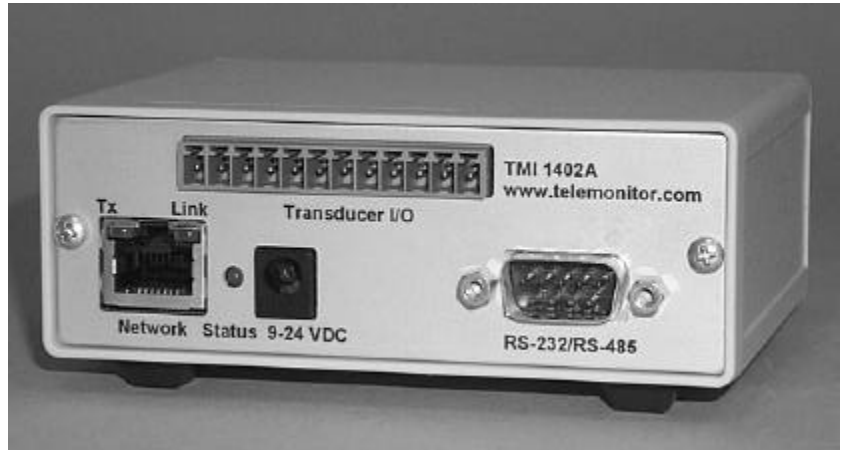


The TMI 1402B Web-Enabled Instrument Server provides a quick way to build web-enabled products based on analog transducers or devices with RS-232 or RS-485 serial communications interfaces.

The server has nine input/output channels: an on-board temperature sensor, two fully conditioned analog input channels, two buffered analog input channels, two filtered and buffered analog output channels, and two digital output channels. The two fully conditioned input channels can be used in differential or single-ended mode, or all signal conditioning can be turned off for all channels. Mode selection is by supplied configuration software and can be performed over the network.



**Highlights**

- **“Quick-Start” solution for web-enabled products.**
- **Nine channels including analog inputs, analog outputs, digital outputs, and temperature.**
- **Full analog signal conditioning, including programmable gain and anti-aliasing filters.**
- **Displays live data in user-defined web pages by means of Server-Side Include (SSI) parsing.**
- **Flash file system with FTP server for web pages and data files.**
- **Full-featured data logger configured, controlled, and accessed over the network.**
- **Security features including multi-level username and password access to data and configuration.**
- **Based on TMI 700A Embedded Ethernet Controller with NetSilicon NET+ARM and NET+OS.**

Serial data capabilities include RS-232 or RS-485 Modbus RTU. Network access includes web pages, an HTTP URL-based API for programmatic access, and Modbus TCP. A Modbus/TCP to Modbus RTU passthrough capability is included.

The TMI 700A supports dynamic network IP configuration through DHCP. Additionally, a special client-side utility program (Windows/98 or Windows/NT) is provided that searches a local subnet and identifies and configures the attached TMI 1402B units.

Software also is provided for setting the configuration of the analog transducer interface, as well as documentation for the analog interface circuits used in the server. All software and documentation can be downloaded off the Telemonitor web site, or can be supplied on CD-ROM if downloading is not convenient.

A 110 VAC, 60 Hz wall power adapter is included with the TMI 1402B.

**Specifications**

Mechanical

Housing size (not including feet) .....	4.2 in. wide x 1.5 in. tall x 3.4 in. deep
Housing material .....	aluminum
Transducer I/O connector type.....	Phoenix MC 1.5/12

Electrical

Supply voltage.....	9 to 24 V
Operating power (not including transducer excitation) .....	3 W
Transducer excitation voltage .....	4.1V
Transducer excitation current.....	30 mA maximum

