Analog I/O Modules (Output)

GE offers easy-to-use analog modules for control processes such as flow, temperature and pressure.

	IC695ALG808	IC694ALG390	IC694ALG391
Product Name	**PACSystems RX3i Isolated Analog Output, Current/Voltage, 8 Isolated Channels**	**PACSystems RX3i Analog Output, Voltage, 2 Channel**	**PACSystems RX3i Analog Output, Current, 2 Channel**
Lifecycle Status	Active	Active	Active
Module Type	Analog Output with Channel to Channel Isolation	Analog Output	Analog Output
Backplane Support	Universal Backplane Only. Uses PCI Bus.	No Backplane Restrictions	No Backplane Restrictions
Number of Slots Module Occupies on Backplane	1	1	1
Diagnostics	High and Low Alarm, Ramp Rate Control, Clamping, Overrange and Underrange	N/A	N/A
Protection	N/A	N/A	N/A
Range	Current: 0 to 20 mA, 4 to 20 mA; Voltage: ±10 V, 0 to 10 V	-10 V to +10 V, 4-20 mA	1-5 V and 0-5 V, 0-20 mA, 4-20 mA
HART Support	N/A	N/A	N/A
Number of Channels	8	2	2
Channel-to-Channel Isolation	Yes (250 VAC continuous, 1500 VAC for 1 minute per channel)	N/A	N/A
Update Rate	8 ms all channels (1 msec per channel)	5 ms all channels	5 ms all channels
Resolution	±10 V @ 15.9 bits minimum 0 to 10 V @ 14.9 bits minimum 0 to 20 mA @ 15.9 bits minimum 4 to 20 mA @ 15.6 bits minimum	12 bit; 2.5 mV/bit	12 bit;0-20 mA, 5µA/bit
Accuracy	Accurate to within ±0.1% of span at 25C, ± 0.25% of span over operating temperature range	±5 mV at 25°C (77°F)	0-20 mA, ±8 µA at 25°C (77°F); 0-20 mA, 4-20 mA ±0.1% at 25°C (77°F)
Maximum Output Load	Current: 1350 ohm maximum resistance, 10uH max inductance Voltage: 2k Ohm minimum resistance, 1uF max capacitance	5 mA (2 K ohms)	5 mA (2 K ohms)
Output Load Capacitance	Current: 10uH max.; Voltage: 1uF max.	2000 pF	2000 pF, Inductance 1H
External Power Requirement	500 mA @ 24 VDC	N/A	N/A
Connector Type	IC694TBBx32 or IC694TBSx32 Sold Separately.	Terminal Block (20 screws), included with module.	Terminal Block (20 screws), included with module.
Internal Power Used	450 mA @ 3.3 V Maximum, all channels on	32 mA @ 5 VDC; 120 mA @ 24 VDC Isolated	30 mA @ 5 VDC; 215 mA 24 VDC Isolated

Analog I/O Modules (Output)

GE offers easy-to-use analog modules for control processes such as flow, temperature and pressure.

	HE693DAC410	HE693DAC420
Product Name	**Isolated Analog Output Module, Voltage**	**Isolated Analog Output Module, Current**
Lifecycle Status	Active	Active
Module Type	Analog Output	Analog Output
Backplane Support	No Backplane Restrictions	No Backplane Restrictions
Number of Slots Module Occupies on Backplane	1	1
Diagnostics	N/A	N/A
Protection	N/A	N/A
Range	±10 V	4-20 mA or 0-20 mA
HART Support	N/A	N/A
Number of Channels	4	4
Channel-to-Channel Isolation	1500 VAC (RMS), ±2000 VDC	1500 VAC (RMS), ±2000 VDC
Update Rate	N/A	N/A
Resolution	1.2 5 mV	2.0 µA (4-20 mA); 2.5 µA (±20 mA)
Accuracy	N/A	N/A
Maximum Output Load	N/A	N/A
Output Load Capacitance	N/A	N/A
External Power Requirement	N/A	2-32 VDC
Connector Type	Terminal Block (20 screws), included with module.	Terminal Block (20 screws), included with module.
Internal Power Used	500 mA @ 5 VDC; 150 mA @ 24 VDC Relay	150 mA @ 5 VDC; 110 mA @ 24 VDC Relay

Analog Mixed I/O Modules (Input and Output)

The analog mixed modules (four in and two out) are available with or without advanced diagnostics. The advanced diagnostics includes alarms, open wire, rate of change, over range and under range. Additional features include 16 bit resolution, analog output clamp limits and output ramp mode option.

