
Overview of the DEP 216/256 Input Module

37

At a Glance

Purpose

The purpose of this chapter is to describe the DEP 216/256 input module.

What's in this Chapter?

This chapter contains the following topics:

| Topic | Page |
|---|------|
| What is the DEP 216/256 Input Module? | 432 |
| DEP 216/256 Input Module LEDs | 433 |
| DEP 216/256 Input Module Field Wiring | 434 |
| DEP 216/256 Input Module Specifications | 435 |

What is the DEP 216/256 Input Module?

Brief Product Description

The DEP 216/256 is a 24 Vdc, 16-point discrete input module. It senses input signals received from field sensing devices such as pushbuttons, limit and proximity switches, or other 24 Vdc input sources and converts those signals into logic voltage levels that can be used by the PLC. Signals are field wired in two groups, eight signals per group. Inputs are opto-isolated from the system bus. The DEP 256 functions just like the DEP 216 except that the DEP 256 operates at extended temperature.

Note: The DEP 256 model is available with conformal coating. The conformal coating model is DEP 256C and it meets Railway standard EN 50 155.

DEP 216/256 Input Module LEDs

LEDs

The DEP 216/256 module has two green LEDs, opposite terminal screws 1 and 12. When one of these LEDs is ON, it indicates that power is available to the eight inputs directly below it. The module also has 16 red LEDs, eight opposite terminal screws 3 ... 10 and eight opposite terminal screws 14 ... 21; when any one of these LEDs are ON, it indicates voltage present at the corresponding input.

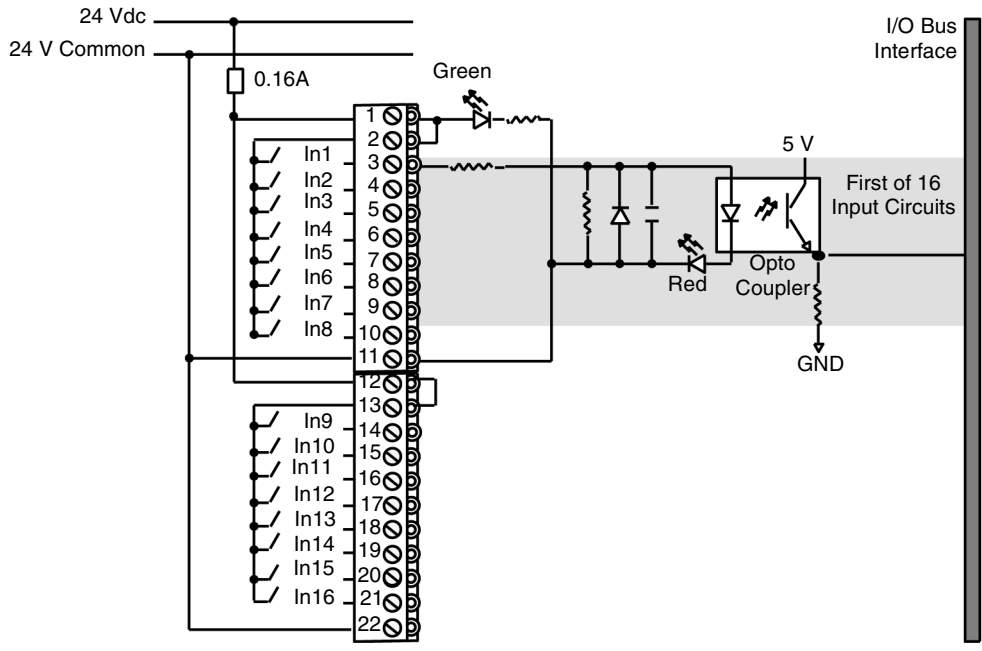
DEP 216/256 Input Module Field Wiring

Introduction

The DEP 216/256 is a 24 Vdc, 16-point discrete input module. It senses input signals received from field sensing devices such as pushbuttons, limit and proximity switches, or other 24 Vdc input sources and converts those signals into logic voltage levels that can be used by the PLC. Signals are field wired in two groups, eight signals per group. Inputs are opto-isolated from the system bus. The DEP 256 functions just like the DEP 216 except that the DEP 256 operates at extended temperature.

