B3000-B Serial Brain

Features

⬊ Drop-in replacement for the B3000 *mistic* serial brain

⬊ Connects to a SNAP-PAC-S1 or S2 controller

⬊ Can be migrated to PAC Project

⬊ Supports the *mistic* serial protocol

⬊ Supports four-channel digital modules in rack positions 0-7

⬊ Supports one- and two-channel analog modules in all rack module positions

⬊ Compatible with SNAP B-series mounting racks

Description

The B3000-B is a *mistic* serial brain designed as a modern drop-in replacement for the B3000 and is compatible with SNAP B-series mounting racks. The B3000-B has the same functionality as the B3000, except that it does not support the Optomux protocol. Customers requiring an Optomux brain should use Opto 22's E1 or E2 brain.

The B3000-B can be connected to a SNAP PAC S-series controller, and it can be migrated with other *mistic* I/O units to PAC Project. However, if you are building a new SNAP PAC system with distributed I/O, you should use the SNAP-PAC-SB1 and SB2 serial brains instead of the B3000-B. The B3000-B can also be used with legacy OptoControl controllers.

For more detailed information on the B3000-B serial brain, see form 1781, the *B3000-B Serial Brain User's Guide*.

For more information on the SNAP PAC SB-series brains, see form 1690, the *SNAP PAC Brains User's Guide*.

For more information on the earlier B3000 serial brain, see form 0787, the *SNAP Analog/Digital Mistic/Optomux Brain Data Sheet*.

Also see the following *mistic* documents:

- *Mistic Protocol User's Guide*, form 0270
- *Misticware Manual,* form 0522
- *Mistic 200 Installation Guide*, form 0595

Part Numbers

Part	Description
B3000-B	*mistic* serial brain designed as a modern drop-in replacement for the B3000

OPTO 22

B3000-B Serial Brain

Specifications

Power Requirements	5.0–5.2 VDC at 750 mA maximum (does not include module power requirements)
Operating Temperature	0 to 60 °C
Storage Temperature	-40 to 85 °C
Humidity	0–95% humidity, non-condensing
Communications Interface	RS-485, 2- or 4-wire, twisted pair(s), with shield
Data Rates	300 baud to 230.4 Kbaud
Range: Multidrop	32 stations maximum between repeaters; up to 3000 ft (914 m) between repeaters
LED indicators	SERIAL (transmit/receive), STAT (brain status), IRQ (interrupt)
Options: Switch Selectable	Address Baud rate Binary/ASCII CRC/Checksum

Mistic Functions

| Digital	Analog
Input latching (10 μsec)	PID loop control
Timing (1 msec resolution)	High/Low limit monitoring
Counting (32 bit)	Thermocouple linearization
Totalizing	Digital filtering
Output timing (1 msec resolution)	Ramping
Pulse generation (1 msec resolution)	Waveform generation
Time proportional output (100 msec minimum period)	Programmable offset and gain
Frequency measurement (up to 20 Khz)	Engineering unit scaling
Event reactions	Square root extraction
Pulse measurement	Event reactions
Period measurement	

Notes:

1. PID loops do not cross address boundaries.

2. PID loops can only be configured on analog addresses. There is a maximum of 8 PID loops per analog address.

3. Event reactions do not cross address boundaries.

B3000-B Serial Brain

LEDs, Switches, and Serial Connector

The LEDs on the top of a B3000-B brain indicate status conditions. For example, the STAT LED blink codes provide useful information during operation and in troubleshooting.

The faceplate's switches allow you to configure the brain's baud rate, termination, and address.

