Section 5. Analog Input Module (14 bits)

5-1. Description

The combined Personality and Electronics Modules form the 14 Bit Analog Input Module. Eight sets of individually isolated input channels are provided. The input signals are conditioned and routed through the appropriate Personality Module to the Electronics Module. The Personality Module also provides surge protection to protect the input circuits of the Electronics Module. The Electronics Module performs the analog to digital conversions and provides interfacing to the Ovation Serial I/O Bus.

No thermocouple provisions are provided for this module.

Note

See **Section 3. I/O Modules** for environmental, installation, wiring, and fuse information.

5-2. Module Groups

5-2.1. Electronics Modules

There are two groups of Electronics modules for the 14 Bit Analog Input Module:

- 1C31224G01 provides current signals with an input range of 4 to 20 mA.
- 1C31224G02 provides voltage signals with an input range of ± 1V.

5-2.2. Personality Modules

There are two groups of Personality modules for the 14 Bit Analog Input Module:

- 1C31227G01 provides current signals with an input range of 4 to 20 mA.
- 1C31227G02 provides voltage signals with an input range of ± 1V.

Table 5-1. Analog Input Subsystem (14 Bit)

Range	Channels	Electronic Module	Personality Module
4 - 20mA, Field or Locally powered	8	1C31224G01	1C31227G01
± 1 VDC	8	1C31224G02	1C31227G02

Only 4-20mA Configuration is CE Mark Certified.

5-3. Module Block Diagram

The simplified block diagram for the voltage input configuration of the14 bit Analog Input module is shown below. The channel #1 input is grounded locally at the cabinet, and grounding at the field device is shown for the channel #8 input.

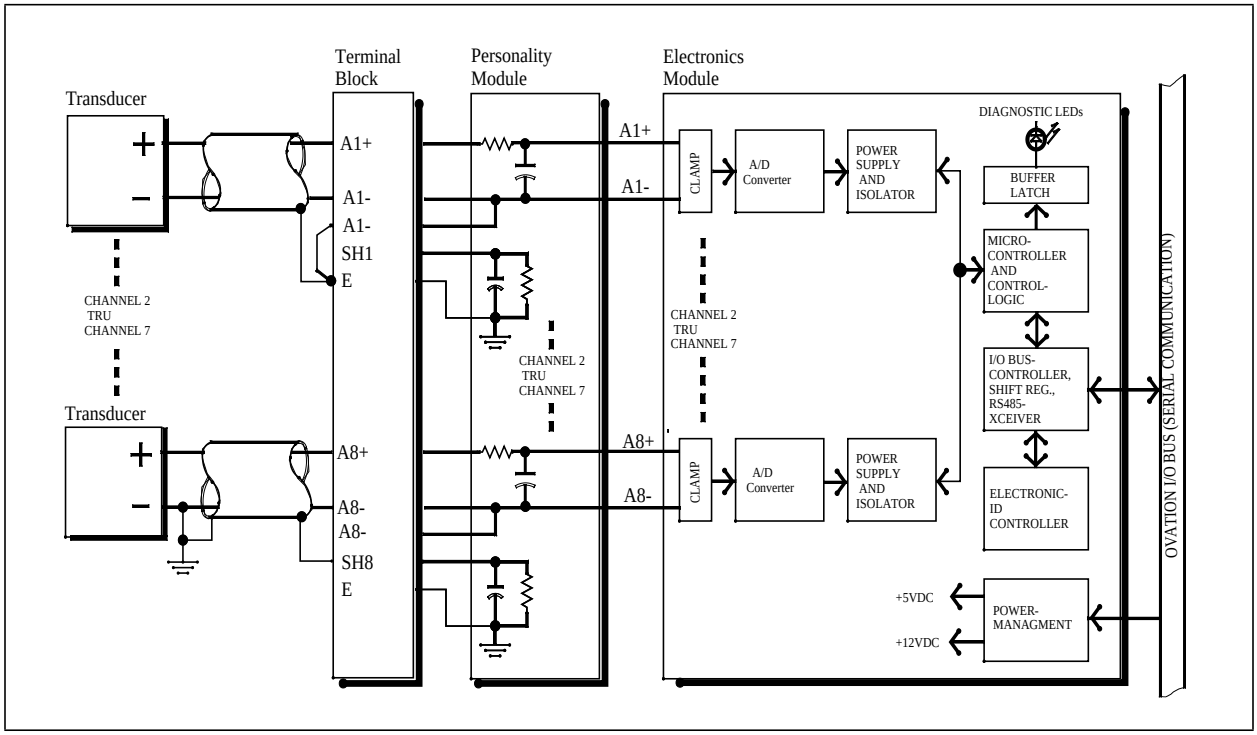

Figure 5-1. Voltage Input Connections

5-4. External Power Supplies

Note

Module power specifications (main and auxiliary) refer to the actual power drawn by the module from the 24VDC main power supply and from the auxiliary power supply (if required) and **NOT** from the AC or DC Mains.

If the 14 Bit Analog Input module uses the 1C31227G01 Personality module, the required voltage source is obtained from the internal auxiliary power supply (backplane).

Also, personality module 1C31227G01 supports field-powered configurations.

5-5. Specifications

Electronics Module (1C31224)
Personality Module (1C31227)

Table 5-2. 14-Bit Analog Input Module Specifications

Description	Value
Number of channels	8
Input range	4 - 20 mA [1] ±1V [2]
Resolution	Group 1:14 bits, Group 2:13 bits & Sign
Guaranteed accuracy (@25°C)	±0.10% of full scale value ±1/2LSB @99.7% confidence.
Temperature coefficient	±0.24% of the full scale value over 0 to 60°C.
Input impedance: [3]	10 MΩ
Sampling rate	20 times per second minimum when configured for 60 Hz rejection 25 times per second minimum when configured for 50Hz rejection
Self-calibration	On demand by the Ovation Controller.
Diagnostics	Internal module operating faults. Out of range detection. Open loop detection for current inputs.
Dielectric isolation: Channel to channel Channel to logic	 1000 V AC/DC 1000 V AC/DC
Normal mode rejection	60 dB @50 Hz ± 1/2% or @60 Hz ± 1/2% (when properly configured) 30 dB (typical) @50 Hz ± 5% or @60 Hz ± 5% (when properly configured)
Common mode rejection	120 dB @ DC or @ the nominal (50/60 Hz) line frequency ± 1/2% and harmonics. 100 dB (typical) for nominal line frequency ± 5% and harmonics.
Module power	Main: 2.4 W typical; 3.125 W maximum Aux: When used (1C31227G01) Aux power supply voltage = 24 V DC 3.84 W typical (8 inputs @ 20mA each)
Operating temperature range	0 to 60°C (32°F to 140°F)
Storage temperature range	-40°C to 85°C (-40°F to 185°F)
Humidity (non-condensing)	0 to 95%

[1] Current inputs when using Personality module 1C31224G01 with 1C31227G01 Electronics Module.
[2] Voltage inputs when using Personality module 1C31224G02 with 1C31227G02 Electronics Module.
[3] Only for the voltage input module (Personality module 1C31224G02 with 1C31227G02 Electronics Module).