

Description

The Analog Multiplier Module (AXB) provides a current or voltage output by multiplying two process input percentages. This function is shown in the following equation: % Output = % Input A x % Input B. An internal current source may also be provided to allow multiplication by pre-selected factor "K". Any combination of current or voltage signals may be specified for inputs. This module is especially useful in obtaining mass flow, watts, BTU, ton-hours, etc.

A typical application is represented in the block diagram illustrating the equation $BTU = \Delta T \times Q \times K$, where ΔT represents the differential temperature of the medium, Q the flow rate, and K the constant relating the equation to engineering units.

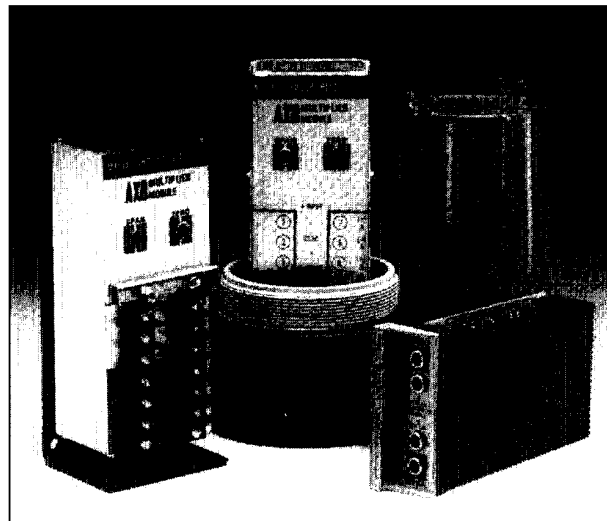
BTU rate is computed in the system by multiplying the differential temperature and flow rate. Total BTU is obtained using an LIT (Linear Integrator Totalizer). Note the use of a differential input RBT for accurately measuring temperature difference and an SRT for taking the square root of the ΔP cell output to provide linear flow.

Ordering Information

To construct the correct model number required to order a specific unit, use the appropriate board face data from the specification table. See model number example.

Installation

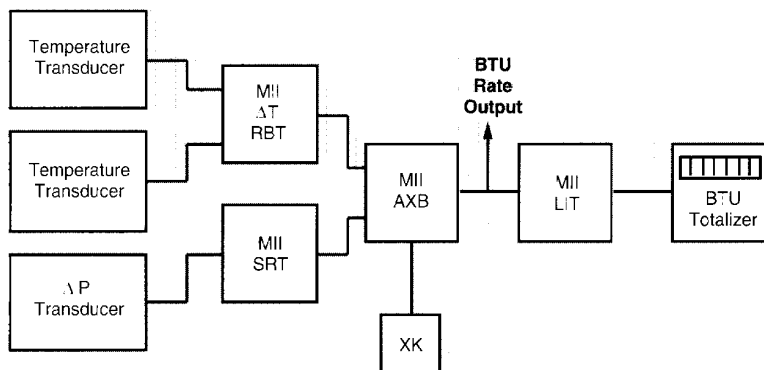
Terminal connections and housing dimensions are included on the appropriate housing sheet.



The standard AXB and the plug-in (PC) are pictured. Both units provide versatile mounting.

Features

- **Solves process equations.** The unit can solve equations in BTU, Volumetric Flow, Watts.
- **Standard process signals.** The AXB utilizes standard input and outputs; 1-5mA, 4-20mA, 10-50mA or 1-5 Vdc.
- **High Accuracy.** The high accuracy of the AXB is $\pm 0.25\%$ of span.
- **Low output ripple.** A low output ripple of 10mV P/P is provided.



A typical wiring diagram showing the AXB

AXB

Analog Multiplier Module

Specifications

Characteristics

Front Panel Adjustments Adjustable with multiturn potentiometer
Zero: With minimum input, adjusts output to 0% $\pm 10\%$ of selected output span
Span: With full scale input, adjusts output to 100% $\pm 20\%$ of selected output span
A & B Input Zero: Compensates for input live zero offset for specified zero percent input $\pm 10\%$ of span

Performance Calibration Capability: $\pm 0.25\%$ of span (Linearity and Repeatability)
Ambient Temperature Range: -29°C to 82°C (-20°F to $+180^{\circ}\text{F}$)
Ambient Temperature Effect: $\pm 0.01\%$ of span/ $^{\circ}\text{F}$ over above range
Frequency Response: 50 Hz (3 dB point)
Isolation: Voltage output units have input negative side common to output negative side. Current output models have output negative side elevated above input. Power isolation is maintained on both AC and DC powered units.
Line Voltage Effect: $\pm 0.005\%/1\%$ line change; AC or DC

Performance Ripple: 10mV P/P at maximum span, maximum load resistance and maximum line voltage.
Function: Output = $K(K, AK, B)$
Output Operational amplifier feedback current source; output limited to 150% of maximum output range value.
Load Effect: $\pm 0.01\%$ of span 0 to maximum load resistance

Certification CSA

Weight Approximately 2 lb (908 grams)

Ordering Specifications

Unit AXB

Number of Inputs 2X

Input **1-5MA** 1-5mA into 200 ohms nominal
4-20MA 4-20 mA into 50 ohms nominal
10-50MA 10-50 mA into 20 ohms nominal
SC Selectable current input
1-5V 1-5 V standard
0-1V 0-1 V at 1 megohm minimum impedance
0-5V 0-5 V at 1 megohm minimum impedance

Output **1-5MA** 1-5 mA into 0-4800 ohm load
4-20MA 4-20 mA into 1200 ohm load
10-50MA 10-50 mA into 0-480 ohm load
SC Selectable current output
Voltage **1-5V** 1-5 Vdc standard into 20K ohms minimum load resistance

Power **24DC** 24 Vdc, $\pm 10\%$
45DC 45 Vdc, $\pm 10\%$
117AC 117 Vac, $\pm 10\%$
240AC 240 Vac, $\pm 10\%$
50-60 Hz, $\pm 10\%$
5 watts nominal

Options **-KO** Internal "K" factor (factory set)
-RF RFI protection
-TX 2-wire transmitter excitation, 30Vdc @ 25 mA output; to 2-wire field transmitter, 4-20 mA only
For other options see Housings, Options, Accessories Brochure.

Housings **STD** Standard enclosure
AB Angle bracket mounting
PC Plug-in card
PM Panel mount enclosure

When ordering, specify: Unit Type/Number of Inputs, Inputs/Output/Power/Options [Housing]

Model number example: AXB/2X4-20MA/1-5V/24DC-TX [STD]



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