



High Performance, 4-20mA Output Voltage-to-Current Converter

2B20

FEATURES

Complete, No External Components Needed
Small Size: 1.1" x 1.1" x 0.4" Module
Input: 0 to +10V; Output: 4 to 20mA
Low Drift: 0.005%/°C max; Nonlinearity: 0.005% max (2B20B)

Wide Temperature Range: -25°C to +85°C
Single Supply: +10V to +32V
Meets ISA Std 50.1 for Type 3, Class L and U, Nonisolated Current Loop Transmitters

Economical

APPLICATIONS

Industrial Instrumentation and Control Systems
D/A Converter - Current Loop Interface
Analog Transmitters and Controllers
Remote Data Acquisition Systems

GENERAL DESCRIPTION

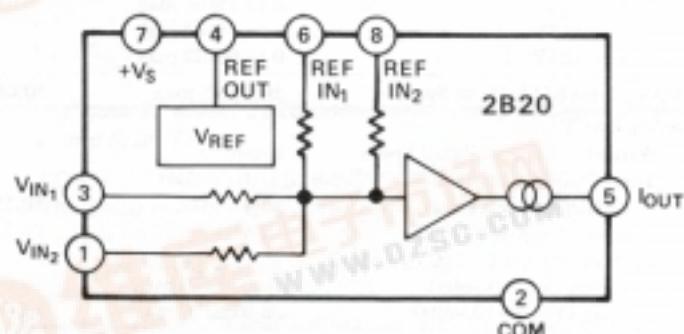
Model 2B20 is a complete, modular voltage-to-current converter providing the user with a convenient way to produce a current output signal which is proportional to the voltage input. The nominal input voltage range is 0 to +10V. The output current range is 4 to 20mA into a grounded load.

Featuring low drift (0.005%/°C max, 2B20B) over the -25°C to +85°C temperature range and single supply operation (+10V to +32V), model 2B20 is available in two accuracy grades. The 2B20B offers precision performance with nonlinearity error of 0.005% (max) and guaranteed low offset error of $\pm 0.1\%$ max and span error of $\pm 0.2\%$ max, without external trims. The 2B20A is an economical solution for applications with lesser accuracy requirements, featuring nonlinearity error of 0.025% (max), offset error of $\pm 0.4\%$ (max), span error of $\pm 0.6\%$ (max), and span stability of 0.01%/°C max.

The 2B20 is contained in a small (1.1" x 1.1" x 0.4"), rugged, epoxy encapsulated package. For maximum versatility, two signal input (V_{IN_1} and V_{IN_2}) and two reference input (REF_{IN_1} and REF_{IN_2}) terminals are provided. Utilizing terminals V_{IN_1} and REF_{IN_1} eliminates the need for any external components, since offset and span are internally calibrated. If higher accuracy (up to $\pm 0.01\%$) is required, inputs V_{IN_2} and REF_{IN_2} with series trim potentiometers may be utilized.

APPLICATIONS

Model 2B20 has been designed for applications in process control and monitoring systems to transmit information between subsystems or separated system elements. The 2B20 can serve as a transmission link between such elements of process control system as

FUNCTIONAL BLOCK DIAGRAM

transmitters, indicators, controllers, recorders, computers, actuators and signal conditioners.

In a typical application, model 2B20 may act as an interface between the D/A converter output of a microcomputer-based system and a process control device such as a variable position valve. Another typical application of the 2B20 may be as a current output stage of a proportional controller to interface devices such as current-to-position converters and current-to-pneumatic transducers.

DESIGN FEATURES AND USER BENEFITS

Process Signal Compatibility: To provide output signal compatibility, the 2B20 meets the requirements of the Instrument Society of America Standard S50.1, "Compatibility of Analog Signals for Electronic Industrial Process Instruments" for Type 3, Class L and U, nonisolated current loop transmitters.

External Reference Use: For increased flexibility, when ratiometric operation is desired, the 2B20 offers a capability of connecting an external reference (i.e., from multiplying D/A converter) to the REF_{IN_2} terminal.

Wide Power Supply Range: A wide power supply range (+10V to +32V dc) allows for operation with either a +12V battery, a +15V powered data acquisition system, or a +24V powered process control instrumentation.



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