

G4 Digital AC Input Modules

Features

- ✔ 4000 volts optical isolation (transient)
- ✔ Built-in LED status indicator
- ✔ Small footprint design
- ✔ UL recognized, CSA certified, CE approved
- ✔ Passes NEMA Showering Arc Test (ICS 2-230)
- ✔ Meets IEEE Surge Withstand Specification (IEEE-472)
- ✔ Built-in filtering for transient suppression and noise rejection
- ✔ Operating temperature: -30 °C to 70 °C

Description

Opto 22's G4 AC input modules are used to detect on/off AC (or DC) voltage levels. Each module provides up to 4000 volts of optical isolation (transient) between field inputs and the logic output of the circuit.

All AC input modules are designed with filtering on the input and a hysteresis amplifier, providing high noise rejection and transient-free "clean" switching.

The G4IAC5MA is a special module featuring a manual-on/manual-off/automatic switch, ideal for diagnostic testing of control applications.

Typical applications for G4 input modules include sensing the presence or absence of voltage, and sensing contact closure from sources such as proximity switches, limit switches, float switches, selector switches, push buttons, toggle switches, and thermostats.

Compatible with Raspberry Pi

The following G4 digital AC input 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:

- G4IAC5
- G4IAC5A
- G4IAC5L
- G4IAC5MA

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G4IAC5 Module



G4IAC5MA Module

Part Numbers

Part	Description
G4IAC5*	G4 AC Input 90–140 VAC/VDC, 5 VDC Logic
G4IAC5A*	G4 AC Input 180–280 VAC/VDC, 5 VDC Logic
G4IAC5L*	G4 AC Input 90–140 VAC/VDC, 5 VDC Logic, Low Input Impedance
G4IAC5MA*	G4 AC Input 90–140 VAC/VDC, 5 VDC Logic with Manual/Auto Switch
G4IAC15	G4 AC Input 90–140 VAC/VDC, 15 VDC Logic
G4IAC15A	G4 AC Input 180–280 VAC/VDC, 15 VDC Logic
G4IAC24	G4 AC Input 90–140 VAC/VDC, 24 VDC Logic
G4IAC24A	G4 AC Input 190–280 VAC/VDC, 24 VDC Logic

* Compatible with Raspberry Pi

G4 Digital AC Input Modules

Specifications

	Units	G4IAC5*	G4IAC5L*	G4IAC5A*	G4IAC5MA*
Input voltage range	VAC or VDC	90–140	90–140	180–280	90–140
Key feature	--	--	Low R in	--	Diagnostic switch
Input current at maximum line	mA	5	11	5	5
Isolation, input-to-output (transient):					
1 ms	V	4000	4000	4000	4000
1 minute	V	1500	1500	1500	1500
Turn-on time	ms	20	20	20	20
Turn-off time	ms	20	20	20	20
Input allowed for off-state	mA, V	1.4, 40	3, 45	0.7, 45	1.4, 40
Nominal output voltage supply	VDC	5	5	5	5
Output supply voltage range	VDC	4.5–6	4.5–6	4.5–6	4.5–6
Output supply current at nominal logic voltage	mA	12	12	12	12
Input resistance (R1 in schematic)	ohms	28 K	14 K	70K	28 K
Control resistance (R _c in schematic)	ohms	220	220	220	220
Output voltage drop	V @ 50 mA	0.4	0.4	0.4	0.4
Output current (sinking)	mA	50	50	50	50
Output leakage with no input	microamps @ 30 VDC	100	100	100	100
Transistor	V breakdown	30	30	30	30
Temperature					
Operating:	°C	-30 to +70	-30 to +70	-30 to +70	-30 to +70
Storage:	°C	-30 to +85	-30 to +85	-30 to +85	-30 to +85

