

## Power Supply for Encoders & Controllers



With a wide range of acceptable input voltages (AC and DC) this DIN Rail mountable power supply is usable in virtually all industrial applications worldwide. It has built in surge protection to reduce faults due to transients and it has 100% reserve capacity for startup and overload conditions. This power supply is CE rated and internationally rated by UL for IT equipment (60950) and industrial controls (508). It also conforms to EMC directive 89/336/EEC and 73/23/EEC for low voltage.

### Power Supply Specifications

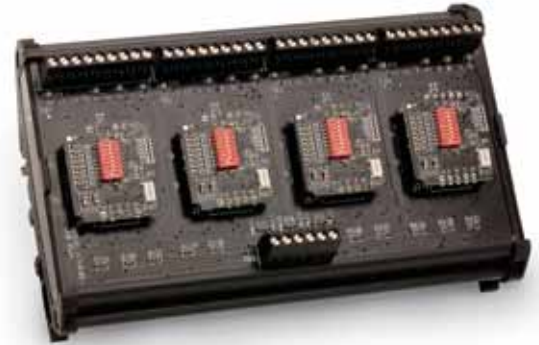
INPUT	
Voltage range	85 – 264 V AC 110 – 350 V DC
Frequency (AC)	45 – 65 Hz
Transient surge protection	Varistor
Internal fuse	1.25 Amps to protect power supply
OUTPUT	
Voltage tolerance	± 1 %
Nominal output current	4.0 Amps (5 volt supply) 1.5 Amps (24 volt supply)
ENVIRONMENTAL	
Operating temperature	0 to +55 °C
Storage temperature	-40 to +85 °C

5 VOLTS: PART# 924-60008-001

24 VOLTS: PART# 924-60008-002

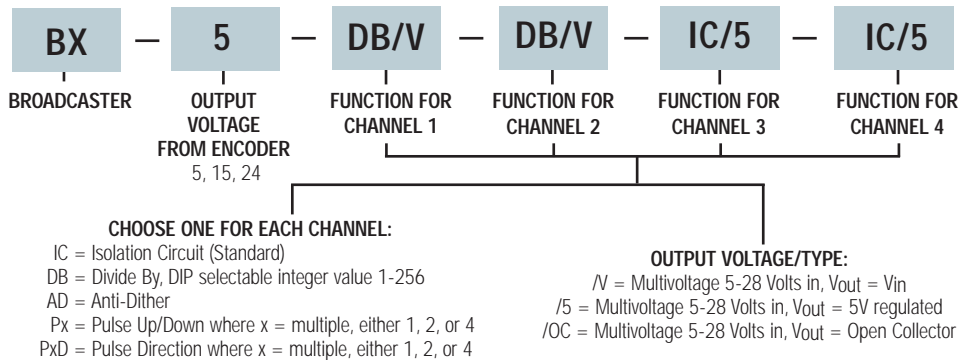
## Encoder Signal Broadcaster

The Encoder Signal Broadcaster accepts standard incremental encoder inputs, (two channels in quadrature plus an index and complements) and can broadcast up to four encoder signals to four independent devices. Each of the broadcast signals is optically isolated eliminating ground loops. This compact package also allows for signal processing options, such as anti-dither filter, integer divide-by or pulse and direction outputs, to be incorporated into each of the four broadcast signals independently. The broadcaster is ideal for driving multiple receivers from a single encoder in applications like electronic line shafting or synchronization of multiple devices to a single operation.



### Signal Broadcaster Ordering Options

FOR ASSISTANCE CALL 800-350-2727 (ASAP)  
Use this diagram, working from left to right to construct your model number (i.e.: BX-5-DB/V-DB/V-IC/5-IC/5).  
All notes and tables referred to can be found on pages 64–65.



## SA100/SA100R Digital Display

This versatile 7-digit display comes in two versions. The SA100R Rotary Display reads out in degrees/minutes/seconds (DMS) or decimal degrees. Resolutions up to 0.001 degree are selectable from the front panel. The SA100 Linear Display reads out in inches or millimeters. Resolutions from 0.1 micron to 1mm or 5 micro inches to 0.01 inch are selectable from the front panel. The SA100/SA100R accepts a 5VDC standard differential quadrature signal from either linear or rotary incremental encoders. Incremental and absolute operating modes are available. The SA100/SA100R also features an auxiliary reference input, allowing integration of an independent reference marker from a remote switch. The SA100/SA100R comes with its own 12VDC power supply which operates on 115 VAC line Voltage.



