b:art instruments

b:12

quick maths 2

b:12 is a compact 2HP analog math module featuring two DC-coupled inputs and six simultaneous math outputs. It performs real-time signal operations including inversion, summing, difference, negated sum, absolute difference, and true four-quadrant ring modulation - all outputs are always active with no mode switching required.

Input 1

Input 2

Signal inversion output

Difference output

Sum output

Negated sum output

Absolute difference out

Ring mod output

Technical specifications:

Operating voltages:	–12V / +12V
Power draw:	22 mA –12V / 22 mA + 12V
Width:	2 HP
Depth:	27 mm
Output impedance:	100Ω

CE

This product was tested and found compliant with the following standards:
EN 55032:2015/A11:2020, EN 55035:2017, EN IEC 63000:2018.

For details, please visit:
bartinstruments.com/conformity

Revision: 1.0 • April 2026

Operation

Connect any signal to inputs A and B. All six output jacks are active simultaneously at all times. No configuration is required.

Input A can be used alone (leave B unpatched) to access the −A inversion output. With nothing patched to B, B defaults to 0V, so A−B becomes equivalent to A, and A+B becomes equivalent to A.

The A×B output is a true four-quadrant ring modulator. Patching audio into A and a sine or other periodic signal into B produces classic ring modulation sidebands. Patching a CV signal into both inputs produces a voltage-controlled scaling effect.

The |(A−B)| output produces the absolute value of the difference between A and B. This creates a characteristic folded or rectified shape when both inputs are audio or modulation signals, and is useful for generating complex CV contours.

All inputs and outputs are DC coupled, making the module suitable for both audio-rate processing and precision CV manipulation.

Safety and Installation Guide

Ensure your modular system is powered on before installing the module. Only power on the system once every module is connected and properly installed in your system using the provided screws.

Do not expose the module to moisture or extreme temperatures.

Do not operate the module in environments with severe amount of dust in the air.

The module’s inputs are protected against electrostatic discharge, but be careful when handling the module itself.

Only one row of power connectors is present on the module, and it doesn’t matter which row of the 10-pin power header is connected to it. Please follow the markings on the back of the module to ensure correct power cable orientation. The module is protected against reverse power connection.