



Greatly Increases Sensor Capacity

Connects many sensors to single datalogger

Overview

The AM16/32B multiplexer significantly increases the number of sensors that can be measured by a Campbell Scientific datalogger. It interfaces with the datalogger and

adds terminals for wiring additional sensors of almost any type.

Benefits and Features

- › Significantly increases the number of sensors the data logger can measure
- › Can multiplex 16, 32, or 48 sensors
- › Supports many types of sensors including thermistors, potentiometers, strain gages, vibrating wires, reflectometers, and soil moisture blocks
- › Decreases the cost of cabling individual sensors on long wire runs
- › Allows a relay address to be used to go directly to a specific channel—reducing power consumption and wear on the relay switches
- › Electrical surge protection via gas tubes on all analog I/O, and varistors or TVS diodes on all other connections
- › Prevents sensor-cable damage by providing strain relief for sensor leads and independent routing for sensor shield lines
- › Eliminates the requirement for dc blocking capacitors for gypsum soil moisture blocks, significantly reducing sensor cost

Technical Description

Depending on sensor type, the AM16/32B can multiplex 16, 32, or 48 sensors. Up to six AM16/32Bs may be connected to the same data logger, depending on the number of control ports and analog inputs available.

The AM16/32B either multiplexes 16 groups of four lines (a total of 64 lines) through four common (COM) terminals. Alternatively, a manual switch setting allows the AM16/32B to multiplex 32 groups of two lines (also a total of 64 lines) through two COM terminals. A cable connects the common terminals to data logger analog inputs, excitation channels,

or ground as required by the sensor. The data logger controls the multiplexer using two control ports, or one control port and one excitation channel.

Electrical Surge Protection

The equipment is protected from electrical surges using gas tubes on all inputs. A 35 V varistor is connected between the shield ground and ground lug to provide surge protection. The Reset, Clock, and +12 V terminals are protected by 18 V TVS diodes.

Specifications

-NOTE- The protection on the reset, clock, and +12 V inputs are provided by 18 V TVS diodes.

Power	Unregulated 9.6 to 16 Vdc
Scan Advance	Occurs on the leading edge of the clock pulse transition (from below 1.5 V to above 3.3 V)
Minimum Clock Pulse Width	1 ms
Maximum Actuation Time for Relay	20 ms
Relay Operation	Break before make
Initial Relay Resistance, Closed	0.1 ohm
Maximum Switching Current	500 mA (Switching currents greater than 30 mA [occasional 50 mA current is acceptable] will degrade the contact surfaces of the mechanical relays and increase their resistance. This will adversely affect the suitability of these relays to multiplex low voltage signals. Although a relay used in this manner no longer qualifies for low voltage measurement, it continues to be useful for switching currents in excess of 30 mA.)
Maximum Switching Voltage	50 Vdc A voltage divider such as the VDIV10:1 may be needed between the AM16/32B and the

Minimum Contact Life	5 x 10 ⁷ operations
Maximum Contact Voltage Rating	70 V
Maximum Voltage	8 Vdc (clock level)
CE Compliance	<ul style="list-style-type: none"> » EN 55022:1998 Class B » EN 61326:1998
Surge	Complies with IEC61000-4-5, test level 3 (±2 kV, 2 ohm coupling impedance)
Operating Temperature Range	<ul style="list-style-type: none"> » -55° to +85°C (extended) » -25° to +50°C (standard)
Dimensions	23.9 x 10.2 x 4.6 cm (9.4 x 4.0 x 1.8 in.)
Weight	~680 g (~1.5 lb)

ESD

Air Discharge	Complies with IEC61000-4-2, test level 4 (±15 kV).
Contact Discharge	Complies with IEC61000-4-2, test level 4 (±8 kV).

Typical Current Drain

Quiescent	< 210 µA
Active	<ul style="list-style-type: none"> » 11 mA (typical in 4x16 mode) » 6 mA (typical in 2x32 mode)

Reset Levels

Inactive	< 0.9 V
Active	3.3 to 8 V

For comprehensive details, visit: www.campbellsci.eu/am16-32b 