

## IP501-x Serial 422/485 Communication

These modules provide an asynchronous serial communication interface for your system. They have four asynchronous, full-duplex RS422B serial ports. Since the transceivers are compatible with the RS485 standard, you can also use a full-duplex RS485 interface for multiple driver support. However, for true half-duplex RS485 operation, use the IP502.

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

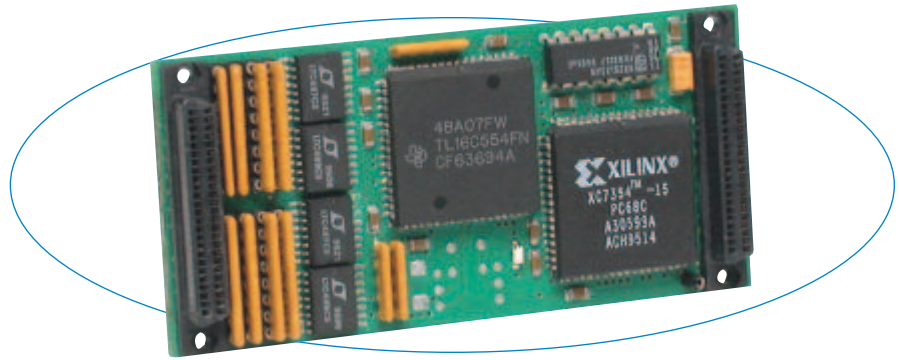
For more efficient data processing, each serial port is equipped with 16, 64 or 128-character FIFO buffers on the transmit and receive lines.

### Features

- Four asynchronous, full-duplex RS422B serial ports (full-duplex RS485 )
- 16, 64, or 128-byte FIFO buffers
- Programmable baud rate (up to 512Kbps) (Consult factory for custom rates up to 1Mbps)
- Individually controlled interrupts (unique vectors for each port)
- Handshake control signals (RTS, CTS) for each channel
- Extended temperature option (-40 to 85°C)
- 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 faults.
- FIFO buffers minimize CPU interaction for improved system performance.



Large, 128-byte FIFO buffers reduce the processing burden on the CPU to increase the overall system performance.

### Specifications

#### RS422B Serial Ports

Configuration: Four independent, non-isolated RS422B serial ports with a common single return connection.

Data rate: Programmable up to 512K bits/second using internal baud rate generator. Consult factory for custom baud rates up to 1M baud.

Interface: Asynchronous serial only.

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.

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; or modem status (CTS). Multiple ports share the IntReq0 line according to a shifting priority scheme based on the last interrupting port serviced.

#### UART

IP501-16: Texas Inst. TL16C554FN or equivalent.

IP501-64: Startech ST16C654CJ68.

IP501-128: Exar/Startech XR16C854

#### 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 (IP501-16/64/128) or -40 to 85°C (IP501-16E/128E/4861-xE/5024-xE).

Storage temperature: -40 to 125°C (all models).

Relative humidity: 5 to 95% non-condensing.

Power: +5V (±5%): 650mA maximum.  
±12V (±5%) from P1: 0mA (not used).

MTBF: 7,150,212 hrs at 25°C, MIL-HDBK-217F, Notice 2..

### Ordering Information

#### Industry Pack Modules

##### IP501-16

Four serial ports with 16-byte FIFOs.

##### IP501-16E

Same as IP501-16 plus extended temperature range

##### IP501-64

Four serial ports with 64-byte FIFOs

##### IP501-128

Four serial ports with 128-byte FIFOs

##### IP501-128E

Same as IP501-128 plus extended temperature range

Acromag offers a wide selection of [Industry Pack Carrier Cards](#).

#### Customized Industry Pack Modules

##### † 4861-x

Modified IP501-16 with user specified crystal/baud rate.

##### † 4861-xE

Same as 4861-x plus extended temperature range

##### † 4988-x

Modified IP501-64 with user specified crystal/baud rate.

##### † 5024-x

Modified IP501-128 with user specified crystal/baud rate.

##### † 5024-xE

Same as 5024-x plus extended temperature range

† Specify x = crystal frequency when ordering.

3.686MHz or 14.745MHz models may be purchases as single units, other frequencies require a min. qty. per order of two units.

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#### Software (see [software documentation](#) for details)

##### IPSW-API-VXW

VxWorks® software support package

##### IPSW-API-QNX

QNX® software support package

##### IPSW-API-WIN

Windows® DLL driver software support package

See [accessories documentation](#) for additional information.

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