

## Overview

### Understanding Digital I/O Modules

Allen-Bradley offers a digital I/O product line consisting of three families:

Family	Document
AC Digital Input and Output Modules	1771-2.182
DC Digital Input and Output Modules	1771-2.180
Digital Relay Contact Output Modules	1771-2.181

### System Compatibility

Individual dc input and output module specification sheets show compatibility and use of the data table for each.

### Status Indicators

The front panel of each digital I/O dc module contains status indicators. Each status indicator shows the ON/OFF condition of an individual input or output. Some modules have an additional indicator, such as Fuse-Blown. Refer to the individual module specification sheets for more information.

### Keying

Plastic keying bands shipped with each I/O chassis allow you to key your I/O slots to accept only one type of module. You can key any backplane connector in an I/O chassis to receive your module except for the leftmost connector, which is reserved for adapter or processor modules.

### Power Supply Requirements

Digital modules receive power through the 1771 I/O chassis backplane from the associated chassis power supply. Refer to the individual module specifications for the current required from the power supply (in mA) to operate the module. You should total the current requirements for all the modules in the chassis to avoid overloading the power supply or the I/O chassis backplane.

### Module Placement Guidelines

Group your modules to minimize adverse effects from radiated electrical noise and/or heat.

- Group analog input and low voltage dc modules away from ac modules or high voltage dc modules to minimize electrical noise interference.
- Place analog input modules and other I/O modules that are sensitive to heat away from slot power supplies to minimize adverse heat effects.

**Overview****Addressing Modes**

Your Allen-Bradley processor can address its I/O in 2-slot, 1-slot or 1/2-slot I/O groups. You select the addressing method for the chassis in which a processor or I/O adapter resides with the I/O chassis backplane switch assembly. You make the selection for each chassis independently, choosing one method of addressing for each chassis.

**Fault Mode Selection**

Some digital dc modules let you select last state or reset for input or output failure configuration.

You select one of the two options by positioning a configuration plug (jumper) on the edge of the printed circuit board. This plug is independent of the last state switch on the I/O chassis backplane.

When the input module detects a fault, it's input-image bits are put into the state indicated by the jumper position. When the output module detects a fault it's outputs are put into the state indicated by the jumper position. Refer to the Table below for the state of inputs or outputs after a module detects a fault and jumper settings.

**Jumper Settings and the State of Inputs or Outputs**

<b>If you want module inputs and outputs to:</b>	<b>Set jumper to:</b>
Stay in their last state when a module detects a fault	last state (LS)
Reset to off when a module detects a fault	reset

For instructions on how to set the configuration jumper on those modules that allow you to select the fault mode, refer to the individual module specification sheets.

**DC Input Modules**

1771 digital dc input modules convert dc signals from user devices to the appropriate logic level for use within the processor. Typical input devices include:

- proximity switches
- limit switches
- selector switches
- float switches
- pushbutton switches

Allen-Bradley dc input modules are available with a wide range of input terminals per module. The table below lists the Allen-Bradley dc digital input modules. It also shows the image bits per module and addressing modes you can use with the I/O chassis and chassis compatibility for each input module.