

Hybrid IC Isolation Amplifiers 20 Series

ISOLATION AMPLIFIER

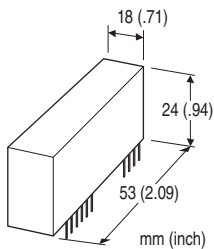
(bi-directional amplifier)

Functions & Features

- Being used for printed wiring board installation
- Up to 2.3 kV isolation between input to output or power input
- Bidirectional amplifier
- Small installation area in printed wiring board
- Power 15 V DC

Typical Applications

- Isolating the field and input circuit of microprocessor to reduce noise from field
- Due to bidirectionality input or output isolation available



MODEL: 20VS5-100-U

ORDERING INFORMATION

- Code number: 20VS5-100-U

INPUT RANGE -7 - +7 V DC @ 15 V power

-5 - +5 V DC @ 11.5 V power

OUTPUT RANGE -7 - +7 V DC @ 15 V power

-5 - +5 V DC @ 11.5 V power

POWER INPUT

DC Power

U: 15 V DC

GENERAL SPECIFICATIONS

Construction: Hybrid IC

Housing material: Flame-resistant resin (black)

Isolation: Input or reference voltage source to output or power

INPUT SPECIFICATIONS

■ **DC Voltage**

Input :

-7 - +7 V DC @ 15 V power

-5 - +5 V DC @ 11.5 V power

Input resistance: $\geq 3 \text{ k}\Omega$

Overload input voltage: 15 V DC continuous

Input offset voltage: $\pm 15 \text{ mV}$

OUTPUT SPECIFICATIONS

■ **DC Voltage:**

-7 - +7 V DC @ 15 V power

-5 - +5 V DC @ 11.5 V power

Load resistance: $\geq 1 \text{ M}\Omega$

Output impedance: $\leq 1 \text{ k}\Omega$

REFERENCE VOLTAGE SOURCE

Output voltage:

$\pm 15 \text{ V DC TYP.}$ (+15 V power supply)

$\pm 11 \text{ V DC TYP.}$ (+11.5 V power supply)

Load current: $\leq 3 \text{ mA}$

INSTALLATION

Power input

• **DC:**

Operational voltage range 11.5 - 16 V;

ripple 2 %p-p max.; approx. 7 mA with no load

Operating temperature: -10 to +70°C (14 to 158°F)

Operating humidity: 30 to 90 %RH (non-condensing)

Mounting: Soldering to the printed wiring board

Weight: 50 g (1.76 oz)

PERFORMANCE in percentage of span

Linearity: $\pm 0.2 \%$

Temp. coefficient:

Offset drift 50 ppm/°C

Span drift 100 ppm/°C (200 ppm/°C at $\leq 10^\circ\text{C}$)

Frequency characteristics: Approx. 5 kHz, -3 dB

Response time: $\leq 90 \mu\text{sec.}$ (0 - 90 %)

Conversion gain: $\times 0.95 \pm 15 \%$ (load $\geq 1 \text{ M}\Omega$)

Line voltage effect

$\pm 0.2 \%$ / 12 V power (@ 11.5 - 13.5 V)

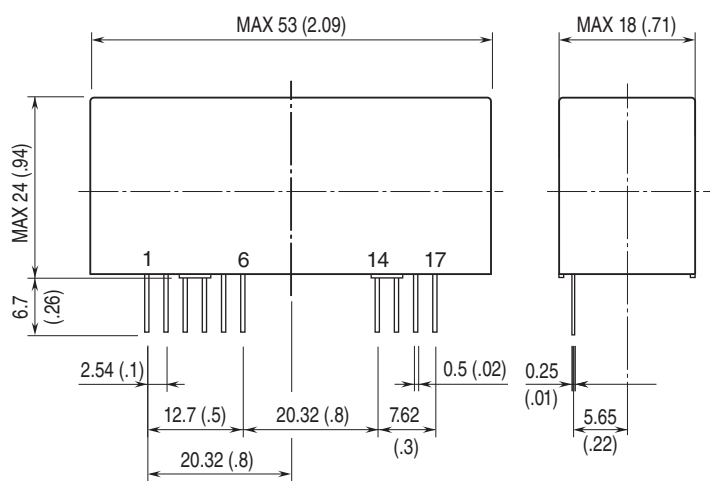
$\pm 0.2 \%$ / 15 V power (@ 13.5 - 16 V)

