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# 170 ADI 340 00 24 VDC - 16 Pt. Discrete Input Module Base

# 11

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## At a Glance

**Purpose** This chapter describes the 170 ADI 340 00 TSX Momentum I/O base.

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**In This Chapter** This chapter contains the following sections:

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Configuration	3	214

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## Section 11.1

### Module Overview

#### Introduction

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**Purpose** This section describes the front panel components of the 170 ADI 340 00 TSX Momentum I/O base and provides specifications.

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**In This Section** This section contains the following topics:

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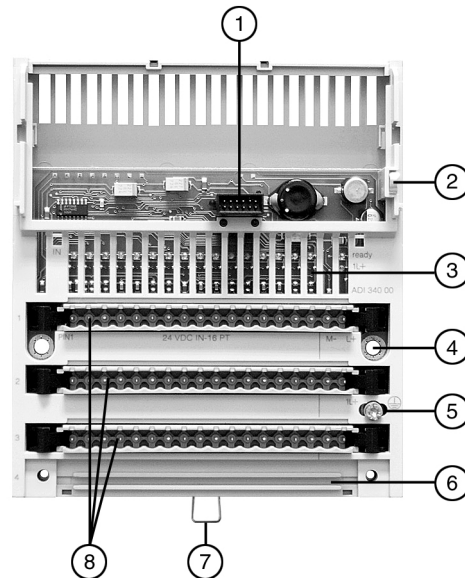
## Front Panel Components

### Overview

This section contains a photograph of the front panel of the 170 ADI 340 00 discrete input base and a description of the LEDs.

### Front Panel

The front panel of the I/O base is shown in the photograph below:



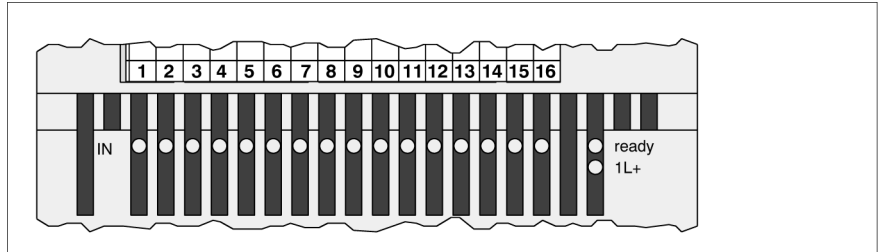
Label	Description
1	Internal interface (ATI) connector
2	Ground contact for the adapter
3	LED status display
4	Mounting holes for panel mount
5	Grounding screw
6	Busbar mounting slot
7	Locking tab for DIN rail mount
8	Sockets for the terminal connectors

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## Front Panel Components, Continued

### LED Illustration

The LEDs are shown in the illustration below.



### LED Descriptions

The LEDs are described in the table below.

Indicator	Condition	Message
ready	Green	Module is ready to communicate; operating voltage for internal logic (5 V) is present.
	Off	Module not ready
1L+	Green	Input voltage 1L+ of inputs 1 ... 16 is present
	Off	Input voltage of inputs 1 ... 16 is not present
IN 1 ... 16	Green	Input status (an LED per input); input point active, i.e. input carries a 1 signal (logically ON)
	Off	Input status (an LED per input); input point inactive, i.e. input carries a 0 signal (logically OFF)

## Specifications

### Overview

This section contains specifications for the 170 ADI 340 00 TSX Momentum I/O base.

### General Specifications

The following table contains general specifications for the I/O base.

<b>Module type</b>	16 discrete inputs in 1 group
<b>Supply voltage</b>	24 VDC
<b>Supply voltage range</b>	20...30 VDC
<b>Supply current consumption</b>	max. 250 mA at 24 VDC
<b>Power dissipation</b>	6 W + (# of input points on x .144 W)
<b>I/O map</b>	1 input word
<b>Potential isolation</b>	
Input to input	None
Field to communication interface	Defined by Communication Adapter type
<b>Fuses</b>	
Internal	None
External: operating voltage	315 mA fast-blow (Wickmann 19193-315 mA or 19194-315 mA or equivalent)
External: input voltage	According to the supply of the connected sensors—not to exceed 4A fast-blow
<b>EMC for industrial environment</b>	
Immunity	IEC 1131 Surge on auxiliary power supply 500V, 12 Ohm
Emmissions	EN 50081-2
Agency approvals	UL, CUL, CE

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## Specifications, Continued

### General Specifications, Continued

<b>Physical dimensions</b>	
Width	125 mm (4.9 in)
Depth (with no adapter)	40 mm (1.54in)
Length	141.5 mm (5.5in) no or one busbar 159.5 mm (6.3in) two busbars 171.5 mm (6.75in) three busbars
Weight	190 g (0.42 lb)

### Discrete Inputs

The following table contains specifications for discrete inputs:

