IC200ALG322
Analog Output Module, 12 Bit Voltage -10 to +10VDC 4 Channels

Module Specifications

Module Characteristics	
Channels	4 single-ended, one group
Module ID	FFFF9040
Isolation: User input to logic (optical) and to frame ground Group to group Channel to channel	 250VAC continuous; 1500VAC for 1 minute Not applicable None
LED indicators	FLD PWR LED indicates field power is present OK LED indicates backplane power is present
Backplane current consumption	5V output: 50mA maximum
Thermal derating	None
Configuration parameters	Output default
Diagnostics	Loss of User Side Power
External Power Supply	
Recommended range	+18 to +30VDC (including ripple)
Current consumption at recommended range	160mA max.(including load current)
12V operation range	9.6 to 15VDC, 12VDC nominal (including ripple)
Current consumption at 12V range	210mA max.(including load current)
Output Characteristics	
Output voltage	+/-10.24VDC
Load characteristics: Resistive Capacitive	 5000 Ohms minimum 1.0µF maximum
Accuracy at 25 degrees C** Accuracy at 0 to 60 degrees C	+/- 0.3% typ. of full scale, +/- 0.5% max. of full scale +/-1% maximum of full scale
Resolution	5mV = 16 counts
Update rate per module	0.3ms maximum
Channel-to-channel crosstalk rejection	70dB minimum
Output default	Hold Last State (default), 0 (configurable)

* In the presence of severe RF interference, (IEC 1000-4-3, 10V/m), accuracy may be degraded to +/-1%.

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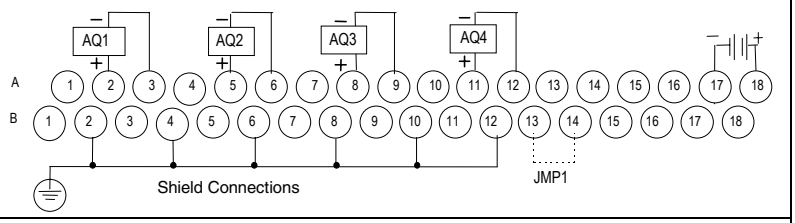
Field Wiring

Terminal	Connection	Terminal	Connection
A1	No connection	B1	No connection
A2	V OUT 1	B2	Shield Termination Point
A3	RET 1	B3	No connection
A4	No connection	B4	Shield Termination Point
A5	V OUT 2	B5	No connection
A6	RET 2	B6	Shield Termination Point
A7	No connection	B7	No connection
A8	V OUT 3	B8	Shield Termination Point
A9	RET 3	B9	No connection
A10	No connection	B10	Shield Termination Point
A11	V OUT 4	B11	No connection
A12	RET 4	B12	Shield Termination Point
A13	No connection	B13	JMP 1A
A14	No connection	B14	JMP 1B
A15	No connection	B15	No connection
A16	No connection	B16	No connection
A17	Field Return	B17	No connection
A18	Field Power	B18	No connection

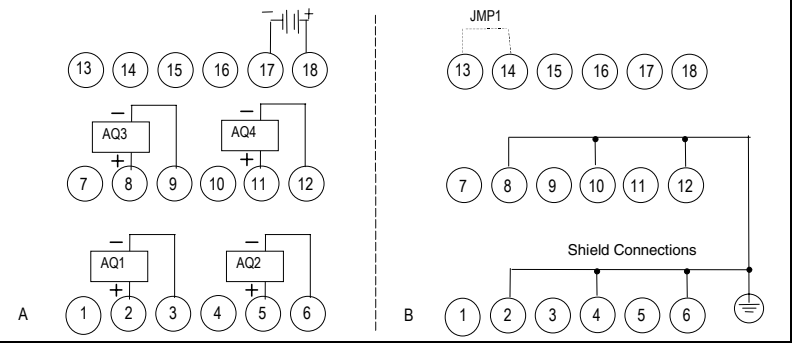
Wiring Connections for Carriers with Two Rows of Terminals

IC200CHS002, 005
IC200CHS012, 015



Wiring Connections for Carriers with Three Rows of Terminals

IC200CHS001, 022, 025
IC200CHS011



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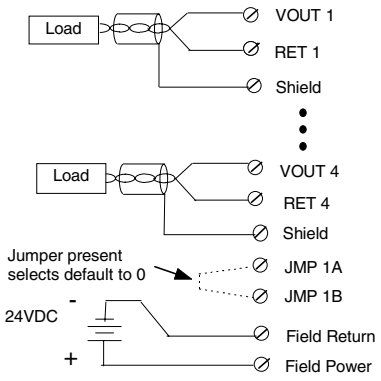
Jumper Selection

A jumper on the carrier can be used to select the output default mode.

If no jumper is installed on pins B13 and B14 outputs hold their last state (the last commanded value from the backplane) if backplane power or communications are interrupted or the PLC is stopped. With a jumper installed, if such conditions occur outputs default to 0 volts. This should only be changed with field power and backplane power removed.

