

# Standard AC Output Modules

## Features

- Rugged construction
- 4000 volts of optical isolation between the field devices and the control logic (transient)
- Zero voltage turn-on and zero current turn-off



OAC5 Module

## Description

AC output modules are used for controlling or switching AC loads. Each module provides up to 4000 volts (transient) of optical isolation between the field devices and the control logic.

With the exception of the OAC5A5 module, all AC output modules are equivalent to a single pole, single throw, normally open contact (FORM A, SPST-NO, Make). The OAC5A5 is equivalent to a single pole, single throw, normally closed contact (FORM B, SPST-NC, Break). All AC output modules feature zero voltage turn-on and zero current turn-off.

Typical uses and applications for AC output modules include switching the following loads:

- Relays
- Solenoids
- Motor starters
- Heaters
- Lamps or indicators

## Part Numbers

| Part    | Description   |
|---------|---|
| OAC5    | AC Output 12–140 VAC, 5 VDC Logic                         |
| OAC5A   | AC Output 24–280 VAC, 5 VDC Logic                         |
| OAC5H*  | AC Output 24–280 VAC, 5 VDC Logic, higher current rating  |
| OAC5A5  | AC Output 24–280 VAC, 5 VDC Logic, NC                     |
| OAC15   | AC Output 12–140 VAC, 15 VDC Logic                        |
| OAC15A  | AC Output 24–280 VAC, 15 VDC Logic                        |
| OAC24   | AC Output 12–140 VAC, 24 VDC Logic                        |
| OAC24A  | AC Output 24–280 VAC, 24 VDC Logic                        |
| OAC24H* | AC Output 24–280 VAC, 24 VDC Logic, higher current rating |

\* Not UL approved

# Standard AC Output Modules

## Specifications

### General

|  |   |
|--|---|
| One Cycle Surge                                | 80 amps peak  |
| Peak Repetitive Voltage                        | 500 Volts   |
| Operating Ambient Temperature                  | -30 to 70 °C  |
| Isolation, Input-to-Output (Transient)         | 4,000 Vrms  |
| Minimum Load Current                           | 20 milliamps  |
| Operating Frequency                            | 25–65 Hz  |
| Turn-on Time                                   | 1/2 cycle maximum-zero voltage  |
| Turn-off Time                                  | 1/2 cycle maximum-zero current  |
| DV/DT - Off-State                              | 200 volts/microseconds  |
| DV/DT - Commutating                            | Snubbed for rated 0.5 power factor load                                       |
| Output Voltage Drop Maximum Peak               | 1.6 volts   |
| Off-State Leakage<br>@ Nominal Voltage - 60 Hz | 5 milliamps rms<br>2.5 milliamps rms for OAC5A OAC15A,<br>and OAC24A @120 VAC |

### Module Specifications

|  | Units | OAC5   | OAC5A  | OAC5H  | OAC5A5<br>(NC) | OAC15 <sup>3</sup> | OAC15A <sup>3</sup> | OAC24 <sup>3</sup> | OAC24A <sup>3</sup> | OAC24H <sup>3</sup> |
|--|-------|--------|--------|--------|----------------|--------------------|---------------------|--------------------|---------------------|---------------------|
| Line Voltage - Nominal   | VAC   | 120    | 240    | 240    | 120/240        | 120                | 240                 | 120                | 240                 | 240                 |
| Operating Voltage Range  | VAC   | 12–140 | 24–280 | 24–280 | 24–280         | 12–140             | 24–280              | 12–140             | 24–280              | 24–280              |
| Current Rating<br>@ 45 °C Ambient  | amps  | 3      | 3      | 4      | 3              | 3                  | 3                   | 3                  | 3                   | 4                   |
| @ 70 °C Ambient  | amps  | 2      | 2      | 2      | 2              | 2                  | 2                   | 2                  | 2                   | 2                   |
| UL Motor Load Rating   | amps  | 1.5    | 1.5    | -- *   | 1.5            | 1.5                | 1.5                 | 1.5                | 1.5                 | -- <sup>1</sup>     |
| Logic Voltage - Nominal  | VDC   | 5      | 5      | 5      | 5              | 15                 | 15                  | 24                 | 24                  | 24                  |
| Logic Voltage Range (Vcc) <sup>2</sup>   | VDC   | 2.5–8  | 2.5–8  | 2.5–8  | 2.5–8          | 9–16               | 9–16                | 18–32              | 18–32               | 18–32               |
| Logic Pickup Voltage <sup>1</sup>  | VDC   | 2.5    | 2.5    | 2.5    | 2.5            | 9                  | 9                   | 18                 | 18                  | 18                  |
| Logic Dropout Voltage  | VDC   | 1      | 1      | 1      | 1              | 1                  | 1                   | 1                  | 1                   | 1                   |
| Logic Input Current-@ Normal<br>Logic Voltage (I <sub>out</sub> in schematic dia-<br>gram) | mA    | 12     | 12     | 12     | 12             | 15                 | 15                  | 18                 | 18                  | 18                  |
| Control Resistance<br>(R <sub>c</sub> in schematic diagram)                                | Ohms  | 220    | 220    | 220    | 220            | 1K                 | 1K                  | 2.2K               | 2.2K                | 2.2K                |

