G4 DIGITAL AC OUTPUT MODULES

Features

- 4000 volts optical isolation (transient)
- Built-in LED status indicator
- Logic levels of 5, 15, and 24 VDC
- Removable fuse
- Current rating: 3 amps at 45° C
- UL Motor Load rating: 1.5 amps
- Ability to withstand one-cycle surge of 80 amps
- Operating temperature: -30 °C to 70 °C

G4OAC5A and G4OAC5AMA Modules

DESCRIPTION

Opto 22's G4 AC output modules are used to control or switch AC loads. Each module provides up to 4000 volts of optical isolation (transient) between field outputs and the control side of the circuit, and each features zero voltage turn-on and zero current turn-off.

All AC output modules are equivalent to single-pole, single-throw, normally open contacts (Form A, SPST-NO) except the G4OAC5A5, which is equivalent to a single-pole, single-throw, normally closed contact (Form B, SPST-NC).

Each module is equipped with a 4 amp fast-blow fuse. The fuse breaking capacity is 40 amps at 250 VAC. Current should be limited to prevent the short circuit current from exceeding the rated breaking capacity of the fuse.

Typical applications for AC output modules include switching loads such as AC relays, solenoids, motor starters, heaters, lamps, and indicators.

The G4OAC5MA and the G4OAC5AMA are special modules featuring a manual-on/manual-off/automatic switch, ideal for diagnostic testing of control applications.

Part numbers ending in FM are Factory Mutual approved.

Compatible with Raspberry Pi

The following G4 digital AC output modules can be used with the Digital I/O Carrier Board for Raspberry Pi® (part number OPTO-P1-40P) to monitor and control industrial devices with your Raspberry Pi:

- G4OAC5
- G4OAC5A
- G4OAC5A5
- G4OAC5MA
- G4OAC5AMA

Part Numbers

Part	Description
G4OAC5*	G4 AC Output 12–140 VAC, 5 VDC Logic
G4OAC5FM	G4 AC Output 12–140 VAC, 5 VDC Logic, Factory Mutual Approved
G4OAC5A*	G4 AC Output 24–280 VAC, 5 VDC Logic
G4OAC5AFM	G4 AC Output 24–280 VAC, 5 VDC Logic, Factory Mutual Approved
G4OAC5A5*	G4 AC Output 24–280 VAC, 5 VDC Logic NC
G4OAC5A5FM	G4 AC Output 24–280 VAC, 5 VDC Logic NC, Factory Mutual Approved
G4OAC5MA*	G4 AC Output 12–140 VAC, 5 VDC Logic With Manual/Auto Switch
G4OAC5AMA*	G4 AC Output 24–280 VAC, 5 VDC Logic With Manual/Auto Switch
G4OAC15	G4 AC Output 12–140 VAC, 15 VDC Logic
G4OAC15A	G4 AC Output 24–280 VAC, 15 VDC Logic
G4OAC24	G4 AC Output 12–140 VAC, 24 VDC Logic
G4OAC24A	G4 AC Output 24–280 VAC, 24 VDC Logic

* Compatible with Raspberry Pi

Raspberry Pi® is a trademark of the Raspberry Pi Foundation.