Simplified Schematic for DEP 216/256

A simplified schematic for the DEP 216/256 input module is provided below.



DEP 216/256 Input Module Specifications

Table of Specifications for DEP 216/256

The following table contains DEP 216/256 input module specifications.

| | | | |
|----------------------------|---|-----------------------|---|
| Module Topology | Number of Inputs | | 16 |
| | Number of Groups | | 2 |
| | Points/group | | 8 |
| | Isolation | | Optocoupler on each input |
| Power Supplies | External Source Requirement | | 24 Vdc for eight inputs |
| | Rated Signal Value | | 24 Vdc +25 percent/-15 percent |
| | Internally Provided Source from I/O bus | | 5 V; 15 mA |
| | Internal Power Dissipation | | 2 W typical |
| Electrical Characteristics | ON State Signal Level | | 12 ... 30 Vdc |
| | OFF State Signal Level | | -2 ... +5 Vdc |
| | ON State Input Current | | 7 mA @ 24 Vdc 8.5 mA @ 30 Vdc |
| | Response Time | | 4 ms typical |
| | Operating Mode | | True High |
| | Wire Size/terminal | One wire | 14 AWG |
| | | Two wires | 20 AWG |
| | Environmental Characteristics | Operating Temperature | |
| I/O Map | Discrete 1x/0x | | 16 in/0 out |
| Dimensions | W x H x D | | 40.3 x 145 x 117.5 mm 1.6 x 5.6 x 4.5 in |
| | Weight | | 220 g 0.5 lb |
| | Agency Approvals | | |

Overview of the DEP 217 Input Module

38

At a Glance

Purpose

The purpose of this chapter is to describe the DEP 217 input module.

What's in this Chapter?

This chapter contains the following topics:

| Topic | Page |
|-------------------------------------|------|
| What is the DEP 217 Input Module? | 438 |
| DEP 217 Input Module LEDs | 439 |
| DEP 217 Input Module Field Wiring | 440 |
| DEP 217 Input Module Specifications | 441 |

What is the DEP 217 Input Module?

Brief Product Description

Note: Some A120 I/O modules (DEP 211/214/215/217, DAP211/217, ADU204/211/214/216, DAU204, VIC2xx, and MOT20x) require a loadable (SW-IODR-001) for proper operation when using certain PLCs (A984-1xx, E984-24x/251/255) with Modsoft.

The DEP 217 is a 24 Vdc, 16-point discrete true low input module. It senses levels provided by field devices such as pushbuttons, limit and proximity switches, or other 24 Vdc input sources and converts those signals into logic voltage levels that can be used by the PLC. Signals are field wired in two groups, eight signals/group. Inputs are opto-isolated from the system bus.

Note: The DEP 217 is a true low module; therefore, a high (greater than or equal to external source minus 6Vdc) is read by the PLC as a logic 0. Conversely, a low (less than or equal to external source minus 12Vdc) is read by the PLC as a logic 1.

DEP 217 Input Module LEDs

LEDs

The DEP 217 module has two green LEDs, opposite terminal screws 1 and 12. When one of these LEDs is ON, it indicates that power is available to the group directly below it. The module also has 16 red LEDs, eight opposite terminal screws 3 ... 10 and eight opposite terminal screws 14 ... 21; when any one of these LEDs are ON, it indicates 3 external source minus 12 V at the corresponding input.

