

Hybrid IC Isolation Amplifiers 20 Series

ISOLATION AMPLIFIER

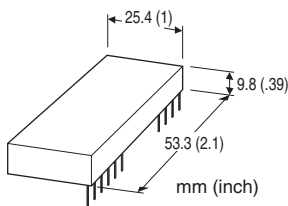
(high speed response, 3-port isolation)

Functions & Features

- Being used for printed wiring board installation
- High-linearity
- High speed response 50 μ sec.
- Isolating between input, output and power
- Isolation between input, output and power supply up to 3000 V AC
- Power 15 V DC

Typical Applications

- Galvanically isolating the I/O circuits of microprocessor from the field side to reduce external noise
- Enabling electronic manufacturers to save efforts and cost for the development of isolation circuits for small-lot products



MODEL: 20VS8-210[1]-U

ORDERING INFORMATION

- Code number: 20VS8-210[1]-U
- Specify a code from below for [1].
(e.g. 20VS8-210AN-U)

TYPE

210: High speed response, 3-port isolation
 INPUT RANGE -10 - +10 V DC
 OUTPUT RANGE -10 - +10 V DC

[1] LINEARITY

AN: ± 0.025 %
BN: ± 0.012 %
CN: ± 0.008 %

POWER INPUT

DC Power
 U: 15 V DC

GENERAL SPECIFICATIONS

Construction: Hybrid IC
Housing material: Flame-resistant resin (black)
Isolation: Input to output to power

INPUT SPECIFICATIONS

■ **DC Voltage**
Input : -10 - +10 V DC
Input resistance: 1 M Ω (10 k Ω in power failure)
Overload input voltage: ± 15 V DC continuous
Input offset voltage: ± 2 mV @ G = 1
Input bias current: 25 pA TYP. (@25°C)

OUTPUT SPECIFICATIONS

■ **DC Voltage:** -10 - +10 V DC
Load resistance: ≥ 2 k Ω
Output impedance: ≤ 1 Ω

REFERENCE VOLTAGE SOURCE

■ **FOR INPUT**
Output voltage: ± 16.5 V DC ± 2.5 V (when power supply is 15 V DC)
Load current: ≤ 2 mA

■ **FOR OUTPUT**
Output voltage: ± 16.5 V DC ± 2.5 V (when power supply is 15 V DC)
Load current: ≤ 2 mA

INSTALLATION

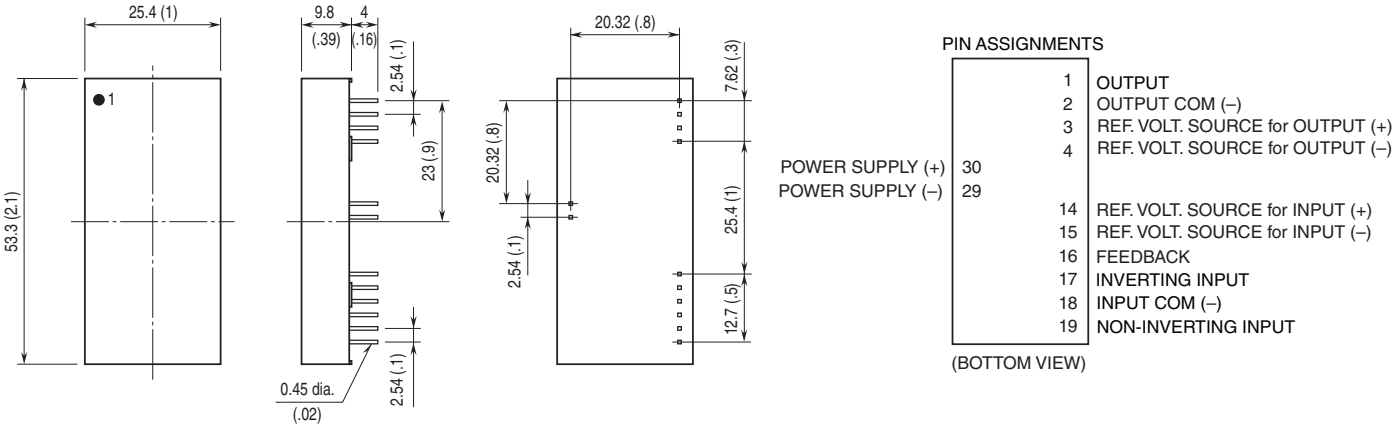
Power input
 • **DC:** Rating ± 5 %; approx. 50 mA with no load
Operating temperature: -25 to +85°C (-13 to +185°F)
Operating humidity: 30 to 90 %RH (non-condensing)
Mounting: Soldering to the printed wiring board
Weight: 20 g (0.71 oz)

