# Configuring the B3000-B

## Using the B3000-B

The B3000-B *mistic* serial brain is a drop-in replacement for the obsolete B3000 serial brain. The B3000-B can be used with:

- FactoryFloor controllers running OptoControl strategies
- SNAP PAC S-series controllers, along with other *mistic* I/O units migrated to PAC Project
- A PC equipped with an Opto 22 PCI-AC48 adapter card (which provides an RS-485 port)

NOTE: The B3000-B has the same functionality as the B3000, except that it *does not support the Optomux protocol*. For Optomux, use an E1 or E2 brain. If you are not migrating to the SNAP PAC System but building a new system, use SNAP PAC SB serial brains instead.

### For Help

**This technical note covers basic configuration only.** See form #1781, the *B3000-B User's Guide*, for complete details. If you cannot find the answer you need in the user's guide, please contact Product Support.


**Phone:** 800-TEK-OPTO (835-6786)
951-695-3080
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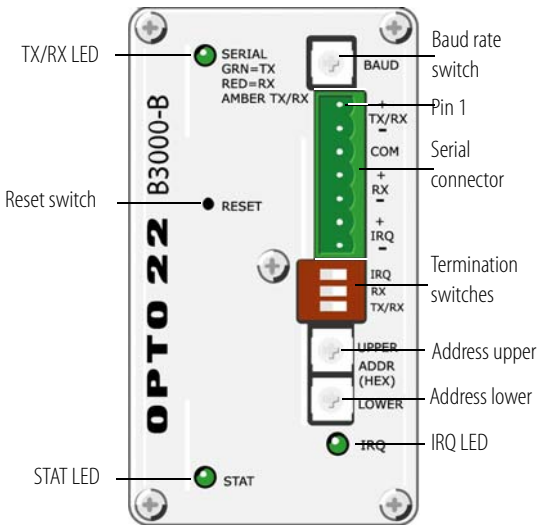
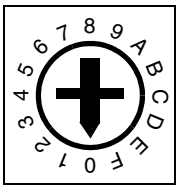
### B3000-B Top View




## Setting Up Serial Networking

1. Attach an RS-485 serial cable to the serial port. If you are using *mistic* interrupts, wire IRQ+ and IRQ– (pins 6 and 7). See the *B3000-B User's Guide* for details on network wiring.
2. Rotate the baud rate switch to set the desired baud rate, as shown in the table below.

   NOTE: Due to timing tolerances, some baud rates may not work with some compatible devices.




**Baud Rate Switch**

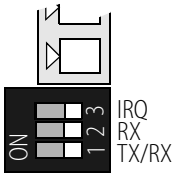
| Baud rate | Switch position |
|---|---|
| (Reserved) | F |
| 230400 bps | E |
| 115200 bps | D |
| 76800 bps | C |
| 57600 bps | B |
| 38400 bps | A |
| 19200 bps | 9 |
| 9600 bps | 8 |

| Baud rate | Switch position |
|---|---|
| 4800 bps | 7 |
| 2400 bps | 6 |
| 1200 bps | 5 |
| 600 bps | 4 |
| 300 bps | 3 |
| (Reserved) | 2 |
| (Reserved) | 1 |
| (Reserved) | 0 |

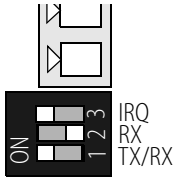
3. Use the three termination switches to set termination as follows:
   - For all B3000-B units that are not at the physical end of the cable, set all three of the termination switches to the OFF position.
   - For the B3000-B at the physical end of the cable, set as follows:
     - If using 2-wire RS-485, set IRQ and TX/RX ON, and set RX OFF.
     - If using 4-wire RS-485, set all three of the termination switches ON.

   NOTE: Since biasing is normally done at the controller or computer, the B3000-B does not include biasing switches.

