

## Compact I/O Module

### XIO-4DI LON® DIGITAL INPUT MODULE

#### INSTALLATION INSTRUCTIONS



## GENERAL

The Honeywell XIO-4DI LON® Digital Input Module is a LON module with 4 digital inputs. It is suitable to record the status of potential free switches, e.g. electronic limit switches at vent valves or auxiliary contacts, at power contactors and to record counted measurands at counters with contactor. The "1" through "4" and four "C" input contacts are connected to potential free switches or contacts. States and counted measurands are read out by standard network variables and bound to other LonMark® devices. Configuration is done by LNS®-Plugin.

## SPECIFICATIONS

### LON Interface

Transceiver: FTT10A free topology.  
 Neuron: 3120, 2k EEPROM downloadable.  
 Data format: standard network variables (SNVT).  
 Transmission rate: 78 kBit/s.  
 Max. Length:  
     line topology 8958 ft. (2700 m) / 64 nodes.  
     free topology 1640 ft. (500 m) / 64 nodes.  
 Cabling: twisted pair.

### Electrical Ratings:

Supply Operating Voltage: 20 to 28 V AC/DC.  
 Current Consumption: 63 mA (AC) / 21mA (DC).  
 Duty cycle: 100%.  
 Recovery time: 550 ms.

### Terminal Blocks:

Supply and Bus: 16 AWG (1.5 mm<sup>2</sup>)  
 (Terminal block and strapping plug included in packing).  
 Digital Inputs: 14 AWG (2.5 mm<sup>2</sup>).

### Display:

Operation: green LED.  
 Function; yellow LED for status (service).  
 Input status: yellow LEDs

### Temperature Ratings:

Operating: 23° F to 131° F (-5° C to +55° C).  
 Storage: -4° F to +158° F (-20° C to +70° C).

### Dimensions (W x H x D):

1.4 x 2.7 x 2.6 in. (35 x 70 x 65 mm).

**Weight:** 2.9 ounces (83 g).

**Mounting:** DIN rail per EN 50022.

**Mounting:** Any.

### Construction Material:

Housing and Terminal Blocks: Polyamide 6.6 V0.  
 Faceplate: Polycarbonate.

### Protective Circuitry:

Operating Voltage: polarity reversal protection.

### Protection:

IP40 housing DIN 40050.  
 IP20 terminal blocks DIN 40050.

### Approvals:

UL 916, Standard for Energy Management Equipment.  
 European Community Mark (CE) Listed.



## SAFETY INSTRUCTIONS

### NOTES REGARDING DEVICE DESCRIPTION

These instructions include indications for use and mounting of the device. In case of questions that cannot be answered with these instructions, please consult the product supplier or manufacturer. It is the responsibility of the equipment installer to ensure that all federal, state and local codes are followed.

### SAFETY INSTRUCTIONS

- Keep these Installation Instructions for industrial safety and the prevention of accidents.
- Only qualified personnel shall do mounting and installation work with these devices, see section titled “Qualified Personnel”.
- The information in these instructions must be read and understood by every person using this device.

### QUALIFIED PERSONNEL

Qualified personnel in the sense of these instructions are persons who are well versed in the use and installation of such devices and whose professional qualification meets the requirements of their work.

This includes, for example:

- Qualification to connect the device according to applicable specifications and regulations, and a qualification to put this device into operation, to power it down, or to activate it by respecting the internal directions.
- Knowledge of safety rules.
- Knowledge about application and use of the device within the equipment system.

## BEFORE INSTALLATION

1. Unpack the XIO-4DI LON Digital Input Module.
2. Check the equipment and report any damage to a Honeywell representative.
3. Read all of these instructions and ensure they are understood.

## MOUNTING

Mount the XIO-4DI LON Digital Input Module on standard DIN rail per DIN EN 50022 (1.35 x 0.3 in. [35 x 7.5 mm]), in junction boxes and/or on distribution panels.

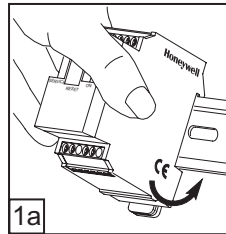
## INSTALLATION



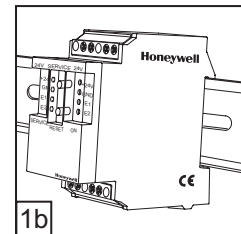
### CAUTION

Electrical installation and device termination shall be accomplished by qualified persons only, by respecting all applicable specifications and regulations.

1. Power down the equipment. Mount the Extension module on the DIN rail.

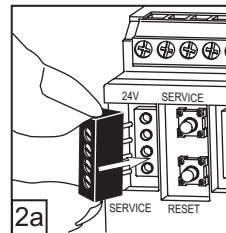


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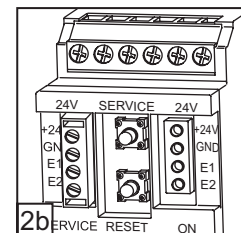


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2. Plug in the terminal block for bus connection.