B3000-B

Serial port connector pinout

Pin 1

- TX/RX+
- TX/RX−
- COM
- RX+
- RX−
- IRQ+
- IRQ−
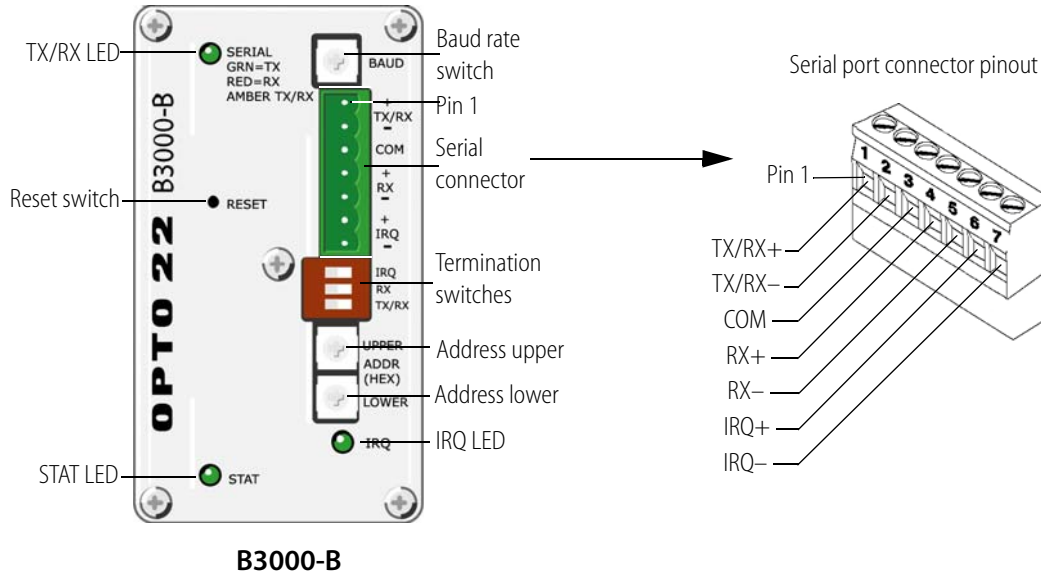
Comparison of Dimensions

The B3000-B is 0.66 inches (16.64 mm) taller than the B3000.

4.28"
(108.59mm)

3.79"
(96.24mm)

B3000-B

3.62"
(91.95mm)

3.17"
(80.52 mm)

B3000
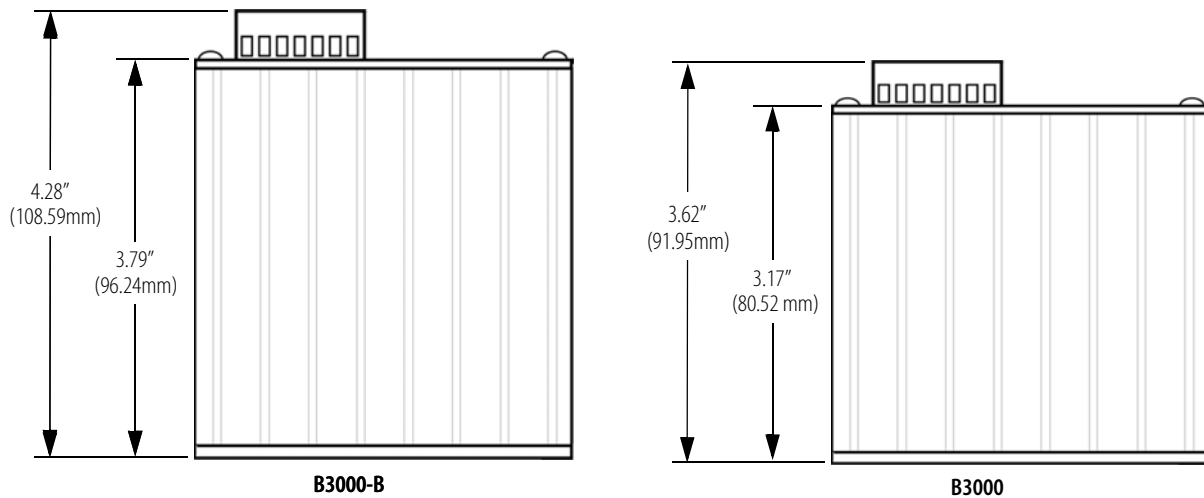
More About Opto 22

Products

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

SNAP PAC System

Designed to simplify the typically complex process of understanding, selecting, buying, 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, multidomain, modular controllers based on open standards and providing an integrated development environment.

Opto 22 has been manufacturing PACs for many years. The latest models include 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 and are equally suited to 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 without the expense and limitations of proprietary networks and protocols.

PAC Project Software Suite

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

These fully integrated software applications share a single tagname database, so the data points you configure in PAC Control™ are immediately available for use in PAC Display™, OptoOPCServer™, and OptoDataLink™. 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 Ethernet link 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, serial, and special-purpose 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 and with over 85 million devices sold, 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 Product Support Group offers free, comprehensive technical support for Opto 22 products. Our staff of support engineers represents decades of training and experience. Product support is available in English and Spanish, by phone or email, Monday through Friday, 7 a.m. to 5 p.m. PST.

Free Customer Training

Hands-on training classes for the SNAP PAC System are offered at our headquarters in Temecula, California. Each student has his or her own learning station; classes are limited to nine students. Registration for the free training class is on a first-come, first-served basis. See our website, www.opto22.com, for more information or email training@opto22.com.

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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