G4 Digital DC Output Modules

Features

- 4000 volts optical isolation (transient)
- Built-in LED status indicator
- Logic levels of 5, 15, and 24 VDC
- Removable fuse
- Ability to withstand one-second surge of 5 amps
- Operating temperature: -30 °C to 70 °C
- UL recognized, CSA certified, CE approved
- Passes NEMA Showering Arc Test (ICS 2-230)
- Meets IEEE Surge Withstand Specification (IEEE-472)

G4ODC5

Description

Opto 22's G4 DC output modules are used to control or switch DC loads. Each module provides up to 4000 volts of optical isolation (transient) between field devices and control logic.

The G4ODC5MA is a special module featuring a manual-on/manual-off/automatic switch, ideal for diagnostic testing of control applications.

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

Compatible with Raspberry Pi

The following G4 digital DC 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:

- G4ODC5
- G4ODC5A
- G4ODC5MA

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

Part Numbers

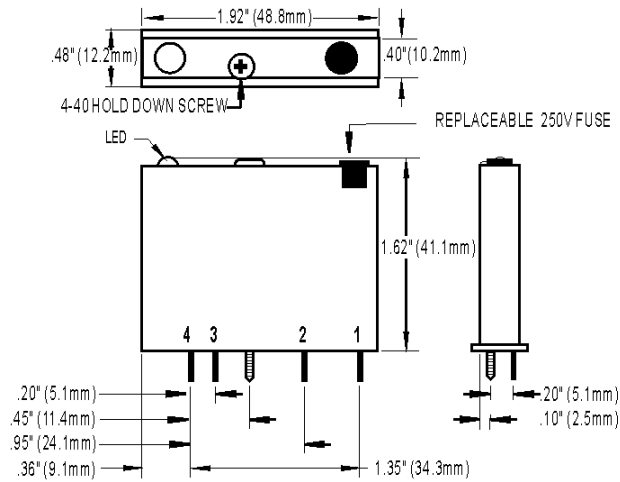| Part	Description
G4ODC5*	G4 DC Output 5–60 VDC, 5 VDC Logic
G4ODC5FM	G4 DC Output 5–60 VDC, 5 VDC Logic, Factory Mutual approved
G4ODC5A*	G4 DC Output 5–200 VDC, 5 VDC Logic
G4ODC5AFM	G4 DC Output 5–200 VDC, 5 VDC Logic, Factory Mutual approved
G4ODC5MA*	G4 DC Output 5–60 VDC, 5 VDC Logic with Manual/Auto Switch
G4ODC15	G4 DC Output 5–60 VDC, 15 VDC Logic
G4ODC24	G4 DC Output 5–60 VDC, 24 VDC Logic
G4ODC24A	G4 DC Output 5–200 VDC, 24 VDC Logic

* Compatible with Raspberry Pi

Specifications

	Units	G4ODC5* G4ODC5FM**	G4ODC5A* G4ODC5AFM**	G4ODC5MA*	G4ODC15***	G4ODC24***	G4ODC24A***
Maximum line voltage	VDC	60	200	60	60	60	200
Output voltage range	VDC	5–60	5–200	5–60	5–60	5–60	5–200
Key feature	—	—	—	Diagnostic switch	—	—	—
Current rating: At 45 °C ambient At 70 °C ambient	A A	3 2	1 0.55	3 2	3 2	3 2	1 0.55
Isolation input-to-output (transient): 1 ms 1 minute	volts	4000 1500	4000 1500	4000 1500	4000 1500	4000 1500	4000 1500
Off-state leakage at maximum voltage	mA	1	1	1	1	1	1
Control resistance (R_c in schematic)	W	220	220	220	1 K	2.2 K	2.2 K
One-second surge	A	5	5	5	5	5	5
Turn-on time	micro-seconds	100	100	100	100	100	100
Turn-off time	micro-seconds	750	750	750	750	750	750
Output voltage drop maximum peak	V	1.6	1.6	1.6	1.6	1.6	1.6
Nominal logic voltage	VDC	5	5	5	15	24	24
Logic voltage range	VDC	4–8	4–8	4–8	10.5–16	19.5–32	19.5–32
Logic pickup voltage	VDC	4	4	4	10.5	19.5	19.5
Logic dropout voltage	VDC	1	1	1	1	1	1
Logic input current at nominal logic voltage	mA	12	12	12	15	18	18
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	-3- to +70 -30 to +85

* Compatible with Raspberry Pi
** Part numbers ending in FM are Factory Mutual approved
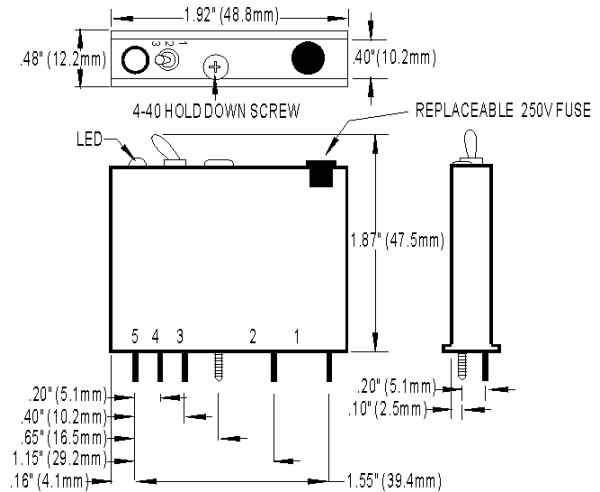*** Not for use with Opto 22 brains

