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Omega
BL1700

- *4 serial ports, 1 full-duplex RS-232, and 3 full-duplex RS-232 or RS-485*

- *16 high-current digital outputs drive solenoids and relays directly*

- *16 digital inputs are protected against damage in the range ±48 V and can operate continuously in the range –20 V to +24 V*

- *Ten 12-bit analog inputs. Eight have signal conditioning, which lets you easily change gain and offset to match your signal's voltage range*

- *A BL1700 series SBC can be mounted in 110 mm DIN rail trays*

- *A PLCBus™ port allows you to add Z·World expansion boards, increasing the overall functionality*

The 32 digital I/O lines are also available in the following combinations by special order:
- 32 inputs
- 24 inputs, 8 outputs
- 8 inputs, 24 outputs
- 32 outputs

Contact a sales representative for information.

The BL1700 is a feature-rich single-board computer with modular digital, analog, and serial I/O sections. The BL1700 has 32 digital I/O lines, ten 12-bit analog input channels, 4 serial ports, 1 LED, and a PLCBus™ expansion port.

The BL1700 comes standard with 16 protected inputs and 16 high-current sinking outputs. However, the 32 I/O lines can be ordered as inputs or outputs in banks of 8. The sinking outputs can be converted to sourcing outputs using the optional sourcing driver kit.

The BL1700 has 8 conditioned and 2 unconditioned 12-bit analog inputs. The conditioned inputs have op-amps with socketed bias and gain resistors. A 2.5 V precision reference supports the A/D chip and the op-amps.

The BL1700 has 4 serial ports. One is a dedicated 5-wire RS-232 port. A second port can be either 3-wire RS-232 or RS-485. The remaining 2 ports (not present on the BL1720 and BL1730) can be 5-wire RS-232 or RS-485. Both support DMA transfers and have CTS, RTS, DTR and DCD lines available.

Field Wiring Terminals

The BL1700 has connections for up to 3 field-wiring terminal (FWT) modules. Available modules provide rugged wiring connections, quick-release mass termination, and optically isolated inputs.

The FWT38 provides quick-release connectors, the FWT50 provides screw-terminal connections, and the FWT-Opto module isolates the input pins. The FWT-A/D module is specifically designed for the analog section of the BL1700.

Programming the BL1700

Programs for the BL1700 are developed using the Dynamic C® 32 software development system described on page 6.

Omega Tool Kit

The Omega BL1700 Tool Kit includes 2 FWT50s, 1 FWT-A/D, programming cables, AC adapter, and manual with schematics. International orders do not include the AC adapter unless specifically requested.
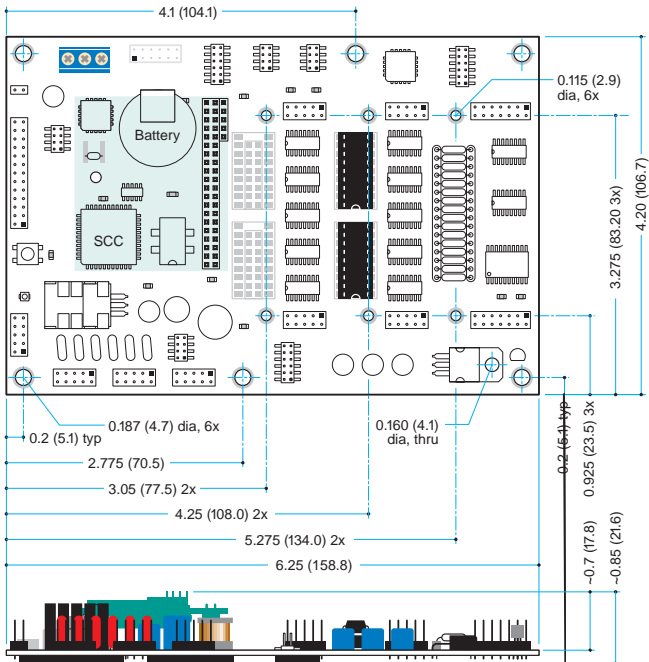
BL1700 Specifications

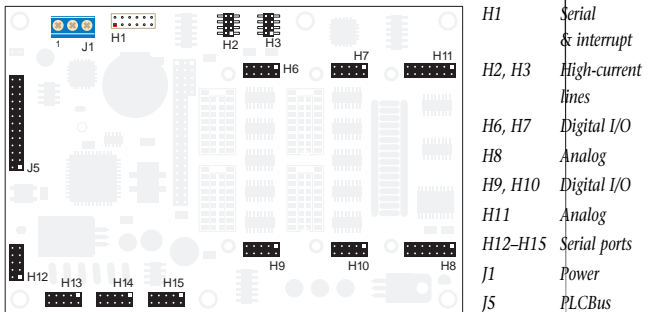|	
Board Size	4.2" x 6.25" x 0.85"
Operating Temp.	–40°C to +70°C
Humidity	5–95%, non-condensing
Power Requirements	15–30 V DC, 140 mA or more, depending on options
Digital Inputs	16 standard. Continuous operation from –20 V to +24 V. Logic threshold at 2.5 V. Protected against spikes in the range ±48 V. 10 kΩ pull-up or pull-down resistors
Digital Outputs	16 standard, sinking. At 25°C, a channel can sink up to 500 mA continuously. Output is subject to package power limits and duty cycle. Load limit is 48 V. Sourcing drivers optional
Analog Inputs	Ten 12-bit channels. Up to 3,500 samples/sec. TLC2543. 8 conditioned channels are factory configured for a 0–10 V range. 2 unconditioned channels operate in the range of 0–2.5 V
Analog Outputs	PWM, 4–7 channels using digital outputs
Processor	Z180 at 18.432 MHz
SRAM	32K, surface mount (supports up to 512K)
Flash EPROM	128K, socketed (supports up to 256K)
Counters	2, in software
Serial Ports	4, with selected baud rates up to 57,600 bps. Port 0 is full-duplex RS-232. Ports 1, A, and B can be RS-485 or full-duplex RS-232
Watchdog/Supervisor	Yes
Time/Date Clock	Yes
Battery Backup	3 V lithium coin-type, 190 mA·h
Keypad and LCD	Through LCD controller via PLCBus™
Expansion Port	PLCBus™

Versions

BL1700 Full-featured SBC. Specifications stated at left

BL1710 Same as BL1700, but without analog inputs

BL1720 Same as BL1700, but only 2 serial ports

BL1730 Same as BL1720, but operates at 9.216 MHz

Options and Upgrades

FWT38. Quick-connect mass termination, 3.81 mm centers, 16 I/O lines

FWT50. Screw connectors, 5 mm centers, 16 I/O lines

FWT-Opto. Quick-connect mass termination, 3.81 mm centers, 16 I/O lines with optical isolation. For inputs only

FWT-A/D. Screw terminals, 5 mm centers, 10 analog lines with +5 V, analog reference and GND

SIB2. Serial Interface Board. Allows programming through the special programming port on the BL1700, leaving other serial channels available. Includes programming cable

Sourcing Driver Kit. Provides 2 (2985) sourcing driver chips (16 output lines). Two kits are required for 32 output lines. At 25°C, channels source up to 250 mA continuously

Flash EPROM. 256K. Factory installed

LCD Controller Cards. 4 x 20, 4 x 40 character, 240 x 64 graphics

BL1700 Dimensions

Field Wiring Terminals

BL1700 Headers and Jumpers

H1	Serial & interrupt
H2, H3	High-current lines
H6, H7	Digital I/O
H8	Analog
H9, H10	Digital I/O
H11	Analog
H12–H15	Serial ports
J1	Power
J5	PLCBus