SPECIFICATIONS

	Units	G4OAC5* G4OAC5FM**	G4OAC5A* G4OAC5AFM**	G4OAC5A5* G4OAC5A5FM**	G4OAC5MA*	G4OAC5AMA*
Nominal line voltage	VAC	120	120/240	120/240	120	120/240
Output voltage range	VAC	12–140	24–280	24–280	12–140	24–280
Key feature	—	—	—	Normally closed	Diagnostic switch	Diagnostic switch
Current rating: At 45 °C ambient At 70 °C ambient	 A A	 3 2	 3 2	 3 2	 3 2	 3 2
UL Motor Load Rating	A	1.5	1.5	1.5	1.5	1.5
Isolation input-to-output (transient): 1 ms 1 minute	volts	 4000 1500	 4000 1500	 4000 1500	 4000 1500	 4000 1500
Off-state leakage at nominal voltage (60 Hz)	mA_{RMS}	5	1.25/2.5	1.25/2.5	5	1.25/2.5
Nominal logic voltage	VDC	5	5	5	5	5
Logic voltage range	VDC	4–8	4–8	4–8	4–8	4–8
Logic pickup voltage	VDC	4	4	4	4	4
Logic dropout voltage	VDC	1	1	1	1	1
Logic input current at nominal logic voltage	mA	12	12	12	12	12
Control resistance (Rc in schematic)	ohms	220	220	220	220	220
One-cycle surge	A peak	80	80	80	80	80
Turn-on time @ 60 Hz	milliseconds	≤8.3***	≤8.3***	≤8.3***	≤8.3***	≤8.3***
Turn-off time @ 60 Hz	milliseconds	≤8.3****	≤8.3****	≤8.3****	≤8.3****	≤8.3****
Peak repetitive voltage	VAC	500	500	500	500	500
Minimum load current	mA	20	20	20	20	20
Output voltage drop maximum peak	V	1.6	1.6	1.6	1.6	1.6
Operating frequency	Hz	25–65	25–65	25–65	25–65	25–65
dV/dT-off-state	V/micro-seconds	200	200	200	200	200
dV/dT-commutating	--	snubbed for 0.5 power factor load	snubbed for 0.5 power factor load	snubbed for 0.5 power factor load	snubbed for 0.5 power factor load	snubbed for 0.5 power factor load
Temperature Operating: Storage:	 °C °C	 -30 to +70 -30 to +85	 -30 to +70 -30 to +85	 -30 to +70 -30 to +85	 -30 to +70 -30 to +85	 -30 to +70 -30 to +85

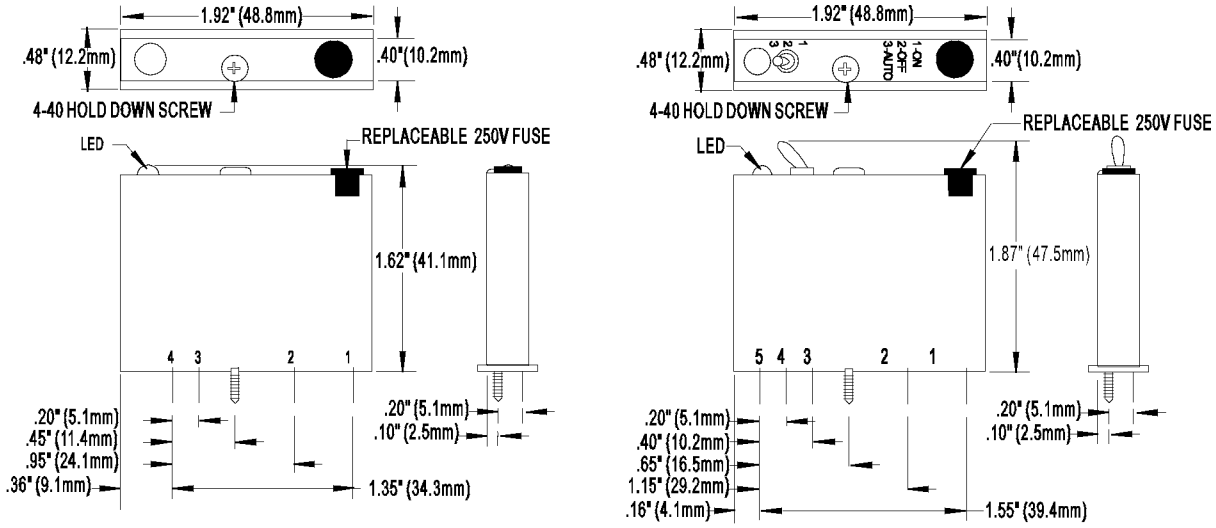
* Compatible with Raspberry Pi
** Part numbers ending in FM are Factory Mutual approved.
*** One-half cycle maximum. Module turns on at the zero volt crossing of the AC sine wave.
**** One-half cycle maximum. Module turns off at the zero current crossing of the AC sine wave.