PERFORMANCE in percentage of span

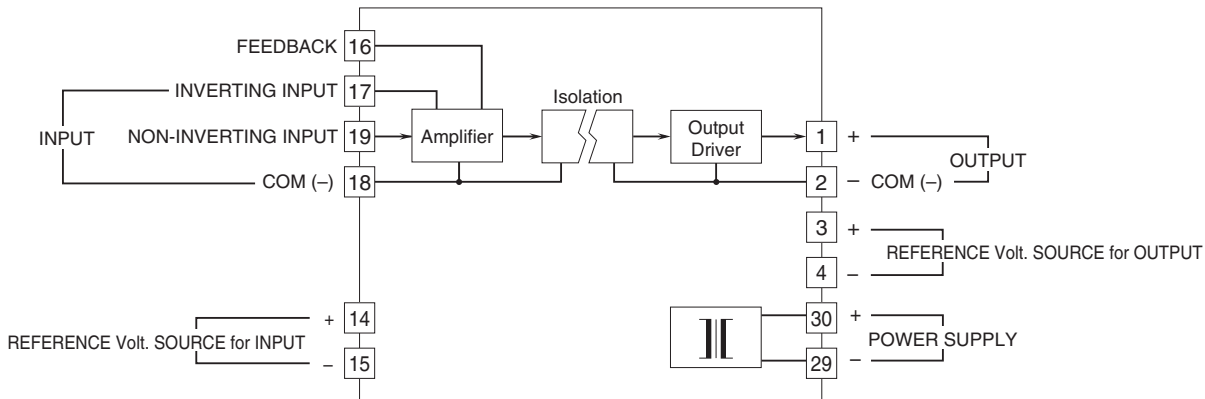
Unless otherwise specified, G = 1.
Linearity:
 ± 0.025 % (20VS8-210AN)
 ± 0.012 % (20VS8-210BN)
 ± 0.008 % (20VS8-210CN)
Temp. coefficient:
 ± 25 ppm/°C (0°C - 70°C; 32 - 158°F)
 ± 50 ppm/°C (-25°C - +85°C; -13 - +185°F)
Frequency characteristics: Approx. 20 kHz, -3 dB
Response time: ≤ 50 μ sec. (0 - 90 %)
Conversion gain: $\times 1 \pm 1.5$ %
Gain adjustable range: $\times 1$ to $\times 100$
Line voltage effect: ± 0.01 % over voltage range

Insulation resistance: $\geq 100 \text{ M}\Omega$ with 500 V DC
Dielectric strength: 3000 V AC @1 minute (input or reference voltage source for input to output or reference voltage source for output to power)
CMRR: $\geq 120 \text{ dB}$ (500 V AC 50/60 Hz)

EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm [inch]



SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM

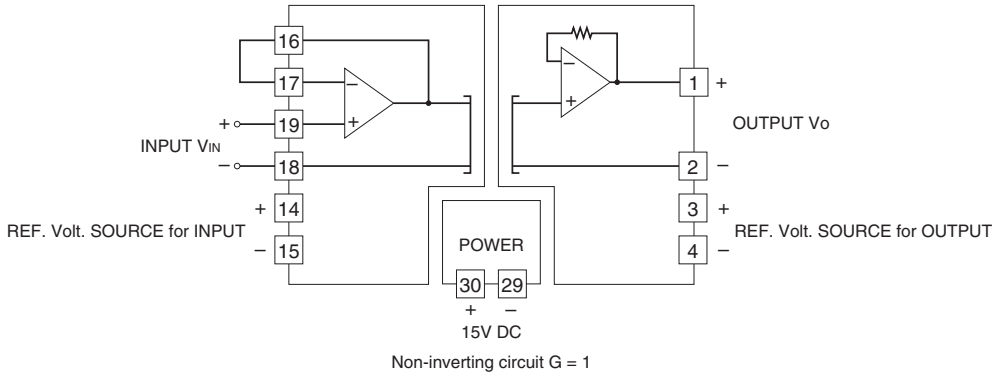


Note. The reference voltage source for input is common to the input COM (-)
 The reference voltage source for output is common to the output COM (-)

