



Figure 1.1 – Example of an Alspa C80–35 I/O Module

## 1.1. Alspa C80–35 I/O Module Types

Alspa C80–35 I/O modules are available as five types: discrete inputs, discrete outputs, analog inputs, analog outputs and option modules, which can be used with all models of PLCs. Additionally, there are specialized option modules which can only be used with PLC Models 331, 341, 351 and 352. Discrete input modules have either 8, 16, or 32 points; discrete output modules have from 5 to 32 points, depending on type. Analog input modules are available with 4 or 16 channels; available analog output modules have 2 or 8 channels and an analog combination module has 4 input channels and 2 output channels.

Option modules include a FIP Bus Controller, a FIP Remote I/O Scanner, a High Speed Counter, an N80 Communications Module, an Enhanced N80 Communications Module (NCM+), an N80 Bus Controller and Axis Positioning Modules (one and two axis), I/O Processor module and Ethernet Interface module. Specialized option modules are the Programmable Coprocessor Modules, Communications Control module and the Alphanumeric Display Coprocessor module. *These specialized option modules are currently NOT supported by the PCIF–35 in a PC system.*

The Circuit status of each I/O point on discrete modules is indicated by a green LED mounted at the top of the module and viewable through a clear plastic lens. There are two horizontal rows of LEDs with eight LEDs in each row. Each LED is identified by a letter and number identification which is illuminated when the applicable LED turns on. These letters and numbers clearly identify each LED to assist in program monitoring and trouble shooting. The top row is labeled A1 through 8 and the bottom row is labeled B1 through 8.

Additionally, a blown fuse status for fused output modules is provided by an LED labeled F on the LED cover (note that the F is labeled on all discrete I/O modules, although it is only relevant to fused output modules).

Each module has an insert that goes between the inside and outside surface of the hinged door. The surface towards the inside of the module (when the hinged door is closed) has circuit wiring information for that module type and the outside surface has space to record circuit identification information. The outside left edge of the insert is color coded so that you can quickly identify the module as a high voltage (red), low voltage (blue), or signal level (grey) type.

*For current information on availability of Alspa C80–35 I/O modules, consult your authorized ALSTOM PLC distributor or your local ALSTOM sales office.*

## **1.2. Universal Terminal Boards**

Alspa C80–35 I/O modules with up to 16 points have, as a standard feature, detachable terminal boards for field wiring connections to and from user supplied input or output devices. This feature makes it easy to prewire field wiring to user supplied input and output devices and to replace modules in the field without disturbing existing field wiring. I/O connectors on these terminal boards have 20 terminals and will accept up to one 2.1 mm<sup>2</sup> (AWG No. 14) wire or two 1.12 mm<sup>2</sup> (AWG No. 16) wires using ring or lug type terminals. Two terminals on the connector are provided for connection to a +24 volt DC supply for input modules requiring a 24 volt DC power source. Wires to and from field devices are routed out the bottom of the terminal board cavity.

## **1.3. Terminal Block Quick Connect Assembly**

Terminal block assemblies are available for Alspa C80–35 discrete I/O modules. This terminal block assembly is referred to as Terminal Block Quick Connect or simply TBQC. This system allows 16-point discrete modules to be quickly connected to interposing terminal blocks. Installing a 16 point module typically takes 2 1/2 hours to wire from a PLC to interposing terminal blocks. With the TBQC, you simply snap in the interposing terminal block, remove the I/O module's terminal assembly, snap in the I/O faceplate and connect the cable. This reduces wiring time to about two minutes and no additional wiring is required, thereby reducing wiring costs and errors. Complete assemblies consist of a terminal block, an I/O Face Plate and a cable. See Appendix C for more information.

## **1.4. Connections to High Density I/O Modules**

High Density I/O modules (32 Inputs or 32 Outputs) are connected to field devices through a cable, or cables, connected to pin connectors on the front of the I/O module. As mentioned above, High Density I/O modules have two 24-pin connectors. For detailed information on High Density I/O modules, refer to “High Density I/O Modules” beginning on § 4., Chapter 2.