Analog Input Module
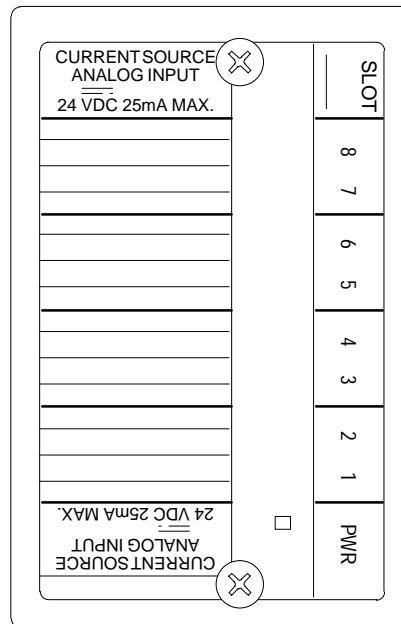## IC670ALG230

Current Source Analog Input Module

The Current Source Analog Input Module (IC670ALG230) accommodates 8 inputs on a common power supply.

46432

CURRENT SOURCE
ANALOG INPUT
24 VDC 25mA MAX.

SLOT

8 7 6 5 4 3 2 1 PWR

24 VDC 25mA MAX.
ANALOG INPUT
CURRENT SOURCE

Power Sources

The same 24 volt power supply used for the Bus Interface Unit can provide loop power in most cases. Separate power supply(s) must be used if isolation between circuits is required. The most common application uses a loop supply local at the module to drive multiple isolated transducers, isolated analog inputs, or differential analog inputs.

LED

An LED, visible through the transparent portion of the module top, is on when both backplane and field power are present, and the fuse is not blown.

Host Interface

The Current-Source Analog Input Module converts current levels to unscaled analog input data. Analog scaling is performed by the Bus Interface Unit, which provides the scaled data to the host. Software Range selections of 0 to 20 mA and 4 to 20 mA are configurable on a per-channel basis.
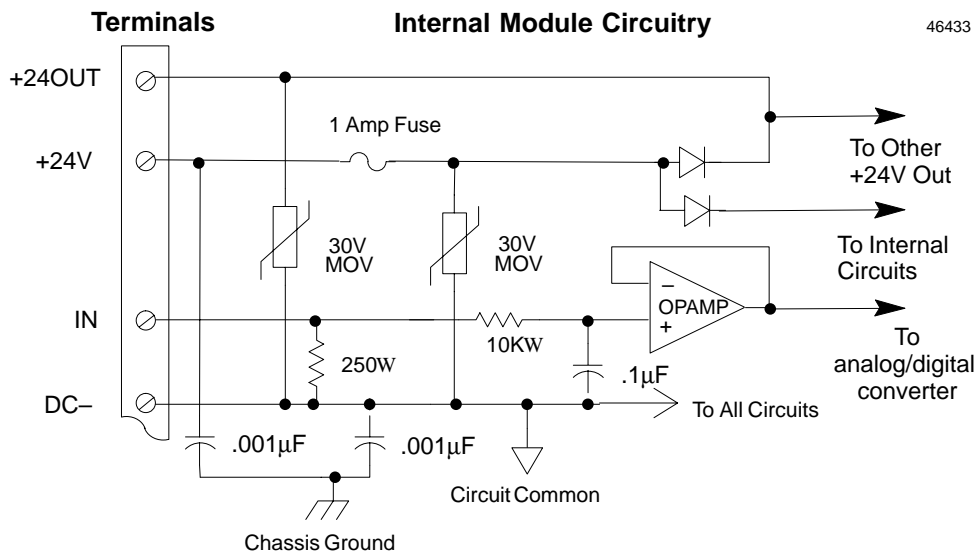
The default range is 0 to 20 mA. The default scaling for the module is:

Eng Lo =   0
Eng Hi =   20,000
Int Lo   =   0
Int Hi   =   20,000

The module has 8 words (16 bytes) of analog input data. A Bus Interface Unit is required to provide this input data to the host and/or local processor.

Module Operation

The 250 ohm resistor converts input current to a voltage with respect to common. The input R–C filters high-frequency noise, while the opamp buffers the signal to the analog/digital converter. All eight +24 VDC Out terminals are common to each other. The chassis ground goes to the I/O Terminal Block ground terminal.

Current Source Analog Input Module

Module Specifications

Module Characteristics	
Input or channel to channel common mode	None; single ended grouped input
Power supply voltage, including minimum/ maximum ripple	18 Volts minimum 24 Volts typical 30 Volts maximum

24V Power input current
    Module only
    Including loop
	50 mA minimum
	210 mA (including loop current), maximum

Isolation to ground and logic	1500 VAC for 1 minute, 250 VAC continuous.
Current drawn from BIU power supply	51 mA maximum
Input Characteristics	
Digital Resolution	12 bits, typical
Analog Resolution	5.0 microAmps
Input current span	0.1 mA minimum, 20 mA maximum
Input Over–range fault indication	20.000 mA minimum, 20.500 mA maximum (note 1)
Maximum Input	30 mA
Input Open Wire (4–20mA scaling only)	2.0 mA typical (note 2)
Input impedance	249.75 to 250.25 Ohms
Conversion time @ 1MHz clock	60 Microseconds per channel, typical

Input filter
    Type
    Transition frequency
	1st order RC
	160 Hz typical

Maximum error at 25 degrees C (note 3)	+/– .05% full scale, 0.1< Input<20mA
Non-linearity	+/– .025% of full scale
Temperature coefficient	+/–.002% of value per degree C, typical, +/–.005% of value per degree C, maximum

note 1: BIU produces the over–range diagnostic if the input data is over full scale.

note 2: BIU produces the open wire diagnostic if input data is below minimum value for 4–20 scaling.

note 3: In the presence of severe RF interference (IEC 801–3, 10V/m), accuracy may be degraded to 5% of full scale.

Keying Locations

Optional keying locations for the Current Source Analog Input Module are:

Keying Locations									
A	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**J**	**K**
↙			↙			↙	↙		