

# Serial-to-Ethernet (S2E) Module

## Ordering Information

Order No.	Description
MDL-S2E	Stellaris® Serial-to-Ethernet Module for Single-Unit Packaging
MDL-S2E-B	Stellaris® Serial-to-Ethernet Module for Volume Packaging
RDK-S2E	Stellaris® Serial-to-Ethernet Reference Design Kit (includes MDL-S2E board)



Figure 1. Serial-to-Ethernet Module

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## General Description

The Serial-to-Ethernet (S2E) module is a simple add-on product that provides serial to Ethernet communications. Existing systems that lack Ethernet connectivity but have a UART or RS-232 port can be easily upgraded by the addition of the S2E module. A web server supports module configuration from any web browser.

The Serial-to-Ethernet Reference Design Kit (RDK) adds a second board (S2E-CKIT) with connectors and cables for easy connection to a PC.

## Features

The MDL-S2E module provides the following features:

- LM3S6432 microcontroller in a 10 x 10 mm BGA package for reduced board size
- 10/100 Mbit Ethernet port
  - Auto MDI/MDIX
  - Traffic and link indicators

# BOARD DATA SHEET

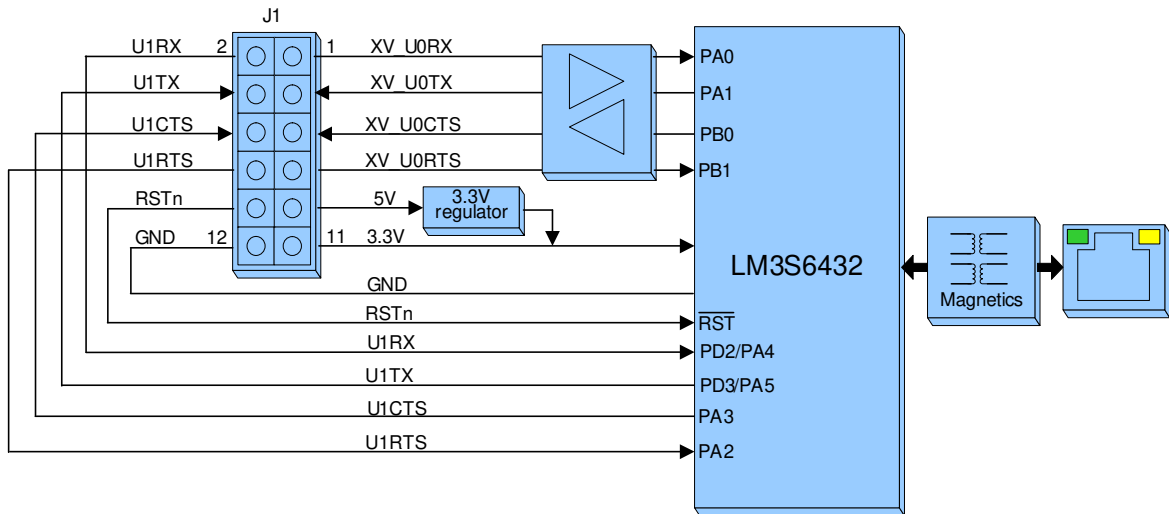


- Two serial ports, configured as data communication equipment (DCE), include RTS/CTS for flow control
  - PORT0 has RS-232 levels, transceiver runs at up to 250 Kbits/sec
  - PORT1 has CMOS/TTL levels, can run at 1.5 Mbits/sec
    - Both serial ports are independent and may be used simultaneously.
- Module software
  - IP configuration with static IP address or DHCP
  - Raw and Telnet protocol support for access to serial port
  - Web server for module configuration
  - Multi-port virtual com port software for Windows
  - Universal Plug and Play (UPnP) for device discovery
- Module supports 5 V and 3.3 V supplies
- Multiple mounting options
- RDK-S2E modules include JTAG/SWD header for debugging
- Protocols include ARP, IP, ICMP, UDP, TCP, HTTP, DHCP, Telnet

## Module Block Diagram

Figure 2 shows the block diagram for the MDL-S2E module.

Figure 2. Block Diagram



## Operational Specifications

Table 1 shows the operating parameters for the MDL-S2E module.