Insulation resistance: $\geq 100 \text{ M}\Omega$ with 500 V DC

Dielectric strength: 2300 V AC @1 minute (input or reference voltage source to output or power)

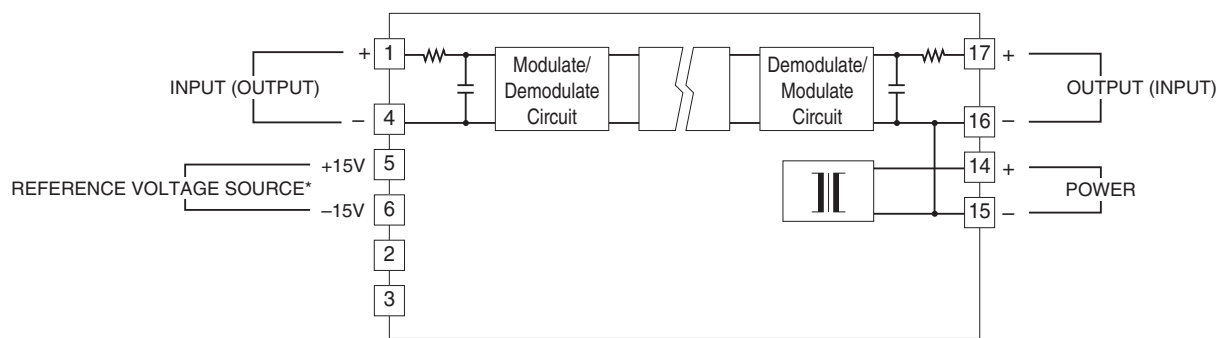
CMRR: $\geq 100 \text{ dB}$ (500 V AC 50/60 Hz)

EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm (inch)



PIN ASSIGNMENT	
1	INPUT (OUTPUT) (+)
2	NC
3	NC
4	INPUT (OUTPUT) (-)
5	REFERENCE VOLTAGE SOURCE (+)
6	REFERENCE VOLTAGE SOURCE (-)
14	POWER SUPPLY (+)
15	POWER SUPPLY (-)
16	OUTPUT (INPUT) (-)
17	OUTPUT (INPUT) (+)

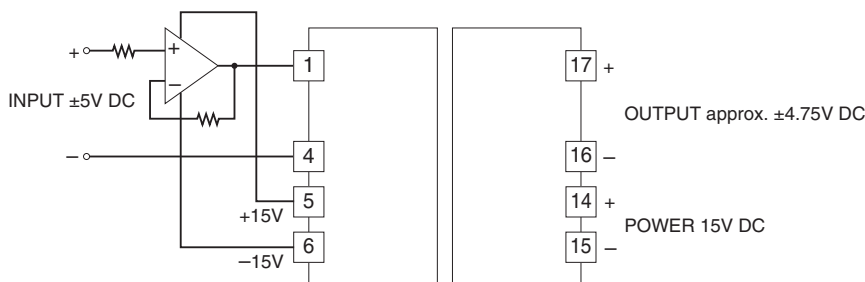
SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



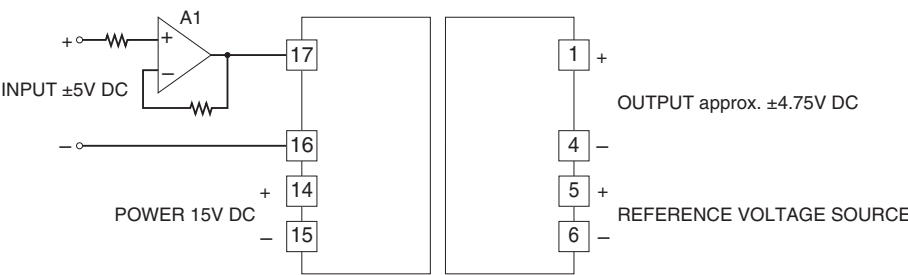
*To be used in the printed wiring board on which the unit is mounted.
Note. The reference voltage source is common to the terminal 4 (-).

APPLICATION EXAMPLE

■ Non-inverting amplifier circuit: G = 0.95 (Isolation: Input to output or power)



■ Non-inverting amplifier circuit: $G = 0.95$ (Isolation: Output to input or power)



Note: The amplifier A1 requires a power source independent from the Reference Voltage Source.



Specifications are subject to change without notice.