SPECIFICATIONS (CONT.)

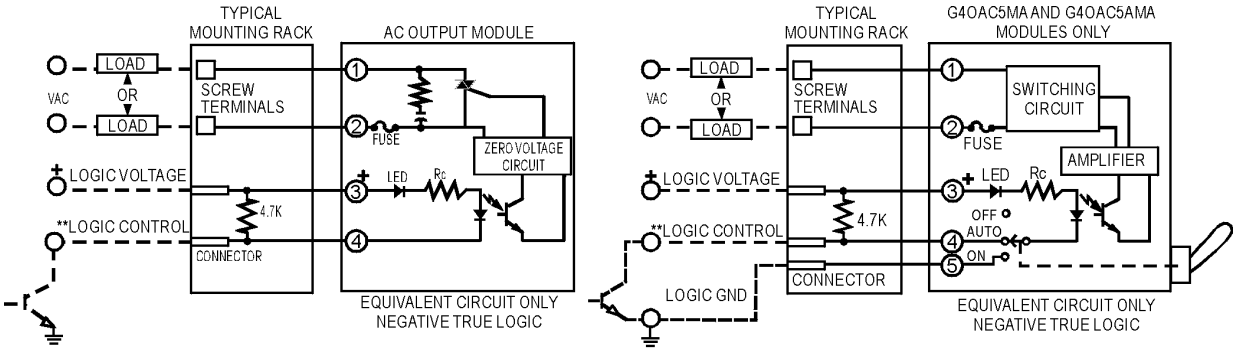
	Units	G4OAC15***	G4OAC15A***	G4OAC24***	G4OAC24A***
Nominal line voltage	VAC	120	120/240	120	120/240
Output voltage range	VAC	12–140	24–280	12–140	24–280
Key feature	—	—	—	—	—
Current rating: At 45 °C ambient At 70 °C ambient	 A A	 3 2	 3 2	 3 2	 3 2
UL Motor Load Rating	A	1.5	1.5	1.5	1.5
Isolation input-to-output (transient): 1 ms 1 minute	volts	 4000 1500	 4000 1500	 4000 1500	 4000 1500
Off-state leakage at nominal voltage (60 Hz)	mA_{RMS}	5	1.25/2.5	5	1.25/2.5
Logic voltage range	VDC	10.5–16	10.5–16	19.5–32	19.5–32
Logic pickup voltage	VDC	10.5	10.5	19.5	19.5
Logic dropout voltage	VDC	1	1	1	1
Logic input current at nominal logic voltage	mA	15	15	18	18
Control resistance (Rc in schematic)	ohms	1 K	1 K	2.2 K	2.2 K
One-cycle surge	A peak	80	80	80	80
Turn-on time @ 60 Hz	micro-seconds	≤8.3*	≤8.3*	≤8.3*	≤8.3*
Turn-off time @ 60 Hz	micro-seconds	≤8.3**	≤8.3**	≤8.3**	≤8.3**
Peak repetitive voltage	VAC	500	500	500	500
Minimum load current	mA	20	20	20	20
Output voltage drop maximum peak	V	1.6	1.6	1.6	1.6
Operating frequency	Hz	25–65	25–65	25–65	25–65
dV/dT-off-state	V/micro-second	200	200	200	200
dV/dT-commutating	--	snubbed for 0.5 power factor load	snubbed for 0.5 power factor load	snubbed for 0.5 power factor load	snubbed for 0.5 power factor load
Temperature Operating: Storage:	 °C °C	 -30 to +70 -30 to +85	 -30 to +70 -30 to +85	 -30 to +70 -30 to +85	 -30 to +70 -30 to +85

* One-half cycle maximum. Module turns on at the zero volt crossing of the AC sine wave.
** One-half cycle maximum. Module turns off at the zero current crossing of the AC sine wave.
*** Not for use with Opto 22 brains.