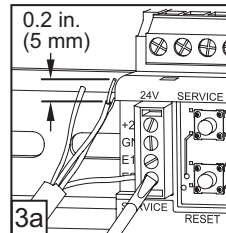


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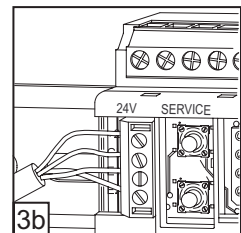


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3. Prepare the cable for bus connection:



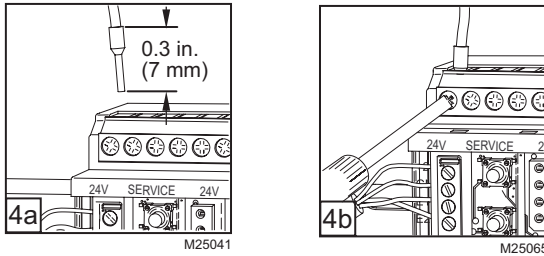
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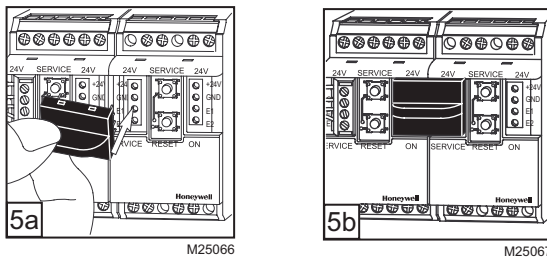
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- a. Remove about 0.75 in. (2 cm) of the plastic cable sheath.
- b. Strip 0.2 in. (5 mm) insulation from each wire. Put a wire end sleeve on stranded wires.
- c. Insert the wire to the respective contact and secure it by screwing down the contact screw.
- d. Wire cross section of the 4 pole terminal block bus/ mains connection:
  - (1) Maximum 16 AWG (1.5 mm<sup>2</sup>) single wire.
  - (2) Maximum 18 AWG (1.0 mm<sup>2</sup>) stranded wire.
  - (3) Wire diameter minimum 28 AWG (0.3 mm) up to 16 AWG (1.4 mm).

4. Prepare cable for module connections.
  - a. Strip the wires by 0.3 in. (7 mm). Put a wire end sleeve on stranded wires.



- b. Insert the wire into the respective module contact and secure it by screwing down the contact screw with a screwdriver.
  - c. Wire cross section of the module contacts:
    - (1) Maximum 12 AWG (4.0 mm<sup>2</sup>) single wire.
    - (2) Maximum 14 AWG (2.5 mm<sup>2</sup>) stranded wire.
    - (3) Wire diameter: minimum 28 AWG (0.3 mm) up to maximum 10 AWG (2.7 mm).
5. The module can be aligned without interspace. Use the strapping plug to connect bus and supply voltage when the modules are mounted in series. The modules can be mounted in series without interspace. The maximum number of modules connected in series is 15, with each group needing an external power supply.



## WIRING

Wiring of the XIO-4DI must be accomplished in accordance with federal, state, and local requirements. Figures 2 through 4 show sample diagrams of wiring for the XIO-4DI.

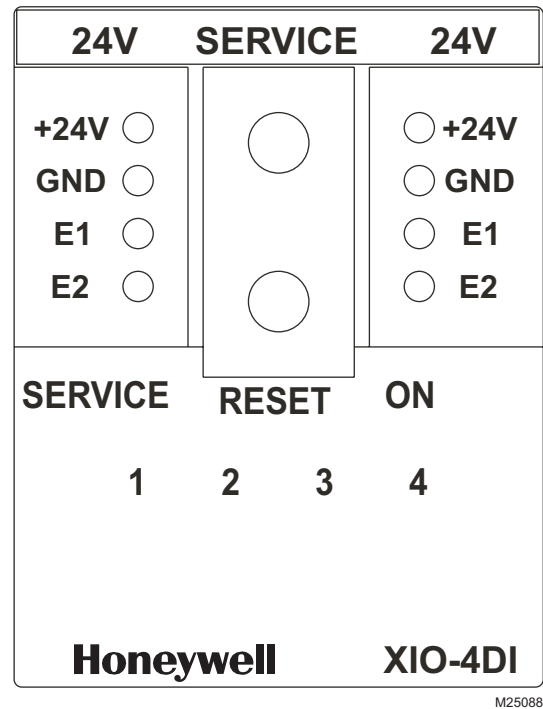


Fig. 2. Front panel diagram of XIO-4DI.

## TERMINATION

Fig. 1 shows the termination points of the XIO-4DI.

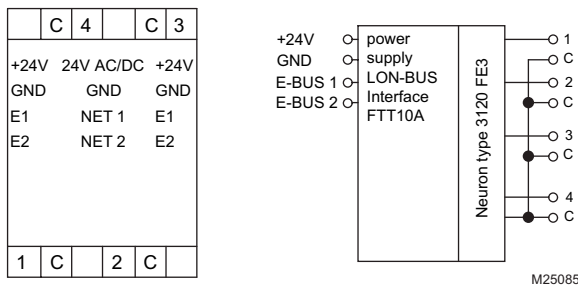


Fig. 1. Termination diagram for XIO-4DI.