Jumper	Selects
None	Hold Last State
JMP 1	Default to 0

Wiring Example



Cable Shield Connections

Shielded twisted pair cable is recommended for all of the analog channel connections.
If the module is installed on a Terminal-style I/O Carrier (IC200CHS001, 002, or 005) or a Compact Terminal-style I/O Carrier (IC200CHS022, 025), the cable shield can be connected directly to the carrier per the Field Wiring Table. An Auxiliary I/O Terminal Strip (IC200TBM001, 002, or 005) can also be added to the Terminal-style I/O Carriers to aid in grounding shields. Be sure to ground the Auxiliary I/O Terminal Strip as well if you plan to use it for this purpose.
If the module is installed on a Connector-style I/O Carrier (IC200CHS003), the cable shield can be connected directly to an Interposing Terminal (IC200CHS011, 012, 015). Be sure to ground the Interposing Terminal. It is recommended to use a shielded interposing cable as well between the Interposing Terminal and the Connector Base. A custom shielded cable can be made using the Connector kit (IC200ACC302). In addition, a custom shield braid can be wrapped around standard Interposing Cables (IC200CBL105, 110, 120, 230). If this approach is used be sure to ground the braid.

All cable shield connections should be connected to earth ground and be kept as short as practical. The power cable does not need to be shielded.

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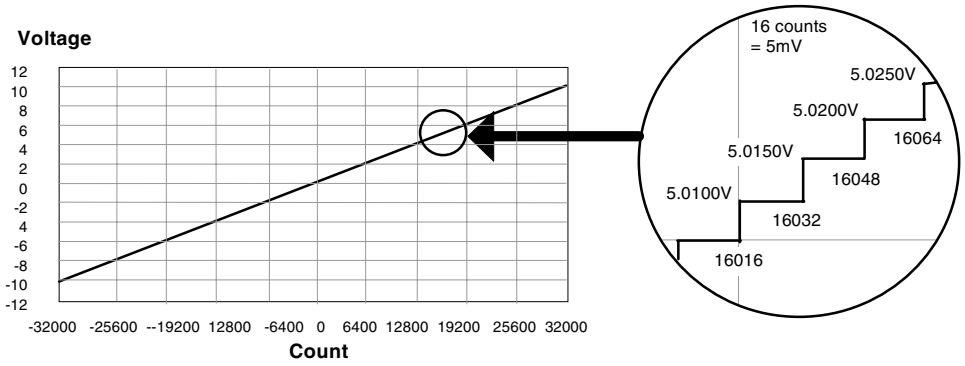
Scaling

The graphs below show the relationship between the output voltage measured at the field terminals and the data that is output by the module.

Count vs Output Voltage



Voltage can be calculated using the following equation:

Vout = ((analog counts x 20.5) / 65535)

The count value must be a multiple of 16. If the module receives a count value that is not a multiple of 16, it rounds the value down to the closest multiple of 16. For example:

Count	Voltage
16032	5.0150V
16040	5.0150V
16048	5.0200V

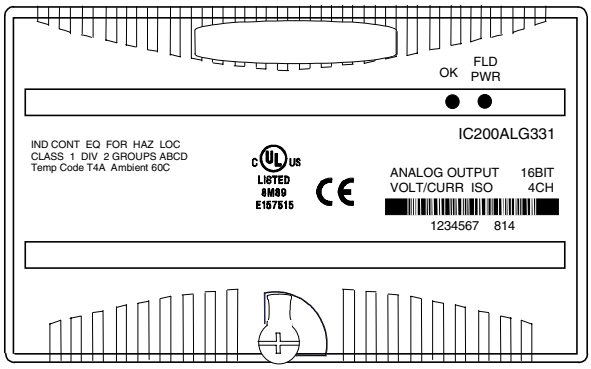
IC200ALG331
Analog Output Module, 16 Bit Voltage/Current, 1500VAC Isolation, 4 Channels

Analog output module IC200ALG331 provides four analog outputs. Features include:

- Four isolated 4-20mA current output channels
- Software configuration, no jumpers or switches
- Sixteen bit converter resolution
- High accuracy factory calibration

The module provides the following additional software-configurable features:

- Per-channel selection of 4-20mA current or +/–10V voltage outputs
- Selection of default/hold last state operation
- Per-channel selection of default values
- Per-channel selection of under-range and over-range diagnostics levels
- Per-channel selection of alarm levels
- Per-channel scaling
- Field re-calibration on command



An external 24V power supply is required for the outputs. In current mode, a separate power supply may be required for isolated outputs.

The module receives 4 words of analog output data from the system CPU or NIU.

LED Indicators

The green FLD PWR LED indicates the presence of both logic power and field power for the analog field-side circuits. It does not indicate the presence of other supplies such as current loop supplies on output points. The absence of either backplane or field power turns off the FLD PWR LED. Note that this module is the only one that has the OK LED located before the FLD PWR LED in the A slot.

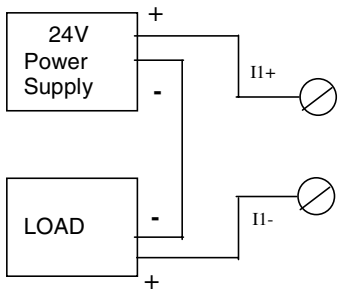
The OK LED indicates module status:

- On green indicates normal operation.
- Flashing green indicates boot mode or update
- Flashing amber indicates self-diagnostic error.
- Off indicates no 3.3V power

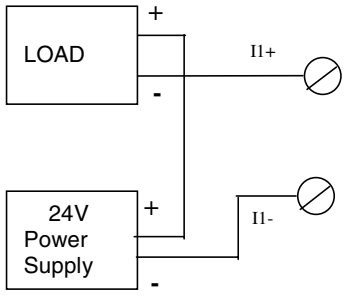
IC200ALG331
Analog Output Module, 16 Bit Voltage/Current, 1500VAC Isolation, 4 Channels

Wiring Examples

Current Source



Current Sink



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