DEP 217 Input Module Field Wiring

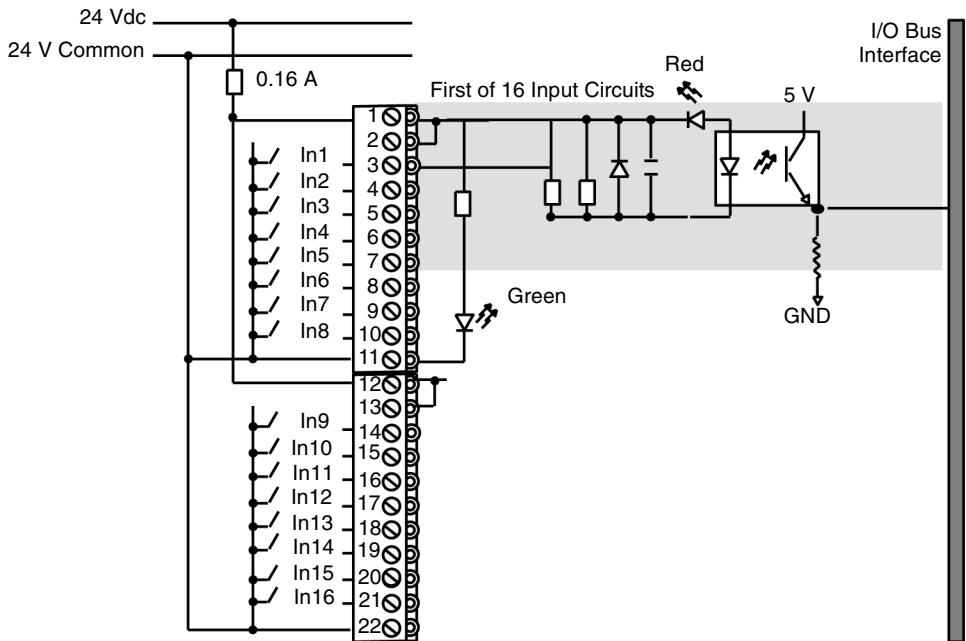
Introduction

The DEP 217 is a 24 Vdc, 16-point discrete true low input module. It senses levels provided by field devices such as pushbuttons, limit and proximity switches, or other 24 Vdc input sources and converts those signals into logic voltage levels that can be used by the PLC. Signals are field wired in two groups, eight signals/group. Inputs are opto-isolated from the system bus.

Note: The DEP 217 is a true low module; therefore, a high (greater than or equal to external source minus 6Vdc) is read by the PLC as a logic 0. Conversely, a low (less than or equal to external source minus 12Vdc) is read by the PLC as a logic 1.

Wiring Diagram and Simplified Schematic for DEP 217

A wiring diagram and simplified schematic for the DEP 217 input module is provided below.



DEP 217 Input Module Specifications

Table of Specifications for DEP 217

The following table contains DEP 217 input module specifications.

| | | | |
|----------------------------|--|----------|--|
| Module Topology | Number of Inputs | | 16 |
| | Number of Groups | | 2 |
| | Points/group | | 8 |
| | Isolation | | Optocoupler on each input |
| Required Loadable | SW-IODR-001 (See <i>Requirements for CE Compliance, p. 779</i>) | | |
| Power Supplies | External Source Requirement | | 24 Vdc for eight inputs |
| | Rated Signal Value | | Sinking device |
| | Internally Provided Source from I/O bus | | 5 V; 25 mA |
| | Internal Power Dissipation | | 3 W typical |
| Electrical Characteristics | False Condition Signal Level | | greater than or equal to external source minus 6 Vdc |
| | True Condition Signal Level | | less than or equal to external source minus 12 Vdc |
| | True Condition Input Current | | 7 mA @ 0 Vdc |
| | Response Time | | 4 ms typical |
| | Operating Mode | | True Low |
| | Wire Size/ terminal | One wire | 14 AWG |
| Two wires | | 20 AWG | |
| I/O Map | Discrete 1x/0x | | 16 in/0 out |
| Dimensions | W x H x D | | 40.3 x 145 x 117.5 mm |
| | | | 1.6 x 5.6 x 4.5 in |
| | Weight | | 220 g |
| | | | 0.5 lb. |
| Agency Approvals | VDE 0160; UL 508; and CSA 22.2 No.142 Standards | | |

Overview of the DEP 218 Input Module

39

At a Glance

Purpose

The purpose of this chapter is to describe the DEP 218 input module.


What's in this Chapter?

This chapter contains the following topics:

| Topic | Page |
|-------------------------------------|------|
| What is the DEP 218 Input Module? | 444 |
| DEP 218 Input Module LEDs | 445 |
| DEP 218 Input Module Field Wiring | 446 |
| DEP 218 Input Module Specifications | 448 |

What is the DEP 218 Input Module?