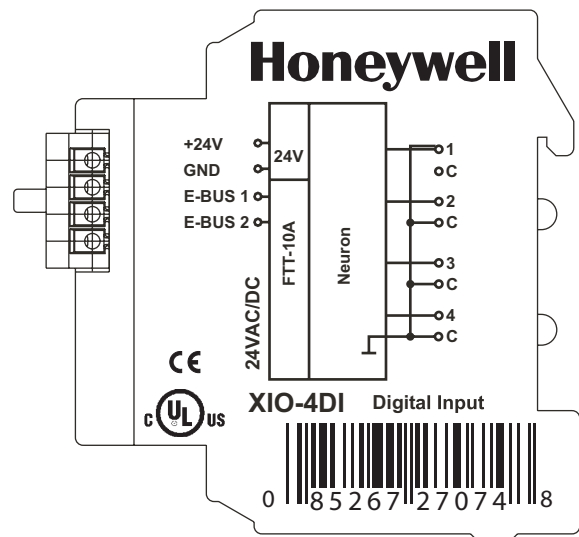


Fig. 3. Side panel diagram of XIO-4DI.

## SOFTWARE DESCRIPTION

The Node Object monitors and controls the functions of the different objects in the device. It supports the basic functions Object-Status and Object-Request required by LonMark. Refer to Fig. 4 for Node Object illustration. The following are monitored by Node object:

<b>nviRequest</b>	<b>NVT_obj_request</b>
<b>nvoStatus</b>	<b>SNVT_obj_status</b>
<b>nvoFileDirectory</b>	<b>SNVT_address</b>
<b>nvoln_state</b>	<b>SNVT_state</b>

**Status of the inputs:**  
 Assignment nvoln\_state.bit0 = input 1...bit3 = input 4  
 Contact closed nvoln\_state.bit[0...3] = 0

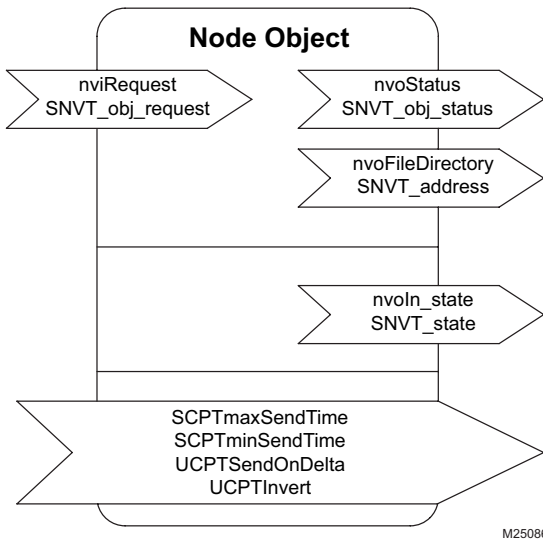


Fig. 4. Node Object chart for XI0-4DI

**SCPTmaxSendTime** **SNVT\_time\_sec**  
 All output variables described below will be issued at the latest at the end of the preset period even without status change.  
 Time settings: 0 timer function off-state  
 6553.4 s (factory setting 60 s)

**SCPTminSendTime** **SNVT\_time\_sec**  
 Two successive status changes will not be issued before the end of the preset minSendTime.  
 Time settings: 0 timer function off-state  
 6553.4 s (factory setting 1 s)

**UCPTSendOnDelta** **SNVT\_count**  
 The counter reading will only be issued when a preset counter difference to the previously issued value is reached.

**UCPTInvert** **SNVT\_state**  
 Inverting of input signals  
 UCPTInvert.bit[0...3] = 0 contact closed;  
 nvoDiValue\_1...4 set.  
 UCPTInvert.bit[0...3] = 1 contact open;  
 nvoDiValue\_1...4 set.

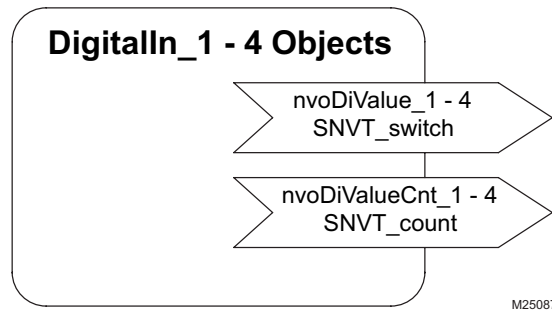


Fig. 5. Digital In Objects chart for XI0-4DI.

**nvoDiValue\_1...4** **SNVT\_switch**  
 Status of inputs with UCPTInvert=0:  
 Contact closed nvoDiValue\_1...4 - 100,0 1  
 Contact open nvoDiValue\_1...4 = 0,0 0

**nvoDiValueCnt\_1...4** **SNVT\_count**  
 Counter of the positive impulse edges at the input.  
 Reset value = 65535; 1.counted measurand = 1

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