MODEL 2073 INTERFACER PRODUCT LINE

IOC106

RS-232 DATA TO ANALOG OUT CONVERTER MODULE

Rear View

Side View

FEATURES

- RS-232 Data Input
- Data Input Analog Conversion, 0-10 V With > 3 mV Resolution
- RS-232 Input Drives Daisy Chain and Global Bus
- Buffered RS-232 Output
- RS-232 Test Output
- Front Panel Input Activity Indicator
- Analog Output Calibrate Mode
- Error Output Signal

OVERVIEW

The IOC106 Pluggable Interface Module (PIM) accepts RS-232 Data from which it produces a voltage output representation varying between 0 and 10 V dc. The output voltage is the result of a 12 bit Digital to Analog conversion performed on the input data with a resolution of > 3 mV per step. Calibrate and test modes are available using the 2073 chassis front panel rotary switch. Loop-back test mode simulates the expected user data, which includes both Analog and RS-232 data outputs for stand-alone system verification. The IOC106 uses one DB9P input connector, one DB9S output connector and two BNC output connectors and operates up to 9600 BAUD. The input can also drive the Daisy Chain bus and the Global bus in the Model 2073 Chassis, enabling the user to create multiple copies of the input signal. The IOC106 requires two slots of the 14 available slots in the Model 2073 chassis.

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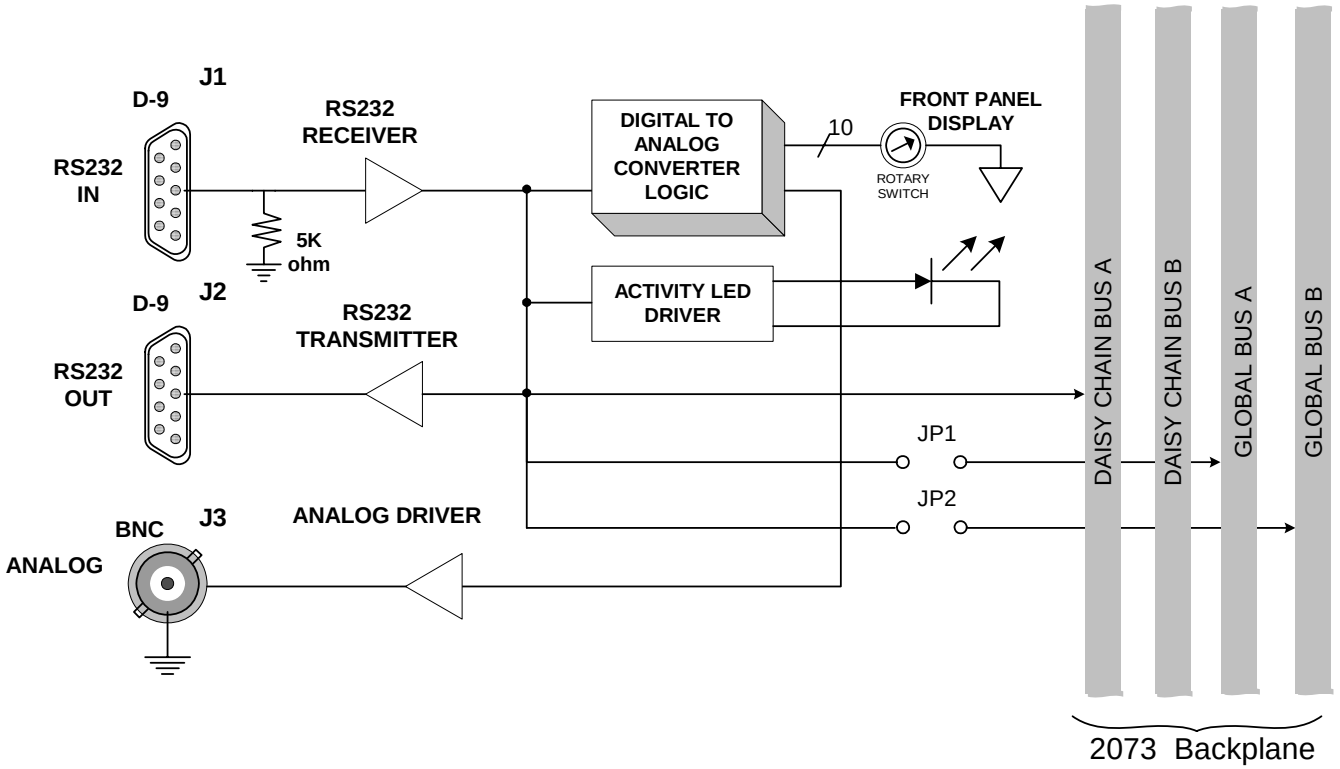