* Compatible with Raspberry Pi

G4 Digital AC Input Modules

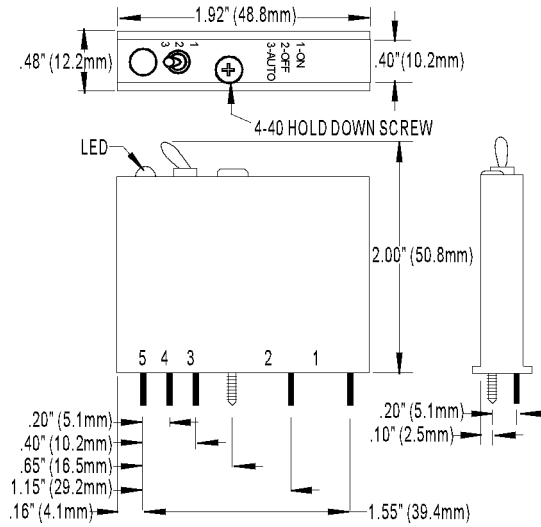
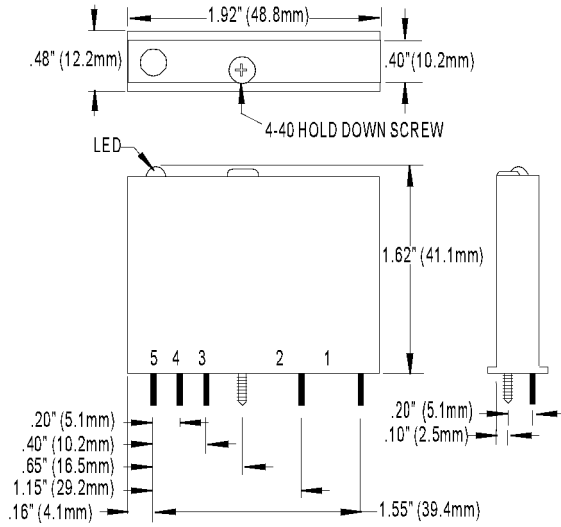
Specifications (continued)

	Units	G4IAC15*	G4IAC15A*	G4IAC24*	G4IAC24A*
Input voltage range	VAC or VDC	90–140	180–280	90–140	180–280
Key feature	--	--	--	--	--
Input current at maximum line	mA	5	5	5	5
Isolation, input-to-output (transient):					
1 ms	V	4000	4000	4000	4000
1 minute	V	1500	1500	1500	1500
Turn-on time	ms	20	20	20	20
Turn-off time	ms	20	20	20	20
Input allowed for off-state	mA, V	1.4, 40	0.7, 45	1.4, 40	0.7, 45
Nominal output supply voltage	VDC	15	15	24	24
Output supply voltage range	VDC	12–18	12–18	20–30	20–30
Output supply current at nominal logic voltage	mA	15	15	15	15
Input resistance (R1 in schematic)	ohms	28 K	70 K	28 K	70 K
Control resistance (Rc in schematic)	ohms	1 K	1 K	2.2 K	2.2 K
Output voltage drop	V @ 50 mA	0.4	0.4	0.4	0.4
Output current (sinking)	mA	50	50	50	50
Peak repetitive voltage	VAC	500	500	500	500
Output leakage with no input	microamps @ 30 VDC	100	100	100	100
Transistor	V breakdown	30	30	30	30
Temperature					
Operating:	°C	-30 to +70	-30 to +70	-30 to +70	-30 to +70
Storage:	°C	-30 to +85	-30 to +85	-30 to +85	-30 to +85