Brief Product Description

| | |
|---|---|
|  | WARNING |
| | Operational Hazard The DEP 218 module will only operate properly when used with an A984, E984, or Micro 512/612 controller. Failure to follow this precaution can result in death, serious injury, or equipment damage. |

The DEP 218 is a 115 Vac, 16-point input module with 1.8kV isolation between field devices and the bus. It senses input signals received from field sensing devices such as pushbuttons, limit and proximity switches, or other 115 Vac input sources and converts those signals into logic voltage levels that can be used by the controller. Signals are field wired in two groups, eight signals/group. Inputs are opto-isolated from the system bus.

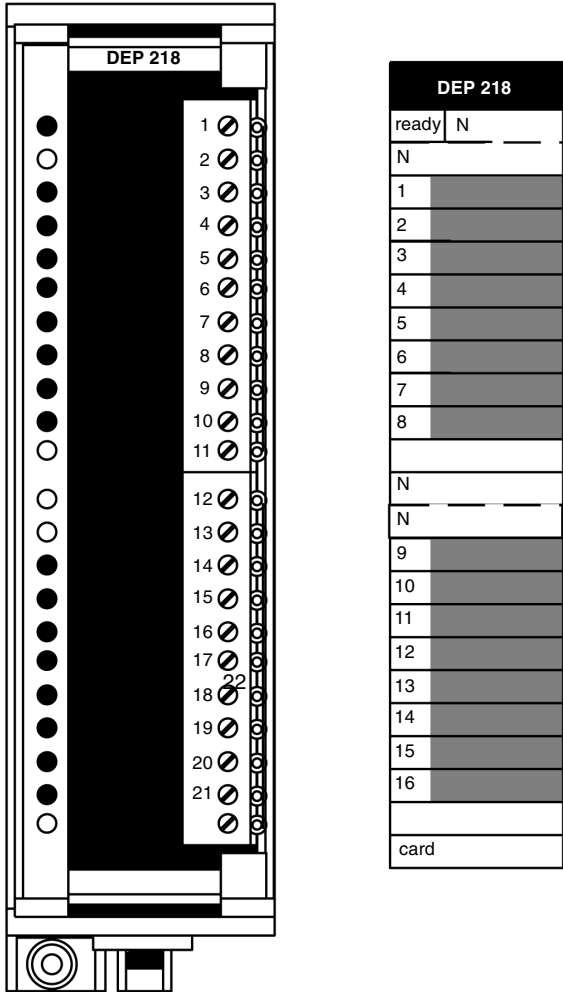
Note: The DEP 218 is designed for capacitive loads. Without any discharge bypass resistor. When using field devices with resistive loads you should use 120K 1/4 Watt resistors (approximately) across the input terminals of the DEP 218. This allows accurate switching of phase firing type solid state sensors by ensuring that the capacitor discharges within the sensor required 50 milliseconds. If your application permits, a DEP 210 may be substituted for the DEP 218. The DEP 210 has an internal input discharge circuit.

DEP 218 Input Module LEDs

LEDs

The DEP 218 module has one green LED opposite terminal screw 1. When this LED is ON, it indicates the presence of working voltage from the power supply. The module also has 16 red LEDs, eight opposite terminal screws 3 ... 10 and eight opposite terminal screws 14 ... 21; when any one of these LEDs is ON, it indicates voltage present at the corresponding input.

