Acromag
THE LEADER IN INDUSTRIAL I/O ®

IP502
Serial 485
Communication

These modules provide an asynchronous serial communication interface for your system. The IP502 has four asynchronous, half-duplex RS485 serial ports. It provides a cost-efficient interface to RS485 multi-driver networks which support up to 32 nodes. However, for full handshaking support, use the full-duplex IP501.

Software-configuration quickly sets the baud rate, character-size, stop bits, and parity.

For more efficient data processing, each serial port is equipped with 16-character FIFO buffers on the transmit and receive lines.

Features

■ Four asynchronous, half-duplex RS485 serial ports

■ 16-byte FIFO buffers

■ Programmable baud rate (up to 512Kbps) (consult factory for custom rates up to 1M bps)

■ Individually controlled interrupts (unique vectors for each port)

■ Line-break and false start-bit detection

■ Industry-standard 16C550 family UART includes software-compatible 16C450 mode

Benefits

■ Failsafe receivers guarantee a high output state when the inputs are left open or floating.

■ Internal diagnostics help detect communication faults.

■ 16-byte FIFO buffers minimize CPU interaction for improved system performance.
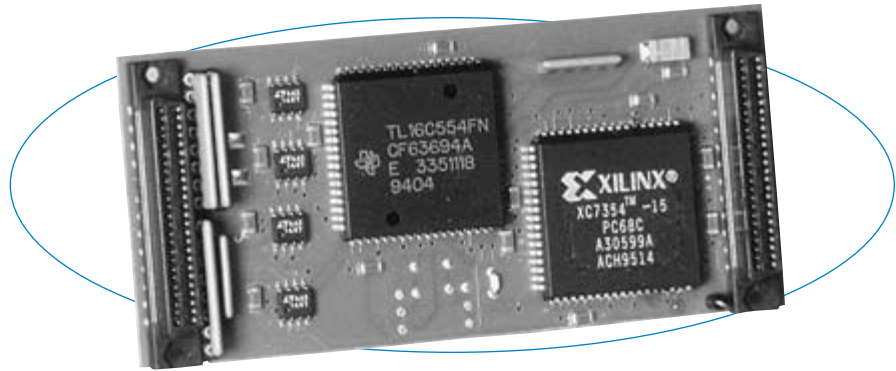
The IP502 provides a cost-effective interface to RS485 networks. A variety of features add flexibility to handle more applications

Specifications

RS485 Serial Ports
Configuration: Four independent, non-isolated RS485 serial ports with a common single return connection.

Data rate: Programmable up to 512Kbps using internal baud rate generator and carrier 8MHz clock. Consult factory for custom baud rates up to 1M baud.

Interface: Asynchronous serial only.

Max. cable length: 1200 meters (4000 feet) typical. A signal repeater can extend this limit.

Character size: 5 to 8 bits, software-programmable.

Parity: Odd, even, or no parity; software-programmable.

Stop bits: 1, 1-1/2, or 2 bits; software-programmable.

Data register buffers: 16-byte receive FIFO buffers and 16-byte transmit FIFO buffers.

Interrupts: Receiver line status (overrun error, parity error, framing error, or break interrupt); received data available (FIFO level reached) or character time-out; transmitter holding register empty. Multiple ports share the IntReq0 line according to a shifting priority scheme based on the last interrupting port serviced.

UART
UART: Texas Instruments TL16C554FN.

IP Compliance (ANSI/VITA 4)
Meets IP specifications per ANSI/VITA 4-1995.

IP data transfer cycle types supported: Input/output (IOSel*), ID read (IDSel*).

Access times (8MHz clock):
ID PROM read: 1 wait state (375nS cycle).
Channel register read/write: 2 wait states (500nS cycle).
Interrupt select read: 2 wait states.

Environmental
Operating temperature: 0 to 70°C.

Storage temperature: -40 to 125°C.

Relative humidity: 5 to 95% non-condensing.

Power:
+5V (±5%): 300mA maximum.
±12V (±5%) from P1: 0mA (not used)

MTBF: Consult factory.

Ordering Information

Industry Pack Modules
IP502
Four RS485 serial ports.
For Industry Pack Carrier Cards, see Page 5.

Customized Industry Pack Modules
† 5027-x
Modified IP502 with user specified crystal/baud rate.
† Specify x = crystal frequency when ordering.
Minimum quantity per order is two units.

For Industry Pack Carrier Cards, see Page 5.

Software *(see Page 81)*
IPSW-API-VXW: VxWorks® software support package
IPSW-API-QNX: QNX® software support package
IPSW-ATX-PCI: ActiveX®/OLE Controls 2.0 software package
For accessories information, see Page 87.

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