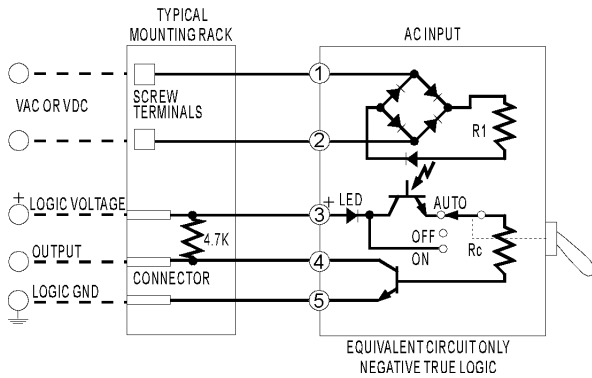
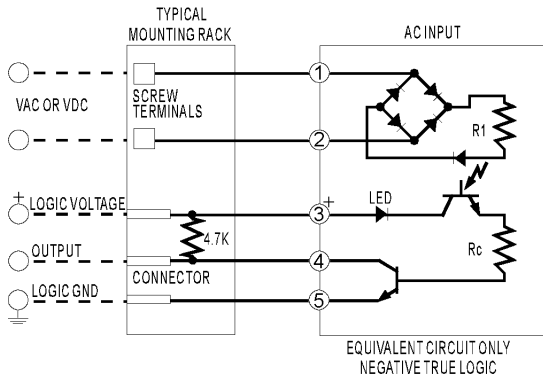
* Not for use with Opto 22 brains.

G4 Digital AC Input Modules

Dimensions



Schematics



More About Opto 22

Products

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

Industrial automation, process control, building automation, industrial refrigeration, remote monitoring, data acquisition, Industrial Internet of Things (IIoT), and information technology applications all rely on Opto 22.



groov

Monitor and control your equipment from anywhere using your smartphone or tablet with groov. Build your own mobile app easily—just drag, drop, and tag. No programming or coding. Visit groov.com for more information and your free trial.

SNAP PAC System

Developer- and IIoT-ready, the SNAP PAC System connects physical assets to databases and applications using open standards. The SNAP PAC System consists of four integrated components:

- SNAP PAC controllers
- PAC Project™ Software Suite
- SNAP PAC brains
- SNAP I/O™

SNAP PAC Controllers

SNAP PAC programmable automation controllers handle a wide range of digital, analog, and serial functions for data collection, remote monitoring, process control, and discrete and hybrid manufacturing.

For IIoT applications and easier integration with company systems, standalone and rack-mounted SNAP PACs include a built-in HTTP/HTTPS server and **RESTful API** (application program interface). The REST API gives you secure, direct access to I/O and variable data using your choice of programming languages. No middleware, protocol converters, drivers, or gateways needed.

Based on open Ethernet and Internet Protocol (IP) standards, SNAP PACs make it easier to build or extend a system without the expense and limitations of proprietary networks and protocols.

PAC Project Software Suite

Opto 22's PAC Project Software Suite offers full-featured, cost-effective control programming, HMI (human machine interface), OPC server, and database connectivity software.

Control programming includes both easy-to-learn flowcharts and optional scripting. Commands are in plain English; variables and I/O point names are fully descriptive.

PAC Project Basic offers control and HMI tools and is free for download on our website, www.opto22.com. PAC Project Professional, available for separate purchase, adds one SoftPAC software-based controller, OptoOPCServer, OptoDataLink, options for controller redundancy or segmented networking, and support for legacy Opto 22 serial *mistic*™ I/O units.

SNAP PAC Brains

While SNAP PAC controllers provide central control and data distribution, SNAP PAC brains provide distributed intelligence for I/O processing and communications. Brains offer analog, digital, and serial functions, including thermocouple linearization, local PID loop control, watchdog, totalizing, and much more.

SNAP I/O

I/O provides the local connection to sensors and equipment. Opto 22 SNAP I/O offers 1 to 32 points of reliable I/O per module. Analog, digital, and serial modules are mixed on one mounting rack and controlled by a SNAP PAC brain or rack-mounted PAC.

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 only 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.

Additional support is always available on our website: how-to videos, OptoKnowledgeBase, self-training guide, troubleshooting and user's guides, and OptoForums.

In addition, hands-on training is available for free 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 951-695-3000, or visit our website at www.opto22.com.

{RESTful API}



www.opto22.com

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