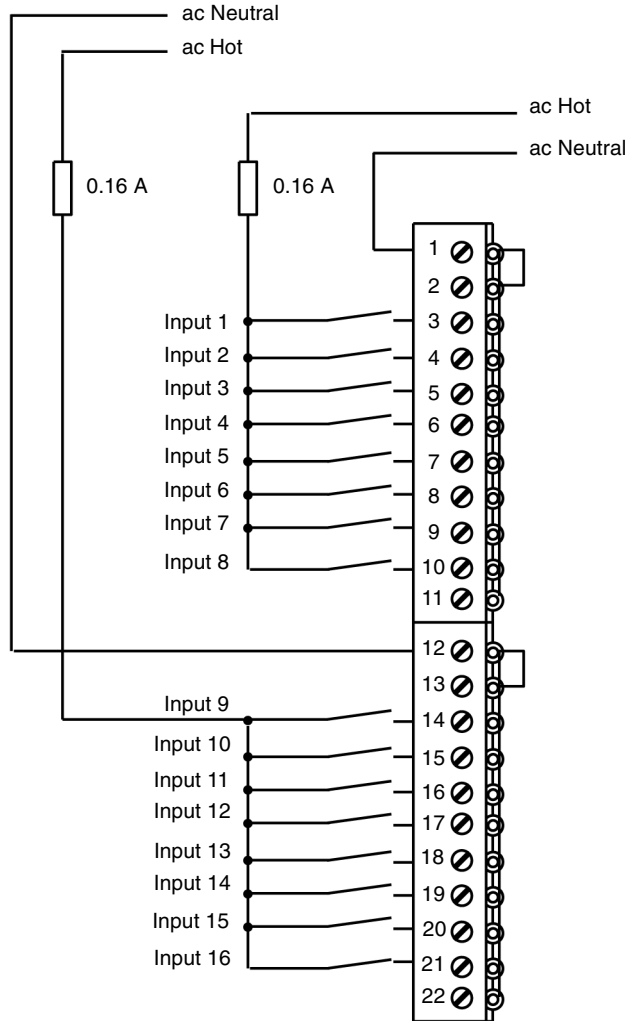
A front view and fill-in labels of the DEP 218 module is provided below.



DEP 218 Input Module Field Wiring

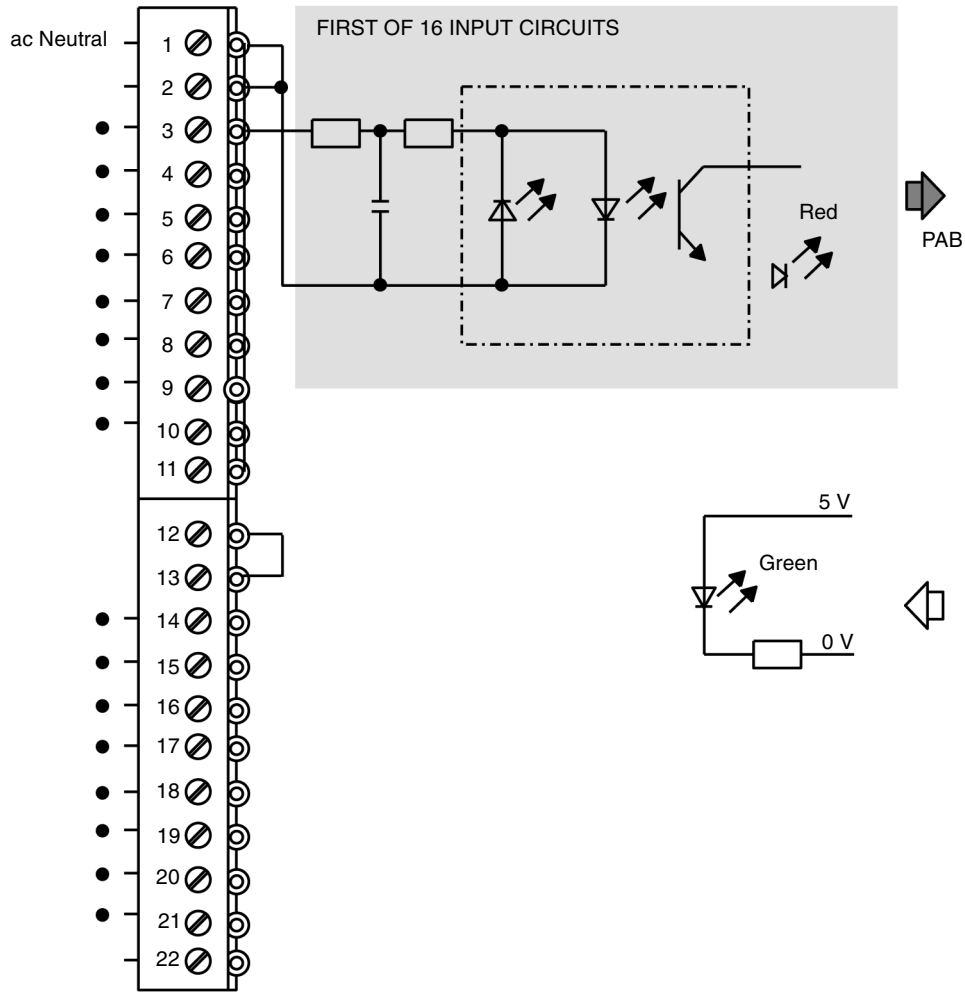
Wiring Diagram for DEP 218

A sample wiring diagram for the DEP 218 input module is provided below.