Performance

Temperature sensor range (CH1).....	-40 to +85° C
Temperature sensor resolution (CH1).....	0.5° C
Analog input range (CH2 and CH3 mode 1, programmable) .....	±75 µV to ±750 mV
Analog input common mode range (CH2 and CH3 mode 1, ±10 mV signal).....	1 to 4 V
Analog input amplifier gain (CH2 and CH3 mode 1, programmable) .....	6 to 77 dB
Analog input range (CH2-CH5 mode 2).....	0 to 4.1 V
Hardware input anti-aliasing filter cutoff (CH2 and CH3, -3 dB, programmable).....	16 to 1024 Hz

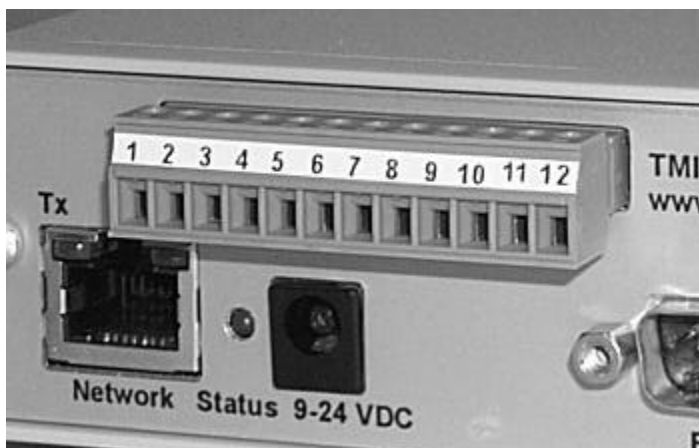
Hardware input anti-aliasing filter roll-off (CH2 and CH3).....	-24 dB/octave
Oversampling rate (programmable).....	2 to 16 times filter cutoff
Internal sample rate (programmable).....	32 to 2048 Sa/s
ADC resolution (CH2-CH5).....	12 bits
Analog output range (CH6 and CH7).....	0 to 4.1V
DAC resolution (CH6 and CH7).....	12 bits
Analog output filter cutoff (CH6 and CH7, -3 dB, fixed).....	400 Hz
Analog output filter roll-off (CH6 and CH7).....	-12 dB/octave
Digital output type (CH8 and CH9).....	open-collector
Digital output rating (CH8 and CH9, with 10k pull-up resistor).....	36 V maximum
RS-232 Serial Port Configuration.....	9 pin male DTE
RS-485 Serial Port Configuration.....	half-duplex on pins 6 and 9 of the RS-232/RS-485 connector

**Operating Modes:**

- Mode 1:** Channels 2 and 3 are differential inputs through the signal conditioning ASIC. Can be selected for each channel independently.
- Mode 2:** Channels 2 and 3 are single-ended inputs through the signal conditioning ASIC. Can be selected for each channel independently.
- Mode 3:** All analog input and output signal conditioning is turned off. None of the channels are filtered. Applies to all channels if selected.

**Transducer I/O Pin Assignments (Mode Dependent)**

Pin Number	Mode 1	Mode 2	Mode 3
1	CH2 IN+	N/C	CH2 VIN+
2	CH2 IN-	CH2 VIN+	N/C
3	CH3 IN+	N/C	CH3 VIN+
4	CH3 IN-	CH3 VIN+	N/C
5	CH4 VIN+	CH4 VIN+	CH4 VIN+
6	CH5 VIN+	CH5 VIN+	CH5 VIN+
7	CH6 VOUT+	CH6 VOUT+	CH5 VOUT+
8	CH7 VOUT+	CH7 VOUT+	CH7 VOUT+
9	CH8 DOUT	CH8 DOUT	CH8 DOUT
10	CH9 DOUT	CH9 DOUT	CH9 DOUT
11	+4.1 V	+4.1 V	+4.1 V
12	COM	COM	COM



**Notes on Transducer I/O Pins**

- VIN and VOUT (single-ended inputs and outputs) are referenced to pin 12 (COM).
- Pin 11 (4.1 V) is intended for transducer excitation and is limited to 30 mA maximum.
- The Transducer I/O connector is a Phoenix MC 1.5/12 removable screw-terminal connector (see photo).