

MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Reference package for procurement and maintenance review

GE

IC200ALG325

EIGHT-CHANNEL ANALOG VOLTAGE OUTPUT MODULE

Used with the applicable GE VersaMax configuration.

REFERENCE PACKAGE

OFFICIAL DOCUMENT

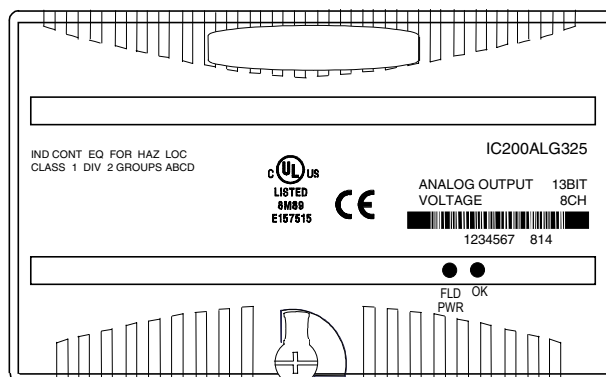
Selected official manufacturer pages follow this cover.

Source: GE Fanuc VersaMax Modules, Power Supplies, and Carriers User Manual, GFK-1504K

IC200ALG325

Analog Output Module, 13 Bit Voltage 8 Channels

Analog output module IC200ALG325 provides eight analog voltage outputs. The output range can be either -10VDC to $+10\text{VDC}$ (bipolar) or 0V to $+10\text{VDC}$ (unipolar).



An external 24V power supply is required for the outputs.

Intelligent processing for this module is performed by the CPU or Network Interface Unit. The module receives 8 words of analog output data.

LED Indicators

The green FLD PWR LED indicates the presence of user-side power for the analog field-side circuits.

The green OK LED is on when backplane power is present to the module.

Diagnostics

The module reports a Loss of User Side Power fault for field-side circuits.

Configuration Parameters

The module has a default output range of -10VDC to $+10\text{VDC}$ (bipolar), but is easily set up with a jumper for the channels to output 0V to $+10\text{VDC}$ (unipolar).

The module is also easily set up with a jumper for the outputs to either hold their last states or default to 0V if backplane power or communications are interrupted or the PLC is stopped. External user power must remain uninterrupted.

Outputs remain in their default or last state until the module receives different output data from the backplane, or until field power is removed.

IC200ALG325

Analog Output Module, 13 Bit Voltage 8 Channels

Module Specifications

Module Characteristics	
Channels	8 single-ended, one group
Module ID	FFFF9080
Isolation:	
User input to logic (optical) and to frame ground	250VAC continuous; 1500VAC for 1 minute
Group to group	Not applicable
Channel to channel	None
LED indicators	FLD PWR LED indicates field power is present OK LED indicates backplane power is present
Backplane current consumption	5V output: 50 mA maximum
External power supply:	
Range	+18 to +30VDC (including ripple)
Current consumption	102mA maximum
Thermal derating	None
Configuration parameters	Range, output default
Diagnostics	Loss of User Side Power
Output Characteristics	
Output voltage	-10.24 to +10.24VDC (bipolar range) 0 to +10.24VDC (unipolar range)
Load characteristics:	
Resistive	5000 Ohms minimum
Capacitive	1.0μF maximum
Accuracy at:	
25 degrees C	+/- 0.3% typical of full scale, +/- 0.5% maximum of full scale
0 to 60 degrees C	+/-1% maximum of full scale
Resolution	1.25mV = 4 counts
Update rate per module	10 mSec maximum
Channel-to-channel crosstalk rejection	70dB minimum
Output default	Hold Last State (default) 0V (configurable)

IC200ALG325

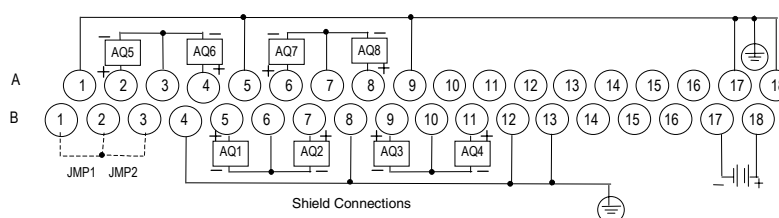
Analog Output Module, 13 Bit Voltage 8 Channels

