# BG Systems
# Analog to Serial Converter

## CerealBox



## Overview

The CerealBox is a small I/O device that uses the RS-232 serial protocol to transfer data to and from a host computer. It can be used for both inputs and outputs, and is used to sample (drive) analog and digital devices. It can be used for data aquisition and as an interface between cockpit hardware and the host.

The CerealBox is a self contained unit that plugs into an AC power supply and comes with a cable to connect it to a serial port on the host – all you have to provide are cables for the analog and digital I/O signals. The small size of the CerealBox means that it can be conveniently placed near the analog device, with the serial cable running to the host.
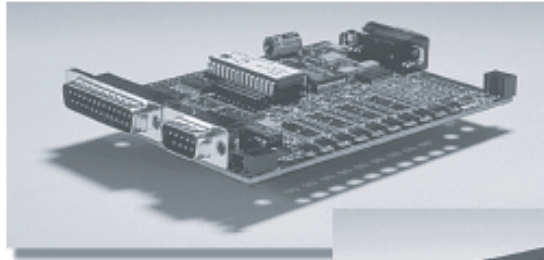
There are four models of the CerealBox. The base model (LV824-E) has eight analog inputs and twenty-four digital inputs. Optionally, the digital channels can be set to outputs, and analog output channels can be added. To any of the models listed 24-bit encoder counters can be added. These options are summarized below:

| Model | Dig Out | Analog Out | Encoder |
|---|---|---|---|
| LV824-E | No | None | |
| LV824-F | Yes | None | |
| LV824-G | Yes | 3 | |
| LV824-H | Yes | 8 | |
| LV824-x-4e | n/a | n/a | 4 |
| LV824-x-8e | n/a | n/a | 8 |

The number of channels to be sampled, the baud rate, and the con
the digital outputs are all set in software.

· The default input voltage range is 0 to 5 vDC.

· Voltage ranges 0 to +10 vDC, -5 to +5 vDC and -10 to +10 vDC can be selected in software.

The compact size, ease of use, and convenience of installation make the CerealBox an excellent choice for the interface between external I/O devices and a host computer.

## Technical Specifications

### Resolution

| Analog | Resolution | Range |
|---|---|---|
| Inputs | 12 bit | 0-5vDC |
| Outputs | 12 bit | 0-4.095 vDC (1mv/bit) |

| Digital | Low | High |
|---|---|---|
| Inputs | 0.8 vDC | 3.5 vDC |
| Outputs | 0.1 vDc | 3.3 vDC |

### Communications Protocol

RS-232 serial protocol without hardware handshaking, supported by most operating systems.

Dimensions
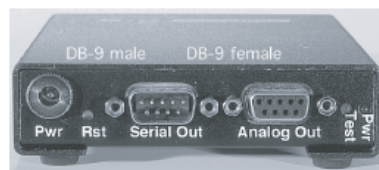The dimensions of the case are 5.5" x 4" x 1" (140 x 100 x 25mm).

### Power Supply

The CerealBox is shipped with a 300 mAmp 6.5 vDC wall-plug power supply The power connector is center pin positive. The is also a connector on the CerealBox to accept regulated 5 vDC power

### Cables and Connection

Connections are as shown:

The CerealBox is connected to the computer with a 25 foot cable. The standard serial cable provided is a PC-DB-9 "null-modem" cablle. MiniDIN-8 and SGI Onyx DB-9 cables can be ordered. Cables up to 500 feet have been tested.



### Software Interface

Source code, written in C, is provided on 4mm DAT and includes all functions needed to con g-ure and sample the CerealBox. The software is fully compatible with BG Systems FlyBox® which allows actual vehicle controls to be connected to the CerealBox as a direct replacement for a FlyBox.

### Platforms Supported

The CerealBox has been tested on several Unix workstations (SGI, Sun, DEC, Harris), Macintosh, and IBM PC computers. Consult BG Systems if you have a platform not listed.

### Update Rates

Depending on the baud rate, and channels being sampled, update rates between 30-200 Hz can be achieved.

### Baud Rate Supported

The CerealBox can communicate at baud rates between 2400 and 115200 bps.

### Warranty

Twelve months.

## Contact Information

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