with a default of 128 (50%). Feature not available on older firmware.

Firmware 1.5.5 and lower:

- UTIL Mode 1: normal operation.

- UTIL Mode 2: the number 12 relay will trigger whenever DMX becomes present or is lost. Momentary or maintained behavior is governed by the operating mode of the card.

TEST AND SELF-TEST

Once in TEST mode, use the ▲ or ▼ buttons to trigger the selected relay or relay pair. The test function is operating mode dependent and will cause the card to 'ignore' the DMX input.

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 cards serial number and firmware version. Cycle power to end self-test.

RDM RESPONDER FEATURES

The PWINF DIN CC 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. Starting with firmware 1.5.5, and RDM utility (Pathscape) can upgrade the firmware in the field.

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Connectivity Solutions

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.

ELECTRICAL INFORMATION

- Relays rated for minimum 100,000 operations at 2A @ 30VDC
- 1500V opto-isolation between DMX input and module electronics
- 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)
- 8"W x 4"H x 1.85"D (203mm 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
- RoHS 2011/65/EU + A1 2015/863
- CE
- Class 2 Low Voltage