Field Wiring

Terminal	Connection	Terminal	Connection
A1	Shield Termination Point	B1	JMP 1 (Range)
A2	V OUT 5	B2	Jumper (1-2) RTN
A3	RET (5-6)	B3	JMP 2 (Hold)
A4	V OUT 6	B4	Shield Termination Point
A5	Shield Termination Point	B5	V OUT 1
A6	V OUT 7	B6	RTN (1-2)
A7	RTN (7-8)	B7	V OUT 2
A8	V OUT 8	B8	Shield Termination Point
A9	Shield Termination Point	B9	V OUT 3
A10	No connection	B10	RTN (3-4)
A11	No connection	B11	V OUT 4
A12	No connection	B12	Shield Termination Point
A13	No connection	B13	Shield Termination Point
A14	No connection	B14	No connection
A15	No connection	B15	No connection
A16	No connection	B16	No connection
A17	Shield Termination Point	B17	Field Return
A18	Shield Termination Point	B18	Field Power

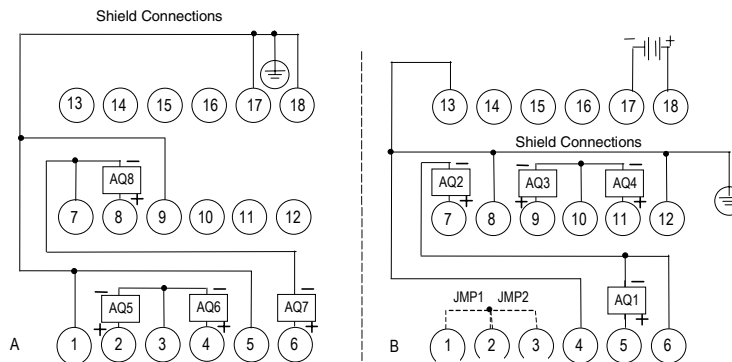
Wiring Connections for Carriers with Two Rows of Terminals

IC200CHS002, 005
IC200CHS012, 015



Wiring Connections for Carriers with Three Rows of Terminals

IC200CHS001, 022, 025
IC200CHS011



IC200ALG325

Analog Output Module, 13 Bit Voltage 8 Channels

Jumper Selection

Jumpers on the carrier can be used to select the output range and output default mode.

Range Jumper

If no jumper is installed on pins B1 and B2, outputs are configured for the bipolar range of -10V to +10V. With a jumper installed, the outputs are configured for the unipolar range of 0V to +10V.

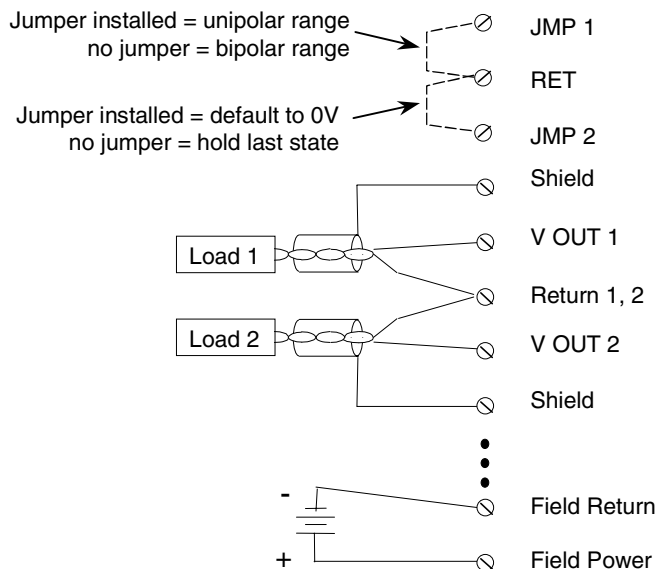
Range Jumper (JMP 1)	Range
None	-10V to +10V
Installed	0V to +10V

Hold Jumper

If no jumper is installed on pins B2 and B3, 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, outputs default to 0V. This should only be changed with the field power and backplane power removed.