DIMENSIONS



SCHEMATICS



**Control line is compatible with totem pole or tri-state output device.

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More about Opto 22

OPTO 22

PRODUCTS

Opto 22 develops and manufactures reliable, easy-to-use, open standards-based hardware and software products.

Industrial automation, process control, building automation, industrial refrigeration, remote monitoring, data acquisition, and industrial internet of things (IIoT) applications worldwide all rely on Opto 22.

groov EPIC® System

Opto 22's *groov* Edge Programmable Industrial Controller (EPIC) system is the culmination of over 40 years of experience in designing products for the automation industry.

groov EPIC gives you an industrially hardened system with guaranteed-for-life I/O, a flexible Linux®-based controller with gateway functions, and software for your IIoT application or any application.

groov EPIC I/O

I/O provides the local connection to sensors and equipment. *groov* I/O offers up to 24 channels on each I/O module, with a spring-clamp terminal strip, integrated wireway, and swing-away cover.

Opto 22 I/O is so reliable, we can afford to guarantee it for life. *groov* I/O is hot swappable, UL Hazardous Locations approved, and ATEX compliant.

groov EPIC Controller

The heart of the system is the *groov* EPIC controller. It handles a wide range of digital, analog, and serial functions for data collection, remote monitoring, process control, and discrete and hybrid manufacturing.

In addition, the EPIC provides secure data communications among physical assets, control systems, software applications, online services, and more, both on premises and in the cloud.

Configuring and troubleshooting I/O and networking is easier with the EPIC's integrated high-resolution touchscreen. Authorized users can see your *groov* View HMI locally on the touchscreen or on a monitor connected via the HDMI or USB ports.

groov EPIC Software

Software includes:

- Flowchart-based PAC Control for control programming, or build your own custom application with optional secure shell access
- *groov* View for building and viewing your own device-independent HMI
- Node-RED for creating simple logic flows from pre-built nodes
- Ignition Edge® from Inductive Automation®, with OPC-UA drivers to Allen-Bradley®, Siemens®, and other control systems, and MQTT/Sparkplug communications for efficient IIoT data transfer

groov Edge Appliance

Visualization, data handling, and connectivity in a compact, industrial box: that's the *groov* Edge Appliance. Included are:

- *groov* View for building and viewing operator interfaces on PCs and mobile
- Node-RED for building simple logic flows
- Ignition Edge® from Inductive Automation®, for OPC-UA drivers and MQTT/Sparkplug IIoT communications

Older products

From solid state relays (our first products) to world-famous G4 and SNAP I/O, to SNAP PAC controllers, Opto 22 products last a long time. You can count on us to give you the reliability and service you expect.

QUALITY

Founded in 1974, Opto 22 has established a worldwide reputation for high-quality products. All are made in the U.S.A. at our manufacturing facility in Temecula, California.

Because we test each product twice before it leaves our factory rather than testing a sample of each batch, we can guarantee most solid-state relays and optically isolated I/O modules for life.

FREE PRODUCT SUPPORT

Opto 22's California-based Product Support Group offers free, comprehensive technical support for Opto 22 products from engineers with decades of training and experience. Support is available in English and Spanish by phone or email, Monday–Friday, 7 a.m. to 5 p.m. PST.

Support is always available on our website, including how-to videos, user's guides, the Opto 22 KnowledgeBase, troubleshooting tips, and OptoForums. In addition, free hands-on training is available at our Temecula, California headquarters, and you can register online.

PURCHASING OPTO 22 PRODUCTS

Opto 22 products are sold directly and through a worldwide network of distributors, partners, and system integrators. For more information, contact Opto 22 headquarters at **800-321-6786** (toll-free in the U.S. and Canada) or **+1-951-695-3000**, or visit our website at www.opto22.com.

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