

QUAD PAK INPUT MODULES

Features

- > Each module contains four single-channel I/O circuits
- > Each module can be divided into two pairs with each pair sharing a common connection
- > Used for sensing on/off AC voltages
- > Provides up to 4,000 Vrms of optical isolation between field devices and control logic
- > Features zero voltage turn-on and zero current turn-off

DESCRIPTION

Quad Pak modules contain the equivalent of four, single channel I/O circuits in a single high-density package. Each Quad Pak module can be divided into two pairs, with each pair sharing a common connection.

Quad Pak modules are designed to plug into the Quad Pak high-density I/O mounting racks only and cannot be plugged into single-channel racks. Quad Pak modules are designed to work with a 5 VDC logic voltage only and can be used with Optomux, Pamux, and Mistic protocol brain boards and mounting racks, as well as racks using a direct cable connection to a computer.

Quad Pak modules can also be used with a Raspberry Pi, the Digital I/O Carrier Board (part number [OPTO-P1-40P](#)), and the PB16HQ mounting rack.

AC input modules are used for sensing ON/OFF AC voltages. All AC input modules are designed with filtering on the input and a hysteresis amplifier for high noise rejection and transient-free “clean” switching. Each module provides up to 4,000 Vrms of optical isolation between field inputs and the logic side of the circuit.



IAC5Q

All DC input modules (with the exception of the IDC5BQ) are designed with filtering on the input and a hysteresis amplifier for high noise rejection and transient-free “clean” switching. The IDC5BQ module is a fast-switching input module for signals produced by photoelectric switches, encoders, DC proximity switches, or TTL devices.

Typical uses and applications include sensing the presence or absence of voltage or sensing contact closures from sources such as:

- Proximity Switches
- Limit Switches
- Selector Switches
- Push Buttons
- Toggle Switches
- Thermostats
- Photoelectric switches
- TTL-compatible devices

Part Numbers

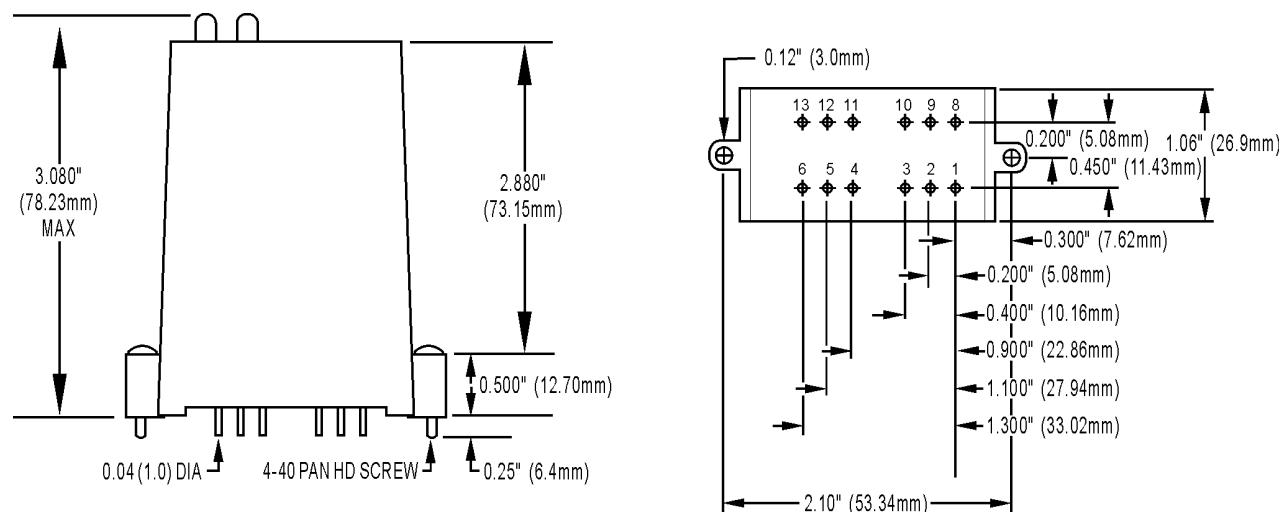
Part	Description
IDC5Q	4-Channel AC/DC Input 12–32 VAC/10–32 VDC, 5 VDC Logic
IDC5BQ	4-Channel DC Input 4-16 VDC, 5 VDC Logic, High Speed
IAC5Q	4-Channel AC/DC Input 90–140 VAC/VDC, 5 VDC Logic
IAC5AQ	4-Channel AC/DC Input 180–280 VAC/VDC, 5 VDC Logic