Figure 1: Model IOC106 Block Diagram

SPECIFICATIONS

GENERAL

Dual Slot Module (3" x 6" x 1.8")

Model 2073 Pluggable Interface Module

Requires chassis slot with front panel rotary switch

+5V, ±12V, +3.3V

OUTPUT

RS-232 (ASCII Characters)

9600, N, 8, 1, Even Parity

J2 Pin 2 DB9S

RS-232 (ASCII Characters 000.0 – 300.0)

9600, N, 8, 1, Even Parity

J1 Pin 3

0-10V Analog Voltage with ≥ 3 mV resolution

BNC connectors

RS-232 Level (Copy of Input)

INPUT

RS-232

9600, N, 8, 1, Even Parity

J1 Pin 2 DB9P

APPLICATION INFORMATION

The IOC106 is used to convert an ASCII data stream to an analog voltage. This helps join equipment with unlike interfaces by properly receiving and driving the signals.

The IOC106 can also be used in a distribution application where the daisy chain bus or global bus is used to distribute multiple copies of the input signal. This module can also be plugged into Apogee Models:

2907 and 2908: Data Acquisition Mux/Demux

6801: 5 Channel BERT Operation

6804: Multi Channel Clock Recovery Unit

IOC106 JUMPERS

JUMPER	FUNCTION
JP1	Short to Drive Global Bus A
JP2	Short to Drive Global Bus B
JP3	Factory Set
JP4	Factory Set
JP5	Short - terminates Error Out
JP6	Factory Set

J1 RS-232 Connection DB9P

Pin	Signal
2	Receive Data
3	Transmit Data
5	Ground
1,4,7,8,9	Not Connected

J2 RS-232 Connection DB9S

Pin	Signal
2	Receive Data
3	Transmit Data
5	Ground
1,4,7,8,9	Not Connected

2073 Chassis Front Panel Rotary Switch

Position	FUNCTION
1	Normal Operation
2	Normal Operation w/ Error Checking (Note 1)
3	Calibrate Mode - 000.0 (Note 2)
4	Calibrate Mode – 076.8 (Note 2)
5	Calibrate Mode – 204.8 (Note 2)
6	Calibrate Mode – 307.2 (Note 2)
7	Calibrate Mode – 409.5 (Note 2)
8	Test Mode 000.0 – 300.0 in 0.1 steps Requires loop-back connector on J1 (Note 2)
9	Not Used
10	Not Used

Note 1: LED B illuminates and Error Out signal pulses hi for 1 ms during an error.

Errors are instantaneous readings of > 100.0 in either direction.

Note 2: Error LED flashes during any test mode.

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OPERATIONAL MODES

The IOC106 receives an ASCII string at J1 Pin 2 in a range of 000.0 to 409.5 ASCII. These characters are converted to a 12-bit binary value and presented to a 12-bit digital-to-analog converter (DAC). The resulting analog voltage is in direct proportion to the numerical ASCII input.

An error detection mode of operation is available that removes or smoothes adjacent readings under certain conditions. This error checking mode reports an error to the B LED and pulses the error output when a subsequent measurement is greater than 100.0 ASCII from the previous measurement. When this condition is encountered the previous measurement is held on both the analog and RS-232 outputs.

TEST MODES

The IOC106 includes the capability of generating test data which is used to verify operation of the card absent a data source. The test modes are selectable using the front panel rotary switch. Static test modes are fixed levels values that are internally applied to the DAC circuitry and the J2 output connector simultaneously. It is not necessary to disconnect a user input on J1 to run the static tests. Rotary switch position 8 puts the IOC106 into a dynamic test mode which is an increasing ASCII value ranging from 000.0 to 300.0 in 0.1 increments. The dynamic test data is present on J1 pin 3, which must be connected to the input of the IOC106 at J1 pin 2 when running in this test mode.