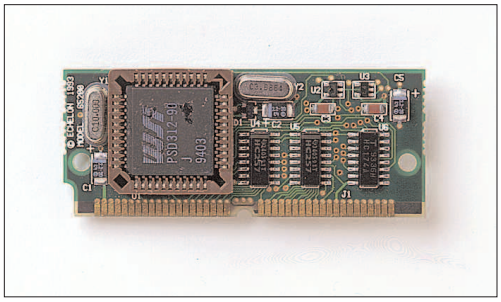
# PSG-20 Serial Gateway Core Module
# Models 73390 and 73390R



- Compact single in-line module (SIM) form factor
- Transceiver-independent design connects to any LONWORKS® channel with a transceiver interface rate from 9.8kbps to 1.25Mbps
- 1200 to 115,200bps serial bit rate
- 7.5Kbytes RAM and 34.25Kbytes application space
- Supports Flash memory for downloadable program updates
- 10MHz input clock
- Buffered 16550-compatible UART
- 18 general purpose input/output pins
- Pin compatible with PSG-10

## Description

The PSG-20 Serial Gateway Core Module is a compact module used to build gateways between devices or systems with serial EIA-232C (formerly RS-232C) interfaces.and LONWORKS networks.

Typical applications for the PSG-20 module include gateway connectivity to programmable logic controllers, servo controllers, smart sensors, keypads, displays, printers, console ports, etc.

The PSG-20 consists of the core electronics and firmware required to implement a serial gateway. Its compact single in-line module (SIM) form factor minimizes the board space required to implement a serial gateway. Vertical SIM sockets are available to minimize footprint; right-angle SIM sockets are also available to minimize component height.

The PSG-20 module has a fixed input clock rate of 10MHz. The module can be used with transceivers with bit rates from 9.8kbps to 1.25Mbps.

The PSG-20 module includes a Neuron® 3150® Chip, high-speed 16550-compatible UART, and 7.5KBytes of user accessible RAM. Using a standard flash memory part 34.25 KBytes are available for user programs.

Model 73390R is compliant with the European Directive 2002/95/EC on the restriction of the use of certain hazardous substances (RoHS) in electrical and electronic equipment.

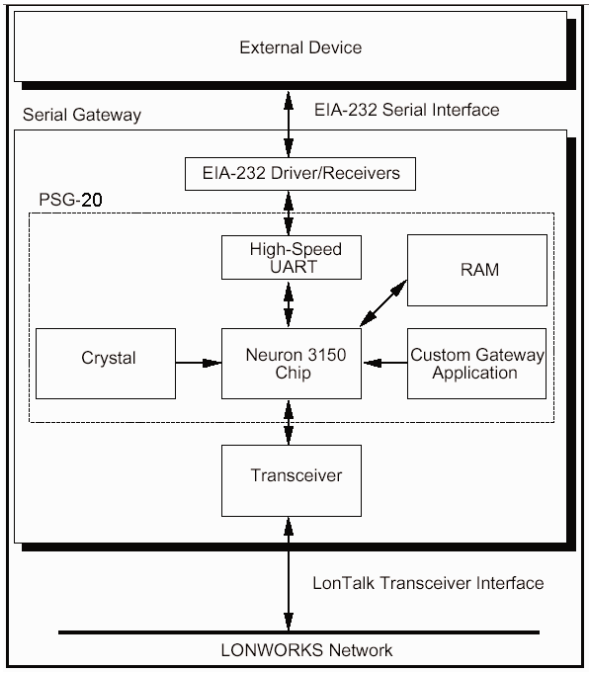
## Usage

The gateway developer uses the PSG firmware library included with the NodeBuilder® development tool or available for free download from the Download Center of http://www.echelon.com, to create a custom serial gateway application written in Neuron C. The PSG firmware library provides functions to initialize the UART, read the general-purpose input bits, send and receive characters, and send and receive LONWORKS messages. The NodeBuilder development tool is used to create a standard .NRI or .NEI image that is programmed into a 29C512 flash device or 27C512 PROM.

Subsequent program updates may be downloaded over the LONWORKS network when flash parts are used.

A complete serial gateway includes a PSG-20 Serial Gateway Core Module with custom gateway firmware, a LONWORKS transceiver, EIA-232 driver/receivers, and a motherboard with power supply. The PSG-20 module is compatible with all LONWORKS transceivers with interface rates of 9.8kbps or higher including standard transceivers for twisted pair, free topology, link power, and power line. The PSG-20 replaces and is pin compatible with the PSG-10.

A block diagram of a gateway based on a PSG-20 is shown below.



## Module Specifications

| | |
|---|---|
| Processor | Neuron 3150 Chip |
| Processor Input Clock | 10MHz. |
| Serial Communications Type | EIA-232, TTL signal levels |
| Serial Bit Rate | 1200, 2400, 9600, 14.4k, 19.2k, 38.4k, 57.6k, or 115.2 kbps |
| Serial Modem Control | Optional RTS, CTS, DSR, DCD, DTR, and RI |
| SIM Connector | 40-position SIM or SIM II 0.050" centerline single row connector, vertical or right angle |
| Operating Input Voltage | +5VDC ±10% |
| Operating Input Current | 150 mA max |
| Temperature | |
| Operating | -40 to 85ºC |
| Non-operating (12 hour) | -40 to 85ºC |
| Humidity (non-condensing) | |
| Operating(24 hours) | 25 to 90% RH @ 50ºC |
| Non-operating (24 hours) | 95% RH max @ 50ºC |
| Dimensions | 67mm x 27mm x 7.0mm |
| | (2.65" x 1.06" x 0.3") |
| EMI Compliance | |
| FCC | Designed to comply with Part 15 Level B |
| CE | Designed to comply with EN55022 Level B |

## Module Socket Suppliers

| SIMM Socket | Supplier | Supplier Part Number |
|---|---|---|
| 40-position vertical 50mil pitch | Molex | 15-82-1175 or 15-82-0793 |
| 40-position right angle 50mil pitch | Molex | 15-82-1390 |

*These connectors are now available for purchase from Echelon in the same quantity as PSG-20 purchased.*

## Documentation

Complete documentation may be obtained by downloading from http://www.echelon.com.

| Documentation | Echelon Part Number |
|---|---|
| LTS-20 LonTalk Serial Adapter and PSG-20 User's Guide | 078-0181-01 |

## Ordering Information

| Product | Echelon Model Number |
|---|---|
| PSG-20 Serial Gateway Core Module | 73390, 73390R (RoHS-compliant) |
| Molex SIMM Socket (Molex Part #15-82-0793) | 61101R (RoHS-compliant) |
| Molex SIMM Socket (Molex Part #15-82-1390) | 61102R (RoHS-compliant) |

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003-0322-01B