**Table 1. MDL-S2E Operating Specifications**

Parameter Name		Min	Nom	Max	Unit
DC Input Voltage	5 V operation	4	5	5.5	V <sub>DC</sub>
	3.3 V operation	3	3.3	3.6	V <sub>DC</sub>
SER0 transceiver data rate		–	–	250	Kbits/sec
SER1 UART data rate		–	–	1500	Kbits/sec
Ethernet Data Rate		–	–	100	Mbits/sec
Supply Current		–	–	200	mA
Operating Temperature Range		0	–	70	°C
Storage Temperature Range		-25	–	85	°C
Digital Input Low Level Input Voltage		-0.3	–	1.3	V <sub>DC</sub>
Digital Input High Level Input Voltage		2.0	–	5.0	V <sub>DC</sub>

## Mechanical Specifications

Figure 3 shows the S2E module dimensions and Figure 4 shows the recommended panel cutout.

- PCB size: 1.555" x 1.475" (39.5 mm x 37.5 mm)
- Three mounting options available
  - Attach to faceplate
  - Direct attach to 3 mm faceplate spacers
  - Direct attach to mounting holes
- Module connectors
  - Mounted on PCB is the Hirose Electric DF11-12DP-2DSA(24)
  - Two mating connector options for system connectivity
    - Crimping connector DF11-12DS-2C
    - Insulation displacement connector DF11-12DS-2R26

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### WARNING – Risk of Equipment Damage

To avoid damage to the S2E board and/or external power supply, ensure that only one power line is connected to system connector J1. Connect 5 V to J1-9 or 3.3 V to J1-11, but not both.

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Figure 3. S2E Module Dimensions

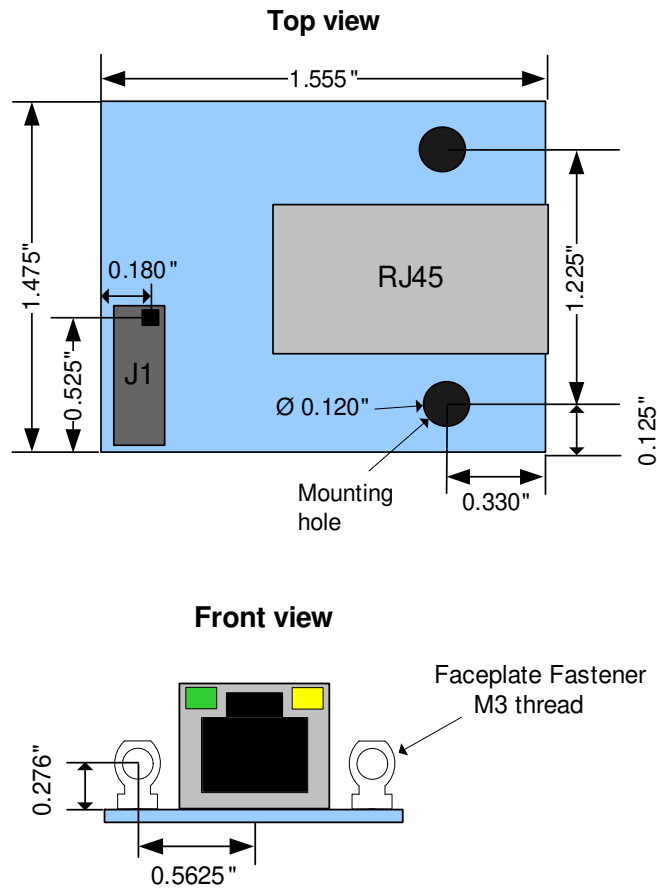
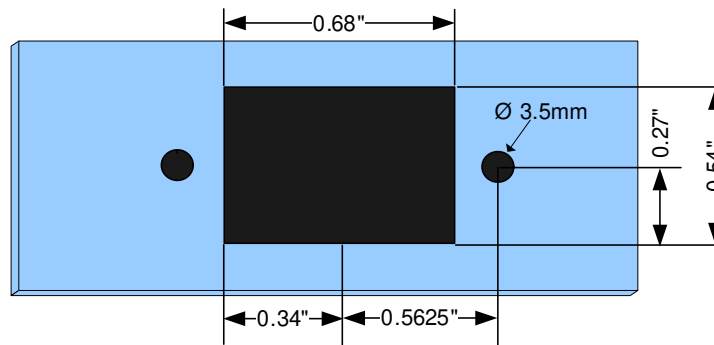