<b>Number of points</b>	16
<b>Number of groups</b>	1
<b>Point/group</b>	16
<b>Signal type</b>	True High
<b>IEC 1131 type</b>	1+ (See Appendix on page 607 for definitions of IEC input types.)
<b>ON voltage</b>	+11 ... +30 VDC
<b>OFF voltage</b>	-3 ... +5 VDC
<b>Input current</b>	2.5 mA min. ON (6 mA at 24VDC) 1.2 mA maximum OFF
<b>Input voltage range</b>	-3 ... +30 VDC
<b>Input resistance</b>	4 kOhm
<b>Response time</b>	2.2 ms OFF to ON 3.3 ms ON to OFF

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## Section 11.2 Wiring

### Introduction

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**Purpose** This section describes internal pin connections and field wiring guidelines and provides wiring diagrams for the 170 ADI 340 00 TSX Momentum I/O base.

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**In This Section** This section contains the following topics:

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Field Wiring Guidelines	209
Wiring Diagrams	211
Simplified Schematics	213

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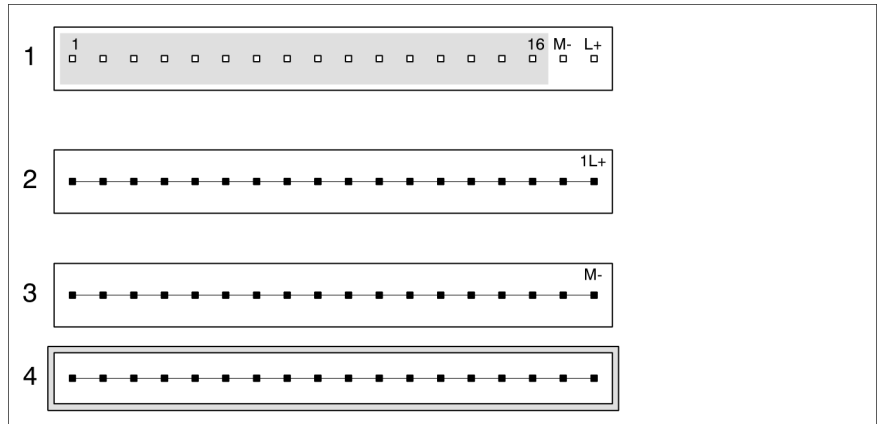
## Internal Pin Connections

### Overview

This section contains a diagram showing the internal connections for terminals on the I/O base and an optional one-row busbar.

### Diagram

Rows 1 through 3 show the internal connections between terminals on the I/O base. Row 4 shows the internal connections on the optional busbar.





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## Field Wiring Guidelines

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### Overview

Inputs are field wired to row 1 of the base. This section contains guidelines and precautions.

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### Terminal Connector Required

To connect field devices to the I/O base, you need a field wiring terminal connector. Schneider Automations sells terminal connectors in sets of three:

Type	Part Number
Screw-in	170 XTS 001 00
Spring-clip	170 XTS 002 00

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### Busbar May Be Required

If you are using 4-wire devices, you will need a 1-row busbar to connect them to protective earth (PE).

Type	Part Number
Screw-in	170 XTS 006 01
Spring-clip	170 XTS 007 01

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## Field Wiring Guidelines, Continued

### Mapping Terminal Blocks and Busbar

A busbar may be attached to this I/O base to provide a fourth row for protective earth (PE).

Row	Terminal	Function
1	1...16	Inputs
	17	Return (M-)
	18	+ 24 VDC Operating voltage (L+)
2	1 ... 17	Sensor/input device voltages
	18	+ 24 VDC for inputs
3	1 ... 17	Returns for sensor/input devices (for 3- and 4-wire devices)
	18	Return for inputs
4	1 ... 18	Protective earth (PE)



### CAUTION

#### POTENTIAL FOR SHORT CIRCUITS AND/OR POWER-UP SPIKES

Provide external fuses on the operating voltage to protect the module. Appropriate fuse values are shown in the wiring diagram. An unprotected module may be subject to short circuits and/or power-up spikes. See *Protective Actuator Circuit* on page 84.

