

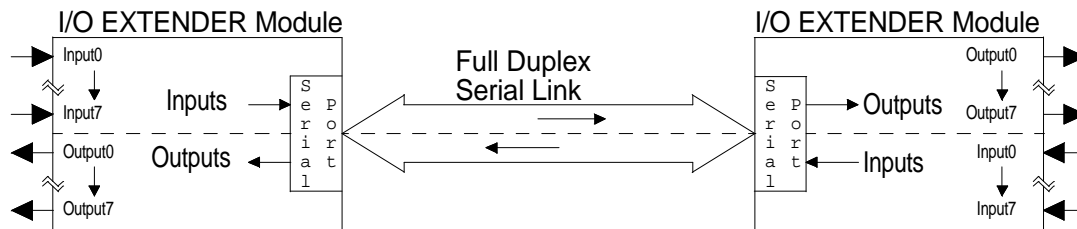
Digital I/O Extender Module Models 232IOEXT & 422IOEXT

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Description

The I/O Extender provides an easy solution for extending discrete digital I/O lines. The I/O Extender module transfers the states of its digital I/O lines to serial data and transmits that data out the serial communications port. Conversely, when an I/O Extender receives serial I/O data, it transfers the serial input data to its digital output lines. This provides sensing of ON/OFF conditions and for controlling devices from a remote location. When an input changes state or every one second, the I/O Extender transmits the states of the I/O lines out the serial port. Extending I/O lines requires two modules.

Two versions of the I/O Extender are available, an RS-232 Model 232IOEXT for use with full-duplex lease line modems, and an RS-422 Model 422IOEXT for remote applications up to 4,000 feet. The I/O Extender requires a +12Vdc power supply. Each I/O Extender module comes with an instruction manual.



Simplified Functional Diagram

Features

- Eight Digital Inputs & Eight Digital Outputs.
- CMOS/TTL compatible inputs & outputs (0Vdc to 5Vdc).
- Baud rate selection from 1200 to 115,200.
- Two serial communication standards to choose from: RS-232 or RS-422.
- Status Indicator. Communication timer.



Digital I/O Lines

The I/O Extender has 8 digital input lines and 8 digital output lines. The I/O lines are CMOS/TTL compatible. The digital I/O lines are available on a DB-25S (female) connector. All input lines have pull-up resistors to +5 Vdc. This forces all the input lines to a normal HIGH state. When an input line of one module is LOW (pulled down to signal ground) the serial input data sent to the second module will set the corresponding output line to the LOW state. To invert the state of all output lines so they are normally LOW, simply set a DIP switch inside the module.

Use input lines to sense switch closures, contact closures or the state of digital signals. To sense AC voltages, connect a solid state relay between the AC voltage source and the I/O Extender's input line. Use the output lines to turn on and off external devices. The output lines may require buffering in order to supply the proper power to control the external device. Controlling AC voltage devices requires connecting a solid state relay between the AC voltage device and the digital output. Solid state relays are available from many manufacturers.

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Communications

The serial port is an asynchronous full-duplex port with the signals brought out to a DB-25P (male) connector. Baud rates from 1200 to 115,200 are available. The communication format consists of 8 data bits, 1 stop bit and no parity. The RS-232 Model 232IOEXT's serial port is DCE\DTE jumper selectable. The I/O Extender's baud rate largely determines how fast a change in an input state changes the corresponding output line.

Communication Timer

The communication timer is useful for fail safe operations. It forces all output lines to the time-out state if the I/O Extender does not receive communications within a preselected time. Use the DIP switch on the printed circuit board to select the time-out state of the output lines. The DIP switch also enables and disables the timer as well as selecting the time-out interval. The time-out intervals available are: 3 seconds, 10 seconds, or 30 seconds. If the communication timer is disabled, the output lines will maintain their state from the last valid communication.

Status LED

The Status LED indicates normal operating and communications time-out conditions. The LED will flash every two seconds when the module is operating normally. If there is a communications time-out, the LED will flash every one-half second. Restoring communication returns the LED to a normal flash rate.

Power

The I/O EXTENDER requires +12 Vdc unregulated power. Connect power through the 2.5mm jack or through the DB-25S I/O Port connector.

I/O EXTENDER Specifications

I/O Lines

Total:	16
I/O to Serial Transfer Time:	509 microseconds min. (115.2K baud) 417 milliseconds max. (1200 baud)
Connector:	DB25S (female)

Digital Inputs

Lines:	8
Voltage Range:	0 Vdc to 5 Vdc
Low Voltage:	0.8 Vdc max.
High Voltage:	2.0 Vdc min.
Leakage Current:	1 microamp max.
Pull-up Current:	100 microamps
Input Scan Time:	50 microseconds

Digital Outputs

Lines:	8
Low Voltage:	0.6 Vdc @ 8.3 milliamps (Sink)
High Voltage:	4.3 Vdc @ -3.1 milliamps (Source)

Power Supply

Input Voltage:	+8 Vdc to +16 Vdc
232IOEXT power:	+12Vdc @ 15 milliamps min.*
422IOEXT power:	+12Vdc @ 25 milliamps min.*

* Does not include the power consumption of external devices.

Communications

232IOEXT:	RS-232 (DCE/DTE selectable)
422IOEXT:	RS-422
Baud Rate:	1200 to 115,200
Format:	8 data bits, 1 stop bit, no parity
Connector:	DB25P (male)

Size

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