Figure 4. S2E Module Recommended Panel Cutout

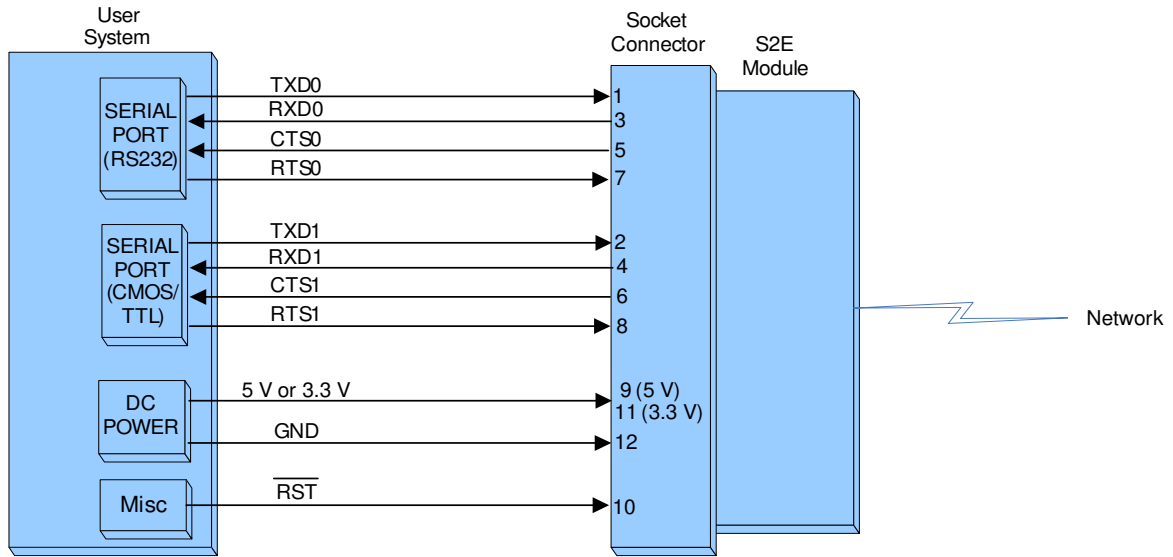


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Figure 5 shows the system wiring diagram for the MDL-S2E board and Table 2 shows the corresponding signals and definitions.

**Figure 5. System Wiring Diagram**



**Table 2. Signal Definitions for Wiring Diagram**

Signal	Definition
TXD0	Serial Port 0 transmit data out
RXD0	Serial Port 0 receive data in
CTS0	Serial Port 0 clear to send in
RTS0	Serial Port 0 request to send out
TXD1	Serial Port 1 transmit data out
RXD1	Serial Port 1 receive data in
CTS1	Serial Port 1 clear to send in
RTS1	Serial Port 1 request to send out
5 V or 3.3 V	Power signal, either 5 V (connect to pin 9) or 3.3 V (connect to pin 11)
GND	Ground signal
$\overline{\text{RST}}$	Stellaris microcontroller reset input (optional), leave unconnected if unused

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## Parameter Specifications

Table 3 shows the parameter specifications for the MDL-S2E module. These parameters are configured using the web interface.

**Table 3. Parameter Specifications**

Parameter Name	Range	Units
Baud Rate SER0	Standard values from 110 to 460,800	Baud
Baud Rate SER1	Standard values from 110 to 460,800 and 1M	Baud
Data Size	5, 6, 7, 8	Bits/character
Parity	None, even, odd, mark, space	
Stop Bits	1, 2	Bit(s)
Flow Control	None, hardware	
Local Telnet port number	0..65535	
Remote Telnet port number	0..65535	
Telnet Mode	Client, Server	
Telnet Protocol	Raw, Telnet	
Telnet Server IP	xxx.xxx.xxx.xxx	
Telnet Timeout	0..9999	Seconds
Module Name	39 character ASCII string	
uPNP port number	0.65535	

## Additional Information

The following document is available for download at [www.luminarymicro.com](http://www.luminarymicro.com):

- *MDL-S2E Quickstart*

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