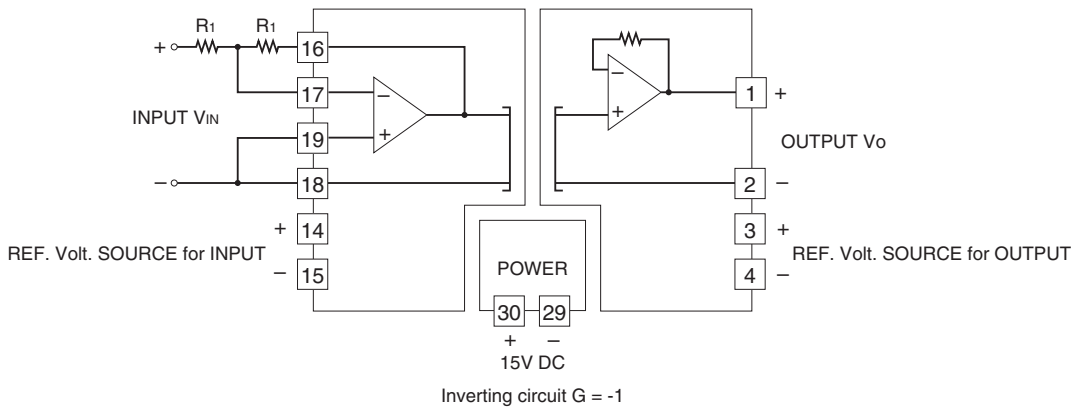
APPLICATION EXAMPLE

$10 \text{ k}\Omega \leq (R_1 + R_2) \leq 200 \text{ k}\Omega$

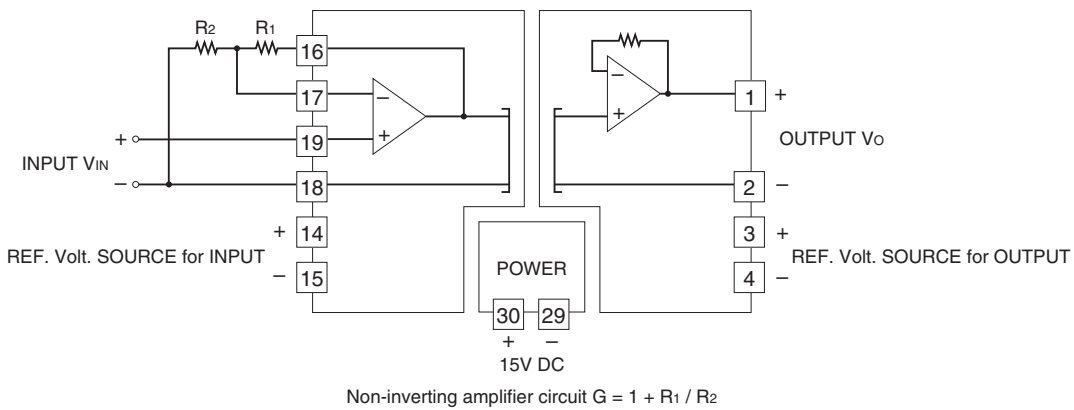
■ Non-inverting amplifier circuit: Basic example of $G = 1$



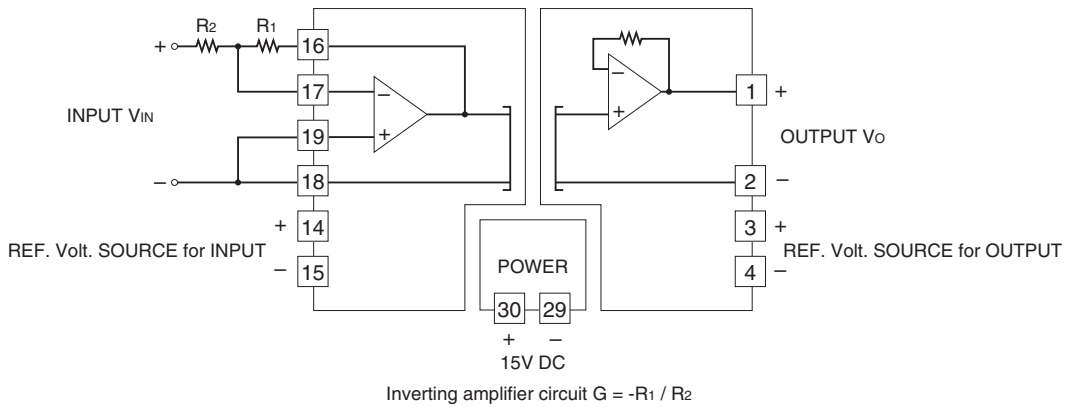
■ Inverting amplifier circuit: Basic example of $G = -1$ (output inverted to the input)