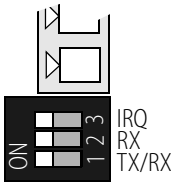
Not at end of cable: switches off




End of cable: 2-wire RS-485

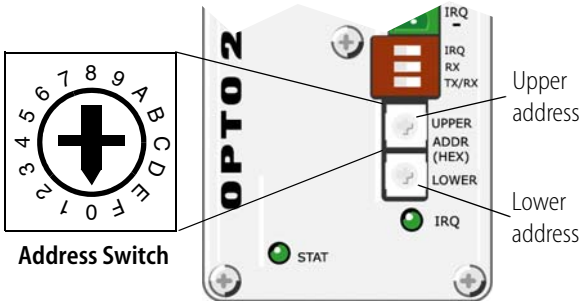



End of cable: 4-wire RS-485




4. Use the two rotary address switches to set the unit's address, as shown on the following page.

# Configuring the B3000-B




Each B3000-B contains four addresses: the base address, base +1, base +2, and base +3. The base address is an even multiple of 4.

Normal communications are Binary with CRC16.

Both Binary and ASCII with CRC16 are supported by OptoControl and PAC Control. Switch settings for each address are shown in the tables below.

For Binary or ASCII with Checksum, see tables on the following page.

## Binary Mode with CRC16 ( supported by Opto Control and PAC Control)

Upper address switch

Lower address switch

| Base Address | 0 | 4 | 8 | 12 | 16 | 20 | 24 | 28 | 32 | 36 | 40 | 44 | 48 | 52 | 56 | 60 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Upper Address | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 |
| Lower Address | 0 | 4 | 8 | C | 0 | 4 | 8 | C | 0 | 4 | 8 | C | 0 | 4 | 8 | C |

| Base Address | 64 | 68 | 72 | 76 | 80 | 84 | 88 | 92 | 96 | 100 | 104 | 108 | 112 | 116 | 120 | 124 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Upper Address | 4 | 4 | 4 | 4 | 5 | 5 | 5 | 5 | 6 | 6 | 6 | 6 | 7 | 7 | 7 | 7 |
| Lower Address | 0 | 4 | 8 | C | 0 | 4 | 8 | C | 0 | 4 | 8 | C | 0 | 4 | 8 | C |

| Base Address | 128 | 132 | 136 | 140 | 144 | 148 | 152 | 156 | 160 | 164 | 168 | 172 | 176 | 180 | 184 | 188 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Upper Address | 8 | 8 | 8 | 8 | 9 | 9 | 9 | 9 | A | A | A | A | B | B | B | B |
| Lower Address | 0 | 4 | 8 | C | 0 | 4 | 8 | C | 0 | 4 | 8 | C | 0 | 4 | 8 | C |

| Base Address | 192 | 196 | 200 | 204 | 208 | 212 | 216 | 220 | 224 | 228 | 232 | 236 | 240 | 244 | 248 | 252 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Upper Address | C | C | C | C | D | D | D | D | E | E | E | E | F | F | F | F |
| Lower Address | 0 | 4 | 8 | C | 0 | 4 | 8 | C | 0 | 4 | 8 | C | 0 | 4 | 8 | C |

## ASCII Mode with CRC16 ( supported by Opto Control and PAC Control)

Upper address switch

Lower address switch

| Base Address | 0 | 4 | 8 | 12 | 16 | 20 | 24 | 28 | 32 | 36 | 40 | 44 | 48 | 52 | 56 | 60 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Upper Address | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 |
| Lower Address | 1 | 5 | 9 | D | 1 | 5 | 9 | D | 1 | 5 | 9 | D | 1 | 5 | 9 | D |

| Base Address | 64 | 68 | 72 | 76 | 80 | 84 | 88 | 92 | 96 | 100 | 104 | 108 | 112 | 116 | 120 | 124 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Upper Address | 4 | 4 | 4 | 4 | 5 | 5 | 5 | 5 | 6 | 6 | 6 | 6 | 7 | 7 | 7 | 7 |
| Lower Address | 1 | 5 | 9 | D | 1 | 5 | 9 | D | 1 | 5 | 9 | D | 1 | 5 | 9 | D |

| Base Address | 128 | 132 | 136 | 140 | 144 | 148 | 152 | 156 | 160 | 164 | 168 | 172 | 176 | 180 | 184 | 188 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Upper Address | 8 | 8 | 8 | 8 | 9 | 9 | 9 | 9 | A | A | A | A | B | B | B | B |
| Lower Address | 1 | 5 | 9 | D | 1 | 5 | 9 | D | 1 | 5 | 9 | D | 1 | 5 | 9 | D |

| Base Address | 192 | 196 | 200 | 204 | 208 | 212 | 216 | 220 | 224 | 228 | 232 | 236 | 240 | 244 | 248 | 252 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Upper Address | C | C | C | C | D | D | D | D | E | E | E | E | F | F | F | F |
| Lower Address | 1 | 5 | 9 | D | 1 | 5 | 9 | D | 1 | 5 | 9 | D | 1 | 5 | 9 | D |