G4 Digital DC Output Modules
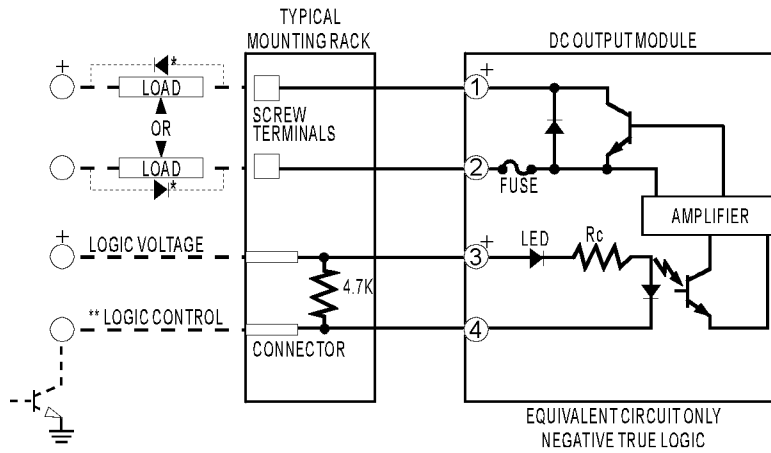
Dimensions

All Models Except MA

1.92" (48.8mm)
.48" (12.2mm)
.40" (10.2mm)
4-40 HOLD DOWN SCREW
REPLACEABLE 250V FUSE
LED
1.62" (41.1mm)
4 3 2 1
.20" (5.1mm)
.45" (11.4mm)
.95" (24.1mm)
.36" (9.1mm)
1.35" (34.3mm)
.20" (5.1mm)
.10" (2.5mm)

MA Models

1.92" (48.8mm)
.48" (12.2mm)
.40" (10.2mm)
4-40 HOLD DOWN SCREW
REPLACEABLE 250V FUSE
LED
1.87" (47.5mm)
5 4 3 2 1
.20" (5.1mm)
.40" (10.2mm)
.65" (16.5mm)
1.15" (29.2mm)
.16" (4.1mm)
1.55" (39.4mm)
.20" (5.1mm)
.10" (2.5mm)

Schematics

All Models Except MA

TYPICAL MOUNTING RACK

DC OUTPUT MODULE

LOAD

OR

LOAD

LOGIC VOLTAGE

** LOGIC CONTROL

SCREW TERMINALS

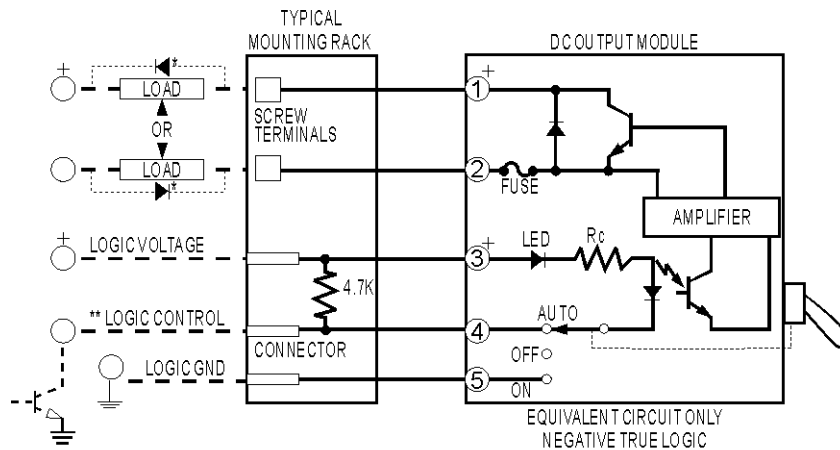4.7K

CONNECTOR

① +
② FUSE
③ + LED   Rc
④

AMPLIFIER

EQUIVALENT CIRCUIT ONLY
NEGATIVE TRUE LOGIC

* Commutation diode must be used on inductive loads. Typically, use diode IN4005.
** Control line is compatible with totem pole or tri-state output device.

MA Models

TYPICAL MOUNTING RACK

DC OUTPUT MODULE

LOAD

OR

LOAD

LOGIC VOLTAGE

** LOGIC CONTROL

LOGIC GND

SCREW TERMINALS

4.7K

CONNECTOR

① +
② FUSE
③ + LED   Rc
④ AUTO
⑤ OFF
   ON

AMPLIFIER

EQUIVALENT CIRCUIT ONLY
NEGATIVE TRUE LOGIC

* Commutation diode must be used on inductive loads. Typically, use diode IN4005.
** Control line is compatible with totem pole or tri-state output device.

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.

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