SPECIFICATIONS

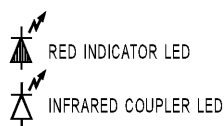
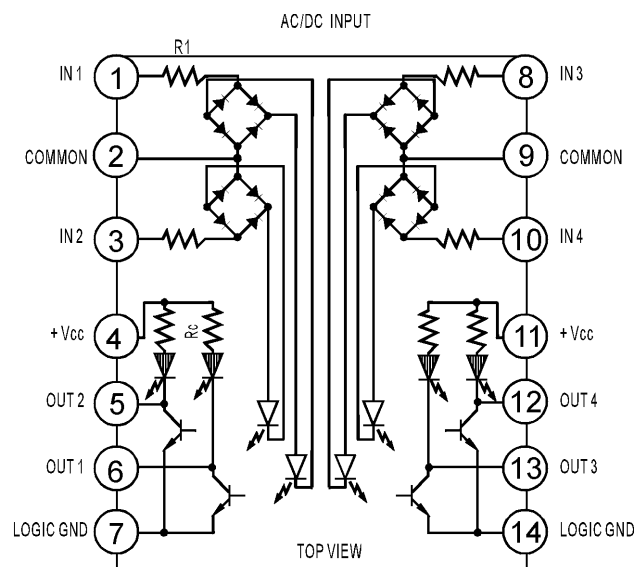
Operating Ambient Temperature	-30 to 70 °C
Isolation Input-to-Output	4,000 Vrms
Output Voltage Drop	0.4 volts @ 50 mA
Output Current	50 mA
Output Leakage With No Input	100 microamps maximum @ 5 VDC
Output Transistor	30 volts breakdown

	Units	IDC5Q	IDC5BQ	IAC5Q	IAC5AQ
Input Voltage Range (VAC)	VAC	12–32	N/A	90–140	180–280
Input Voltage Range (VDC)	VDC	10–32	4–16	90–140	180–280
Input Current (per channel) @ Maximum Line	mA	29	45	11	6.5
Turn-on Time	msec	5	0.05	20	20
Turn-off Time	msec	5	0.1	20	20
Input Allowed For No Output	mA	1	0.7	3	1.7
	V	3	1	45	80
Logic Supply Voltage - Nominal	VDC	5	5	5	5
Logic Supply Voltage Range	VDC	4.5–6	4.5–6	4.5–6	4.5–6
Logic Supply Current @ Nominal Logic Voltage	mA	12	12	12	12
Input Resistance (R _I in Schematic Diagram)	Ohms	1.5K	300	14K	43K
Control Resistance (R _C in Schematic Diagram)	Ohms	220	220	220	220
Agency Approvals		UL, CE, CSA; UKCA	UL, CE, CSA; UKCA	UL, CE, CSA; UKCA	UL, CE, CSA; UKCA

DIMENSIONS



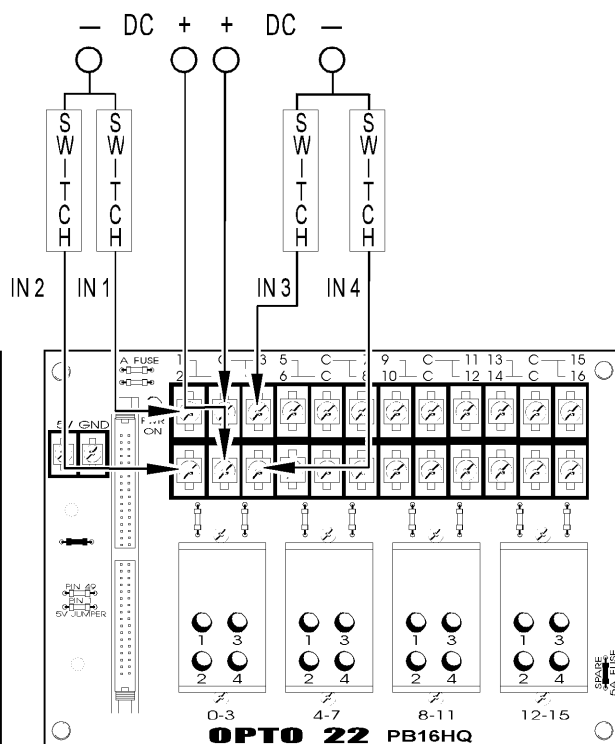
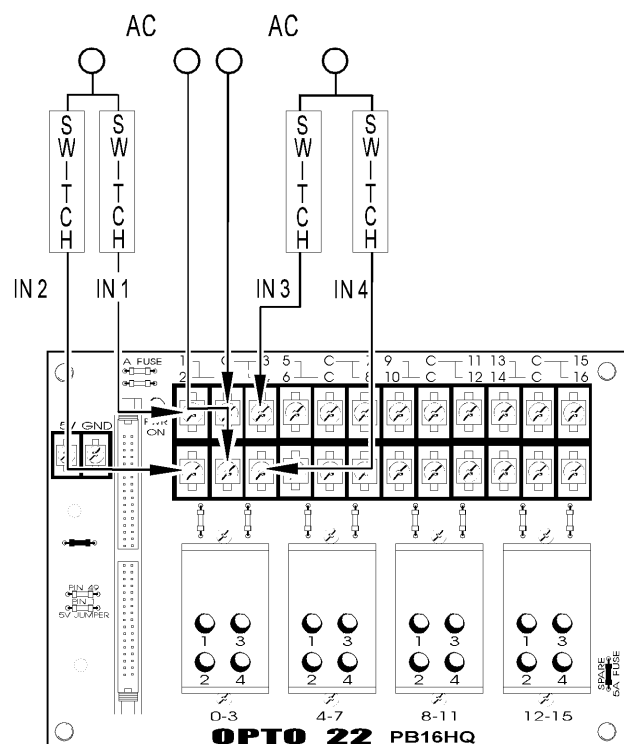
SCHEMATICS