# Configuring the B3000-B

## Binary Mode with Checksum (*not* supported by Opto Control and PAC Control)

Upper address switch

Lower address switch

| Base Address | 0 | 4 | 8 | 12 | 16 | 20 | 24 | 28 | 32 | 36 | 40 | 44 | 48 | 52 | 56 | 60 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Upper Address | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 |
| Lower Address | 2 | 6 | A | E | 2 | 6 | A | E | 2 | 6 | A | E | 2 | 6 | A | E |

| Base Address | 64 | 68 | 72 | 76 | 80 | 84 | 88 | 92 | 96 | 100 | 104 | 108 | 112 | 116 | 120 | 124 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Upper Address | 4 | 4 | 4 | 4 | 5 | 5 | 5 | 5 | 6 | 6 | 6 | 6 | 7 | 7 | 7 | 7 |
| Lower Address | 2 | 6 | A | E | 2 | 6 | A | E | 2 | 6 | A | E | 2 | 6 | A | E |

| Base Address | 128 | 132 | 136 | 140 | 144 | 148 | 152 | 156 | 160 | 164 | 168 | 172 | 176 | 180 | 184 | 188 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Upper Address | 8 | 8 | 8 | 8 | 9 | 9 | 9 | 9 | A | A | A | A | B | B | B | B |
| Lower Address | 2 | 6 | A | E | 2 | 6 | A | E | 2 | 6 | A | E | 2 | 6 | A | E |

| Base Address | 192 | 196 | 200 | 204 | 208 | 212 | 216 | 220 | 224 | 228 | 232 | 236 | 240 | 244 | 248 | 252 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Upper Address | C | C | C | C | D | D | D | D | E | E | E | E | F | F | F | F |
| Lower Address | 2 | 6 | A | E | 2 | 6 | A | E | 2 | 6 | A | E | 2 | 6 | A | E |

## ASCII Mode with Checksum (*not* supported by Opto Control and PAC Control)

Upper address switch

Lower address switch

| Base Address | 0 | 4 | 8 | 12 | 16 | 20 | 24 | 28 | 32 | 36 | 40 | 44 | 48 | 52 | 56 | 60 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Upper Address | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 |
| Lower Address | 3 | 7 | B | F | 3 | 7 | B | F | 3 | 7 | B | F | 3 | 7 | B | F |

| Base Address | 64 | 68 | 72 | 76 | 80 | 84 | 88 | 92 | 96 | 100 | 104 | 108 | 112 | 116 | 120 | 124 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Upper Address | 4 | 4 | 4 | 4 | 5 | 5 | 5 | 5 | 6 | 6 | 6 | 6 | 7 | 7 | 7 | 7 |
| Lower Address | 3 | 7 | B | F | 3 | 7 | B | F | 3 | 7 | B | F | 3 | 7 | B | F |

| Base Address | 128 | 132 | 136 | 140 | 144 | 148 | 152 | 156 | 160 | 164 | 168 | 172 | 176 | 180 | 184 | 188 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Upper Address | 8 | 8 | 8 | 8 | 9 | 9 | 9 | 9 | A | A | A | A | B | B | B | B |
| Lower Address | 3 | 7 | B | F | 3 | 7 | B | F | 3 | 7 | B | F | 3 | 7 | B | F |

| Base Address | 192 | 196 | 200 | 204 | 208 | 212 | 216 | 220 | 224 | 228 | 232 | 236 | 240 | 244 | 248 | 252 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Upper Address | C | C | C | C | D | D | D | D | E | E | E | E | F | F | F | F |
| Lower Address | 3 | 7 | B | F | 3 | 7 | B | F | 3 | 7 | B | F | 3 | 7 | B | F |