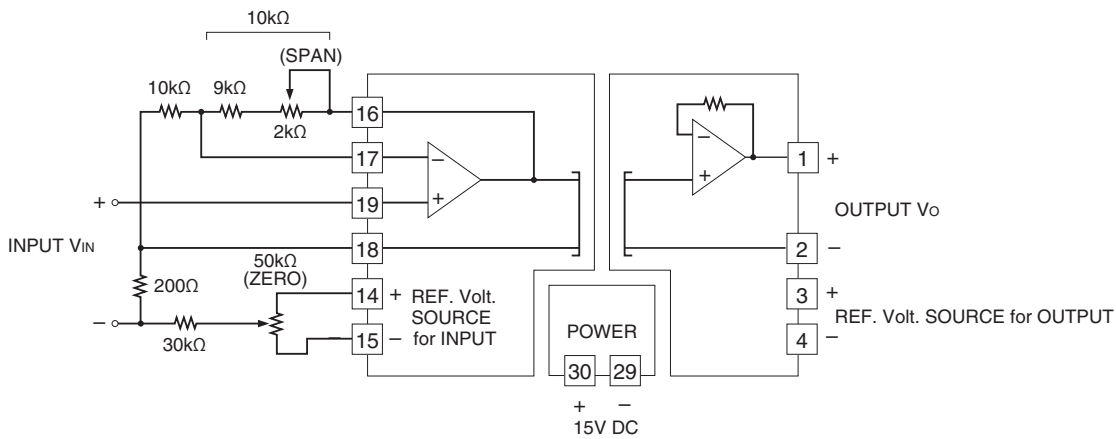
■ Non-inverting amplifier circuit: Example of $G = 1 + R_1 / R_2$



■ Inverting amplifier circuit: Example of $G = -R_1 / R_2$ (output inverted to the input)

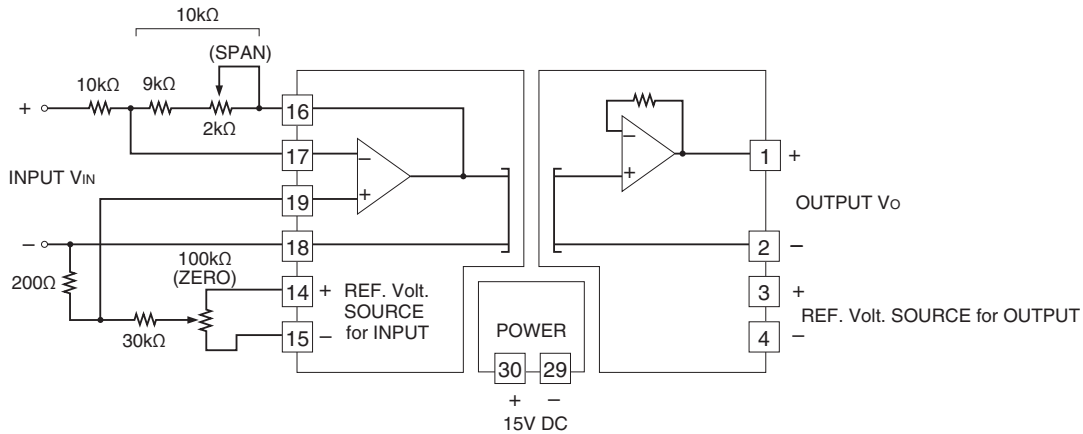


■ Non-inverting amplifier circuit with external adjustments: Example of $G = 2$



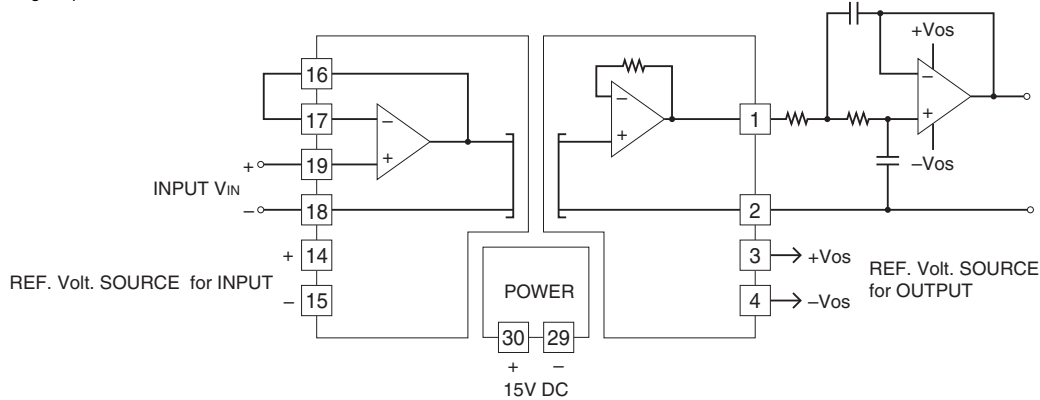
Non-inverting amplifier circuit zero/span adjustments

■ Inverting amplifier's circuit with external adjustments: Example of $G = -1$ (output inverted to the input)



Inverting amplifier circuit zero/span adjustments

■ Non-inverting amplifier circuit: With noise filter



Specifications are subject to change without notice.