Hold Jumper (JMP 2)	Output Default
None	Hold Last State
Installed	0V

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.

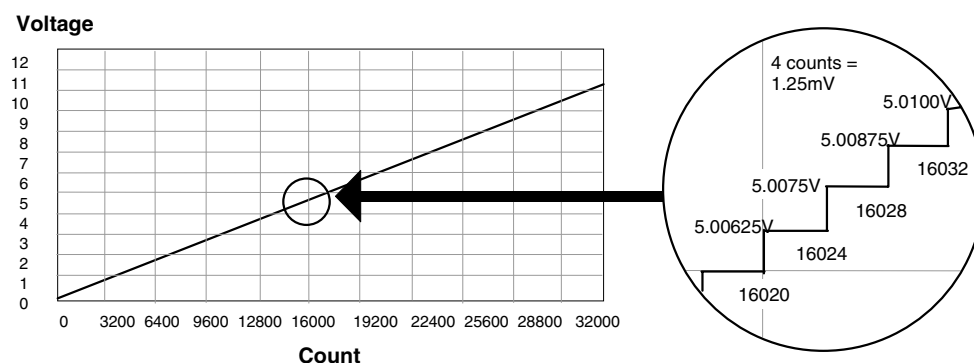
All cable shield connections should be connected to earth ground and be kept as short as practical. The power cable does not need to be shielded.

IC200ALG325 Analog Output Module, 13 Bit Voltage 8 Channels

Scaling for Unipolar Outputs

The graph below shows the relationship between the output voltage measured at the field terminals and the data that is output by the module, when outputs are set up for the unipolar range.

Count vs Output Voltage, Unipolar



Voltage can be calculated using the following equation:

$$V_{out} = (\text{analog counts} \times 10.24) / 32768$$

The count value must be a multiple of 4. If the module receives a count value that is not a multiple of 4, it rounds the value down to the closest multiple of 4. For example:

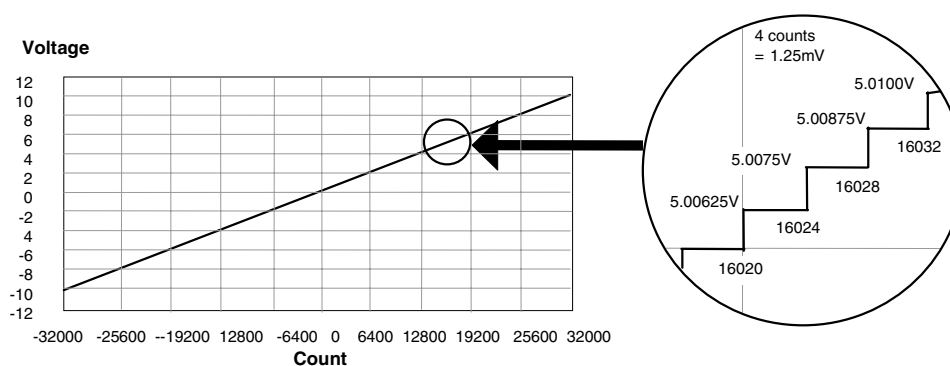
Count	Voltage
16024	5.0075V
16026	5.0075V
16028	5.00875V

IC200ALG325 Analog Output Module, 13 Bit Voltage 8 Channels

Scaling for Bipolar Outputs

The graph below shows the relationship between the output voltage measured at the field terminals and the data that is output by the module, when outputs are set up for the **bipolar** range.

Count vs Output Voltage, Bipolar



Voltage can be calculated using the following equation:

$$V_{out} = (\text{analog counts} \times 20.48) / 65536$$

The count value must be a multiple of 4. If the module receives a count value that is not a multiple of 4, it rounds the value down to the closest multiple of 4. For example:

Count	Voltage
16024	5.0075V
16026	5.0075V
16028	5.00875V