### Technical Specifications

**Construction:** 1/16" sheet metal  
**Dimensions:** Height: 2.835", Width: 5.878", Depth: 2.756", Weight: 1.07 lbs  
**Operating Voltage:** 12–27 VDC ±10% (power supply 60012-003 included)  
**Maximum Power Consumption:** 6 watts

**Maximum Data Rate:** 2MHz  
**Operating Temperature:** 0 to 45°C  
**Storage Temperature:** -20 to 60°C  
**Inputs:** Two channels in quadrature. Differential or single ended (user selectable)  
**Environment:** Indoor use, IP20

Rotary SA100R: BEI Part# 924-60012-005  
 Linear SA100: BEI Part# 924-60012-004

These commodities, technology or software if exported from the United States must be in accordance with the Bureau of Industry, and Security, Export Administration regulations. Diversion contrary to U.S. law is prohibited.



## Divide-By Module

This module accepts single ended or differential inputs and divides the signal by a factory set number from 2 to 256. The resulting output signal is a reduced resolution of the input signal. Ideal for use in machine retrofitting and for applications where a different resolution output is needed from the same encoder source. When ordering, make sure to specify the divide-by amount in the model number (see ordering options below).



## Dual Encoder USB Interface

The Encoder USB Interface translates encoder position to industry standard USB 2.0 format that can be read by a computer. Each module can handle signals from two encoders. Modules are available for SSI absolute encoders, as well as quadrature incremental encoders. The module can be programmed through the USB interface for number of bits, clock speed and position offset for absolute SSI encoders. For incremental encoders, count mode (X1, X2, X4), reset, preset, and preset/reset on index are programmable through the USB input. The Encoder USB interface is ideal for system setup and debugging, data acquisition and PC based control applications.



## Optical Isolator Module

This is a versatile interface between an incremental encoder and any receiving electronics. It accepts single ended or differential inputs and provides single ended or differential outputs in either an open collector or line driver configuration. It accommodates all standard operating voltages from 5 to 28 VDC. Up to eight Optical Isolator Modules can be daisy-chained to provide multiple, simultaneous outputs to controllers or PLC's. This Optical Isolator can help clean up noisy signals by converting to a differential line driver output. It has a 1 MHz throughput capability and can be used wherever a fast, optically isolated interface is required.



## Anti-Dither Module

This module performs a specialized yet critical function for applications that may be subject to position errors due to stop/start cycles or vibration environments that are not using the direction-detection functions provided by a quadrature signal. The Anti-Dither module accepts A and B signals and, through internal discrimination circuitry, passes the signals through only when there has been true movement of the encoder. This acts like 1/4 cycle of hysteresis and avoids encoder signal transition dithering due to mechanical vibration. This is especially useful in web processes, handling and inspection systems that use conveyors and simple speed control in applications that are subject to vibration.



## Encoder Tester Module

This test module accepts input from any type of incremental optical encoder. It tests for two channels in quadrature, an index pulse, and power to the module. It features a simple and intuitive LED indicator scheme: lights are on to indicate that a signal is HI and off when the signal goes LO. Through combinations of terminal connections and dropping resistors (supplied), it can test open collector outputs, and both single ended and differential outputs at all standard voltages: 5VDC, 12-15 VDC, and 24 VDC. This tester can also be used for machine set-up (by locating the index pulse) and incoming inspection and diagnostics of encoded motors.



## Serial-to-Parallel Converter Module

The serial to parallel converter takes serial data from either a SSI or RS-422 source and converts it to a 15 bit parallel output. This replaces the high cost and noise susceptibility of long, parallel cable runs with the simplicity of a low cost twisted pair cable to interface to a parallel-input PLC or controller. Serial input type is selectable along with clock speed (for SSI) or baud (for RS422). This module accepts inputs from 5 to 28 VDC and has output options of  $V_{out}=V_{in}$ ,  $V_{out}=5V$  regulated or  $V_{out} = \text{Open Collector}$ .

# Electronic Modules Ordering Options FOR ASSISTANCE CALL 800-350-2727

Use this diagram, working from left to right to construct your model number (example: EM-DR1-IC-24-TB-28V/V).

All notes and tables referred to can be found on pages 64–65.