	IC694ALG542	IC694ALG442
Lifecycle Status	Active	Active
Module Type	**Analog Combination 4 In and 2 Out with Advanced Diagnostics, Output Clamp and Ramp Control**	**Analog Combination 4 In and 2 Out**
Backplane Support	No Backplane Restrictions	No Backplane Restrictions
Number of Slots Module Occupies on Backplane	1	1
Range	0 V to +10 V, -10 V to +10 V, 0-20 mA, 4-20 mA per Channel	0 V to +10 V, -10 V to +10 V, 0-20 mA, 4-20 mA per Channel
Channel-to-Channel Isolation	N/A	N/A
Number of Channels	4 in/2 out	4 in/2 out
Update Rate	2ms all channels	2ms all channels
Resolution	(Input)16 bit; 0 V to 10 V, 0.3125 mV/bit; -10 V to +10 V, 0.3125 mV/bit; 0-20 mA, 0.625 µA 4-20 mA 0.5 µA/bit (Output) 16 bit; 0 to 20 mA: 0.625 µA; 4 to 20 mA: 0.5 µA; –10 V to +10 V: 0.3125 mV; 0 to +10 V: 0.3125 mV	(Input)12 bit; 0 V to 10 V, 2.5 mV/bit; -10 V to +10 V, 5 mV/bit; 0-20 mA, 4-20 mA 5 µA/bit (Output) 16 bit; 0.312 mV/bit; 4-20 mA 0.5 µA/bit; 0-20 mA 0.625 µA/bit
Accuracy	Current Input 0 to 20 mA ±0.25% of full scale @ 25°C (77°F); ±0.5% of full scale over specified operating temperature range Current Input 4 to 20 mA ±0.25% of full scale @ 25°C (77°F); ±0.5% of full scale over specified operating temperature range 4 to 20 mA Enhanced Mode ±0.25% of full scale @ 25°C (77°F); ±0.5% of full scale over specified operating temperature range Current Output ±0.1% of full scale @ 25°C (77°F), typical ±0.25% of full scale @ 25°C (77°F), maximum ±0.5% of full scale over operating temperature range (maximum) Voltage Output ±0.25% of full scale @ 25°C (77°F), typical ±0.5% of full scale @ 25°C (77°F), maximum ±1.0% of full scale over operating temperature range (maximum)	(Input) 0.25% at 25°C (77°F) (Output) 0-20 mA, 4-20 mA ±0.1% at 25°C (77°F)
Input Impedence	Current mode - 250 ohms Voltage mode - 800 K ohms	Current mode - 250 ohms Voltage mode - 800 K ohms
Input Filter Response	Current mode - 55 Hz Voltage mode - 55 Hz	Current mode - 38 Hz Voltage mode - 38 Hz
Maximum Output Load	Voltage: 5 mA (2 K ohms) Current Inductance:1 H (maximum)	Voltage: 5 mA (2 K ohms) Current Inductance:1 H (maximum)
Output Load Capacitance	Voltage:1 µF (maximum) Current: 2000 pF (maximum)	Voltage:1 µF (maximum) Current: 2000 pF (maximum)
Diagnostics	Under Range/Over Range, Open Wire, Short Circuit, Positive/Negative Rate of Change, High, High-High, Low, Low-Low	N/A
Internal Power Used	95 mA @ 5 VDC; 150 mA external 24 VDC Isolated	95 mA @ 5 VDC; 150 mA external 24 VDC Isolated
External Power Requirement	24VDC: Current: 5 µA/V (typical), 10 µA/V (maximum) Voltage: 25 mV/V (typical), 50 mV/V (maximum)	24VDC: Current: 5 µA/V (typical), 10 µA/V (maximum) Voltage: 25 mV/V (typical), 50 mV/V (maximum)
Connector Type	Terminal Block (20 screws), included with module.	Terminal Block (20 screws), included with module.