Simplified Schematic for DEP 218

A simplified schematic for the DEP 218 input module is provided below.



DEP 218 Input Module Specifications

Table of Specifications for DEP 218

The following table contains DEP 218 input module specifications.

| | | | |
|----------------------------|---|----------|---|
| Module Topology | Number of Inputs | | 16 |
| | Number of Groups | | 2 |
| | Points/group | | 8 |
| | Isolation | | Optocoupler on each input point, 1.8 kV field-to-bus |
| Power Supplies | External Source Requirement | | 115 Vac |
| | Rated Signal Value | | 115 Vac 47 ... 65 Hz |
| | Internally Provided Source from the I/O bus | | 5 V, less tghan 50 mA |
| | Internal Power Dissipation | | 3 W typical |
| Electrical Characteristics | ON State Signal Level | | 80 ... 132 Vac |
| | OFF State Signal Level | | 0 ... 35 Vac |
| | ON State Input Current | | 15.5 mA/input @ 115 Vac 6 mA @ 80 V, 20 mA @ 132 V |
| | OFF State Input Current | | 3 mA maximum |
| | Response Time | ON | 10 ms typical |
| | | OFF | 40 ms typical |
| | Operating Mode | | True High |
| | Wire Size/ terminal | One wire | 14 AWG |
| Two wires | | 20 AWG | |
| I/O Map | Discrete 1x/0x | | 16 in/0 out |
| Dimensions | W x H x D | | 40.3 x 145 x 117.5 mm 1.6 x 5.6 x 4.5 in |
| | Weight | | 300 g 0.66 lb |
| | Agency Approvals | | |

Overview of the DEP 220 Input Module

40

At a Glance

Purpose

The purpose of this chapter is to describe the DEP 220 input module.

What's in this Chapter?


This chapter contains the following topics:

| Topic | Page |
|-------------------------------------|------|
| What is the DEP 220 Input Module? | 450 |
| DEP 220 Input Module LEDs | 451 |
| DEP 220 Input Module Field Wiring | 452 |
| DEP 220 Input Module Specifications | 454 |

What is the DEP 220 Input Module?

Brief Product Description

The DEP 220 is a 24 Vdc +25 percent/-15 percent, 16-point discrete input module similar to the DEP 216 module, with a much faster response time (0.5 ms). It senses input signals received from field sensing devices such as pushbuttons, limit and proximity switches, or other 24 Vdc input sources and converts those signals into logic voltage levels that can be used by the PLC. Signals are field wired in two groups, eight signals per group. Inputs are opt-isolated from the system bus.

| | |
|---|--|
|  | CAUTION |
| | Operational Hazard Modicon recommends using two separate power sources with the DEP 220—one for outputs and one for inputs—in order to avoid electrical switching noise. Failure to follow this precaution can result in injury or equipment damage. |

Note: Inputs do not work if output supply is disconnected.

DEP 220 Input Module LEDs


LEDs

The DEP 220 module has two green LEDs, opposite terminal screws 1 and 12. When one of these LEDs is ON, it indicates that power available to the eight inputs directly below it. The module also has 16 red LEDs, eight opposite terminal screws 3 ... 10 and eight opposite terminal screws 14 ... 21; when any one of these LEDs are ON, it indicates voltage present at the corresponding input.

