

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.



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 Impedence |
| 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 |

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 |

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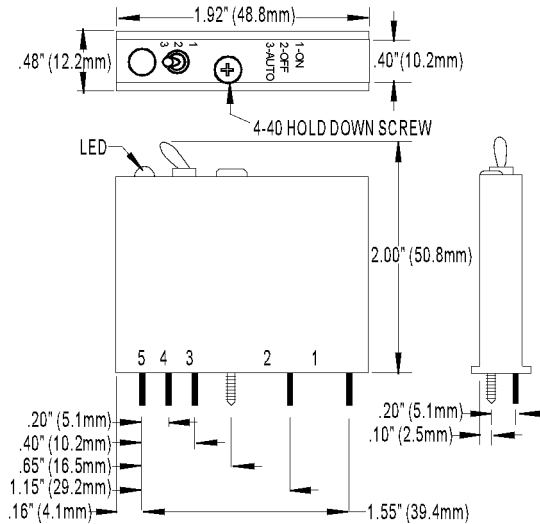
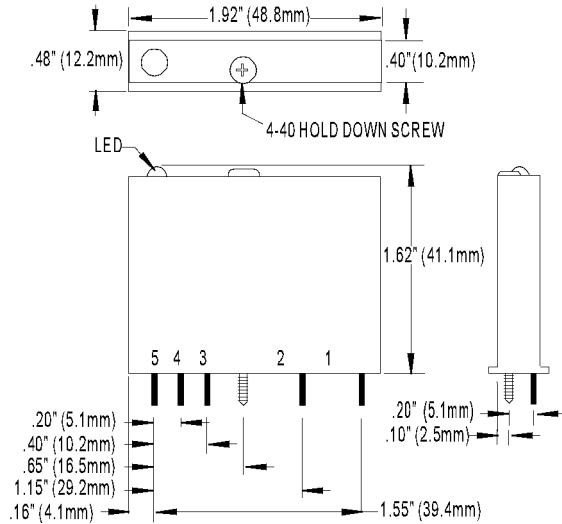
Specifications (continued)

| | 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 |

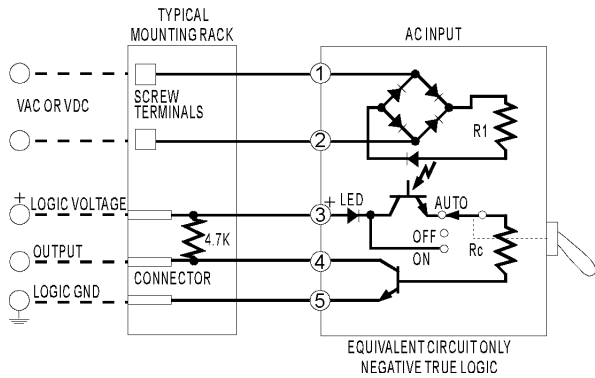
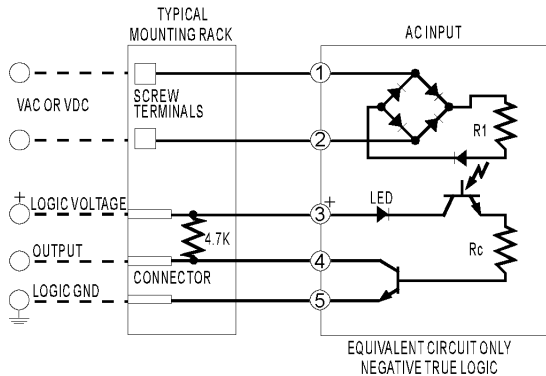
* Not for use with Opto 22 brains.

G4 Digital AC Input Modules

Dimensions



Schematics



More About Opto 22

Products

Opto 22 develops and manufactures reliable, flexible, easy-to-use hardware and software products for industrial automation, energy management, remote monitoring, and data acquisition applications.

OptoEMU Energy Management System

The easy-to-use OptoEMU Sensor monitors electrical energy use in your facility and delivers detailed, real-time data you can see and analyze. The Sensor can monitor energy data from pulsing meters, electrical panels or subpanels, and equipment. View energy data online using a software service or incorporate the data into your control system for complete energy management.

SNAP PAC System

Designed to simplify the typically complex process of selecting and applying an automation system, 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

Programmable automation controllers (PACs) are multifunctional, modular controllers based on open standards.

Opto 22 has been manufacturing PACs for over two decades. The standalone SNAP PAC S-series and the rack-mounted SNAP PAC R-series both handle a wide range of digital, analog, and serial functions for data collection, remote monitoring, process control, and discrete and hybrid manufacturing.

SNAP PACs are based on open Ethernet and Internet Protocol (IP) standards, so you can build or extend a system easily, without the expense and limitations of proprietary networks and protocols.

PAC Project Software Suite

Opto 22's PAC Project Software Suite provides full-featured, cost-effective control programming, HMI (human machine interface) development and runtime, OPC server, and database connectivity software for your SNAP PAC System.

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

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; PID loop control; and optional high-speed digital counting (up to 20 kHz), quadrature counting, TPO, and pulse generation and measurement.

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, depending on the type of module and your needs.

Analog, digital, and serial modules are all mixed on the same mounting rack and controlled by the same processor (SNAP PAC brain or rack-mounted controller).

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 do no statistical testing and each part is tested twice before leaving our factory, 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. Our staff of support engineers represents 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 or 951-695-3000, or visit our website at www.opto22.com.

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