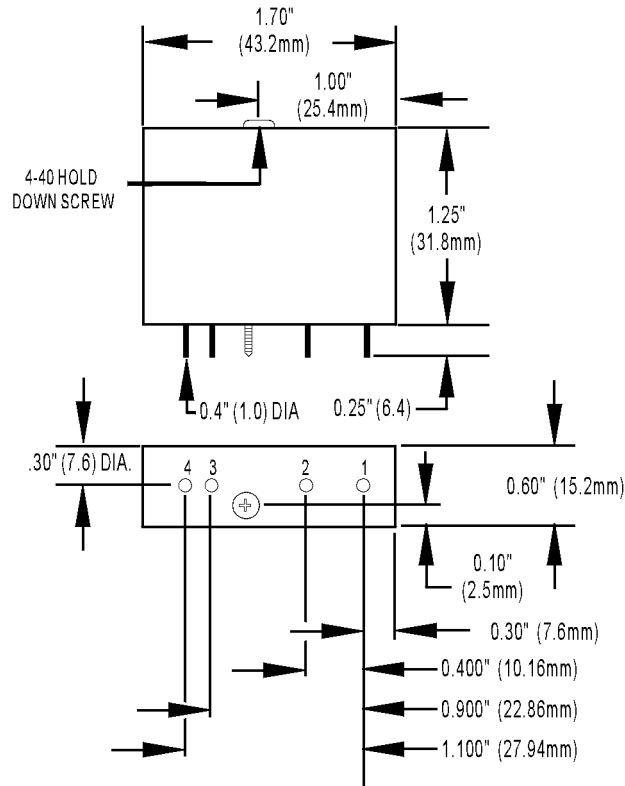
1 Not UL approved

2 Module only

3 Not for use with Opto 22 brains

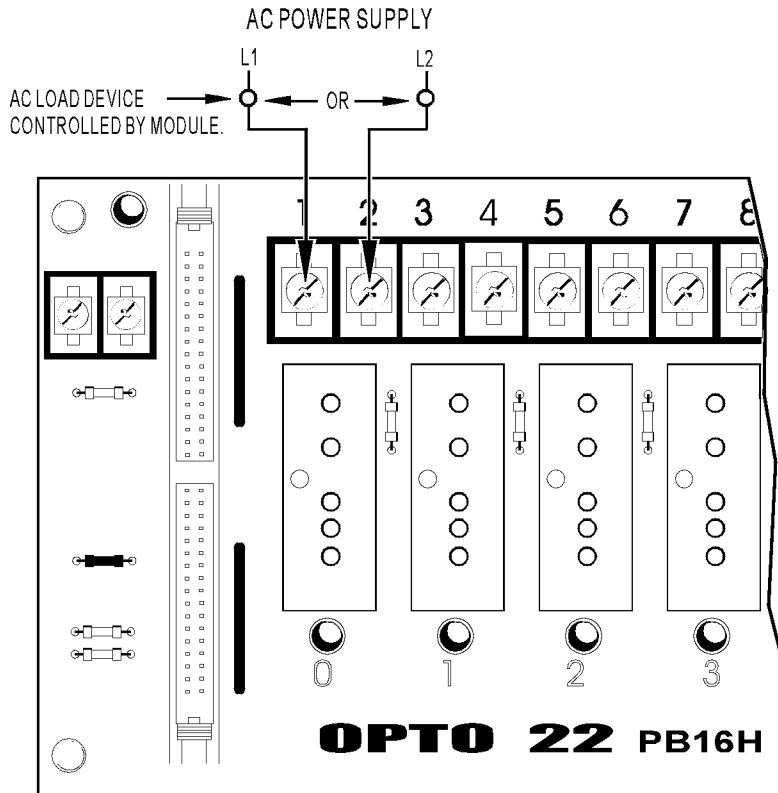
# Standard AC Output Modules

## Dimensions

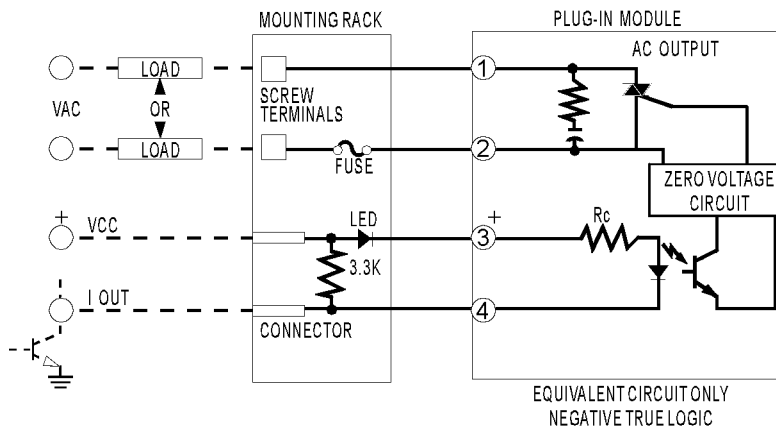


# Standard AC Output Modules

## Connections



## Schematics



\* SNUBBER circuit must be used on inductive loads.

# 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](http://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](http://www.opto22.com).

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