DEP 220 Input Module Field Wiring

Introduction

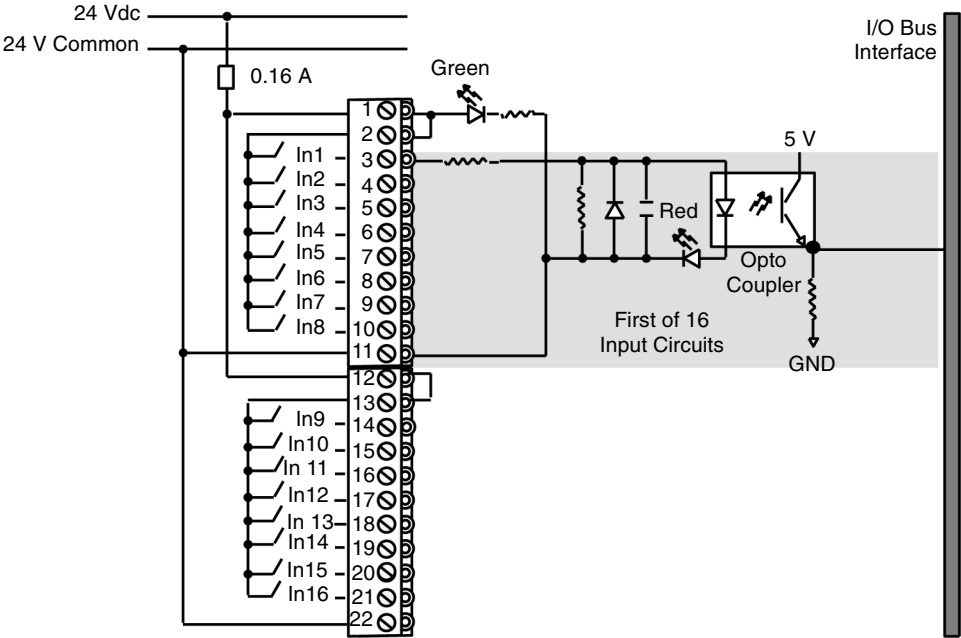
The DEP 220 is a 24 Vdc +25 percent/-15 percent, 16-point discrete input module similar to the DEP 216 module, with a much faster response time (0.5 ms). It senses input signals received from field sensing devices such as pushbuttons, limit and proximity switches, or other 24 Vdc input sources and converts those signals into logic voltage levels that can be used by the PLC. Signals are field wired in two groups, eight signals per group. Inputs are opto-isolated from the system bus.

| | |
|---|--|
|  | CAUTION |
| | Operational Hazard Modicon recommends using two separate power sources with the DEP 220—one for outputs and one for inputs—in order to avoid electrical switching noise. Failure to follow this precaution can result in injury or equipment damage. |

Note: Inputs do not work if output supply is disconnected.

**Wiring Diagram
and Simplified
Schematic**

A sample wiring diagram and simplified schematic for the DEP 220 input module is provided below.



DEP 220 Input Module Specifications

Table of Specifications

The following table contains DEP 220 input module specifications.

| | | | |
|----------------------------|---|----------|--------------------------------|
| Module Topology | Number of Inputs | | 16 |
| | Number of Groups | | 2 |
| | Points/group | | 8 |
| | Isolation | | Optocoupler on each input |
| Power Supplies | External Source Requirement | | 20 ... 30 Vdc for eight inputs |
| | Rated Signal Value | | +24 Vdc |
| | Internally Provided Source from the I/O bus | | 5 V; less than 25 mA |
| | Internal Power Dissipation | | 2 W typical |
| Electrical Characteristics | ON State Signal Level | | 12 ... 30 Vdc |
| | OFF State Signal Level | | -2 ... +5 Vdc |
| | ON State Input Current | | 7 mA @ 24 Vdc |
| | | | 8.5 mA @ 30 Vdc |
| | Response Time | | 0.5 ms typical |
| | Operating Mode | | True High |
| | Wire Size/terminal | One wire | 14 AWG |
| Two wires | | 20 AWG | |
| I/O Map | Discrete 1x/0x | | 16 in/0 out |
| Dimensions | W x H x D | | 40.3 x 145 x 117.5 mm |
| | | | 1.6 x 5.6 x 4.5 in |
| | Weight | | 220 g |
| | | | 0.5 lb |
| Agency Approvals | VDE 0160; UL 508; and CSA 22.2 No.142 Standards | | |