Configuring I/O Modules in a Local Chassis

To transfer data to and from field devices, they must be connected to an I/O module either digital or analog. These modules are placed in the chassis slots in any order. All modules within a chassis, can be removed and inserted under power **(RIUP).** Caution must still be exercised.

There are two main types of I/O module.

- **Digital:** Information represented by a 1 or 0.

- **Analog:** Numeric values that representing variable quantities such as process values. This can be temperature, flow, level etc.

Digital Modules

The options available for Digital I/O are as follows.

- 8, 16, and 32 point choices

- Electronic keying. This prevents the wrong module being placed in the wrong slot

- Isolated, non -isolated, and diagnostic choices:

- Module-level fault reporting and field-side diagnostics

- Electronic fusing.

All the above options are not available on every module. It depends on the type

Analog Modules

Analog 1756-I/O modules convert analog to digital values using an A/D conversion for the inputs and convert digital to analog signals for outputs using a D/A conversion. They have the following properties:

- RIUP
- You can scale each channel to engineering units if floating point comms format is used. This will give fractional values.
- 32-bit floating or 16-bit input and output integer data format, depending on module.
- Alarming Each channel can have process alarms configured on the input modules.
- Output Limits. On an output module, each channel can have the output limited if desired. For example, if a control valve needs to be limited to 50% opening, the output can be clamped at 50%.
- Rolling time stamp of data
- Diagnostic choices

When a project is created, it is necessary to configure the modules required in the project. It does not automatically find them. This is because of the multi controller system where more than one controller may need to use some of the modules in the chassis or even share in the case of input modules.

The following have to be configured when creating a module.

Slot Number. The location of the module in the chassis

Module Type. This is digital or analog, input or output.

Revision. This is extremely important with digital modules. If the incorrect major revision is stated, a module error will be shown and the module will not function.

Name. Give the module a realistic name.

Electronic Keying. This can be **Exact Match.** This means all aspects of the module configured, must match the module exactly, including minor revision. No differences allowed.

Compatible Match. The configuration must be the same as the module but the Minor Revision may be higher and it will work.

Disable Keying. If this is used, it just checks that the module is the same type and nothing else. It is not really recommended that this is used except in unusual circumstances.