**Failure to observe this precaution can result in injury or equipment damage.**

## Wiring Diagrams

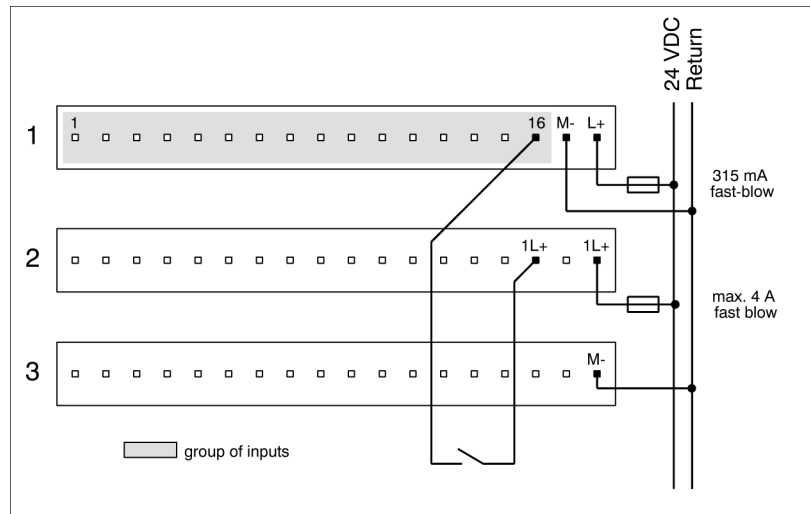
### Overview

This section contains diagrams to assist you in wiring the following types of devices:

- 2-wire devices
- 3-wire devices
- 4-wire devices

### Two-Wire Devices

The diagram below shows an example of wiring for two-wire devices.



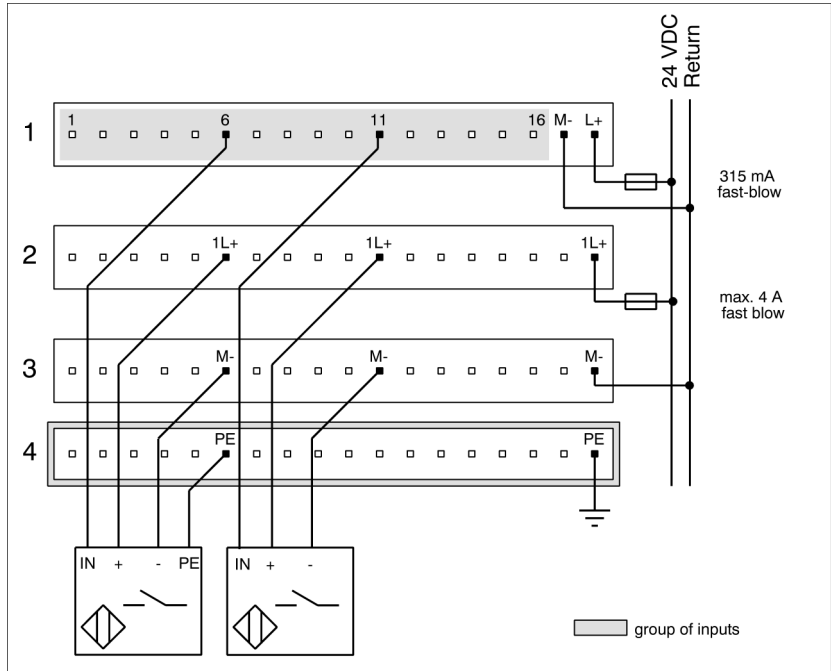
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## Wiring Diagrams, Continued

### Three- and Four-Wire Devices

The diagram below shows an example of wiring for three- and four-wire devices.

A 1-row busbar is used to provide PE for the 4-wire sensor. No busbar would be required if only 2- and/or 3-wire sensors were used.



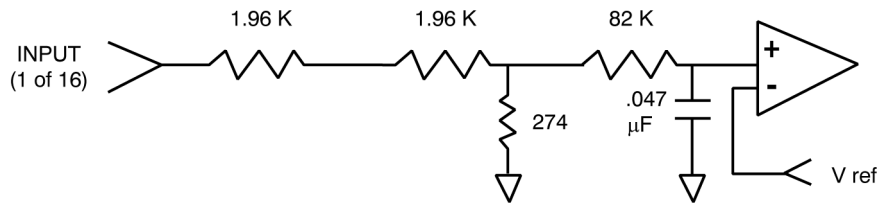
## Simplified Schematics

### Overview

This section contains a simplified schematic diagram of the field-side input circuitry.

### Diagram

The following diagram shows the field-side input circuitry.



## Section 11.3 Configuration

### Discrete Inputs

#### Overview

This I/O base supports sixteen discrete inputs. This section describes how to map I/O data between the I/O base and the CPU.

#### Number of Words

Sixteen bits of discrete input data are returned from the base to the processor as one 16-bit word.

#### IEC vs. Ladder Logic

In order to correctly field wire the inputs and map the input data, you need to know which type of Momentum Adapter is mounted on the base and which type of programming software has been used to configure and program the CPU.

Adapters and programming software may be either IEC compliant or 984 Ladder Logic compliant.

	IEC Compliant	984 Ladder Logic Compliant
<b>Momentum Processor Adapters</b>	All	None
<b>Momentum Communication Adapters</b>	All, except 170 NEF 110 21 170 NEF 160 21	170 NEF 110 21 170 NEF 160 21
<b>Programming Software</b>	Concept 2.1 or higher	Modsoft 2.5

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## Discrete Inputs, Continued

### Data Mapping

The figure below shows how data is mapped between the I/O base and the CPU with different combinations of programming software and adapters.