EQUIVALENT CIRCUIT ONLY

NEGATIVE TRUE LOGIC

CONNECTIONS



PRODUCTS

Opto 22 develops and manufactures reliable, easy-to-use, open standards-based hardware and software products. Industrial automation, process control, remote monitoring, data acquisition, and industrial internet of things (IIoT) applications worldwide all rely on Opto 22.

groov RIO®

groov RIO edge I/O offers a single, compact, PoE-powered industrial package with web-based configuration and IIoT software built in, support for multiple OT and IT protocols, and security features like a device firewall, data encryption, and user account control.

Standing alone, *groov RIO* connects to sensors, equipment, and legacy systems, collecting and securely publishing data from field to cloud. Choose a universal I/O model with thousands of possible field I/O configurations, with or without Ignition from Inductive Automation®, or a *RIO EMU energy monitoring unit* that reports 64 energy data values from 3-phase loads up to 600 VAC, Delta or Wye.

You can also use *groov RIO* with a Modbus/TCP master or as remote I/O for a *groov EPIC* system.

groov EPIC® System

Opto 22's *groov Edge Programmable Industrial Controller (EPIC) system* gives you industrially hardened control with a flexible Linux®-based processor with gateway functions, guaranteed-for-life I/O, and software for your automation and IIoT applications.

groov EPIC Processor

The heart of the system is the *groov EPIC* processor. 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, and online services, both on premises and in the cloud. No industrial PC needed.

Configuring and troubleshooting I/O and networking is easier with the EPIC's integrated high-resolution color touchscreen. Authorized users can manage the system locally on the touchscreen, on a monitor connected via the HDMI or USB ports, or on a PC or mobile device with a web browser.

groov EPIC I/O

groov I/O connects locally to sensors and equipment. Modules have a spring-clamp terminal strip, integrated wireway, swing-away cover, and LEDs indicating module health and discrete channel status. *groov I/O* is hot swappable, UL Hazardous Locations approved, and ATEX compliant.

groov EPIC Software

The *groov EPIC* processor comes ready to run the software you need:

- Programming: Choose flowchart-based PAC Control, CODESYS Development System for IEC61131-3 compliant programs, or secure shell access (SSH) to the Linux OS for custom applications
- Node-RED for creating simple IIoT logic flows from pre-built nodes
- Efficient MQTT data communications with string or Sparkplug data formats
- HMI: *groov View* to build your own HMI viewable on touchscreen, PCs, and mobile devices; PAC Display for a Windows HMI; Node-RED dashboard UI
- Ignition or Ignition Edge® from Inductive Automation (requires license purchase) with OPC-UA drivers to Allen-Bradley®, Siemens®, and other control systems, and MQTT communications



Older products

From solid state relays, to world-famous G4 and SNAP I/O, to SNAP PAC controllers, older Opto 22 products are still supported and working hard at thousands of installations worldwide. You can count on us for the reliability and service you expect, now and in the future.

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 afford to 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 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 [free online training](#) at OptoU, how-to [videos](#), [user's guides](#), the Opto 22 KnowledgeBase, and [OptoForums](#).

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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