

**TS-ENC200 Manual**





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All modifications from previous versions are listed in the appendix.

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## Limited Warranty

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Technologic Systems warrants this product to be free of defects in material and workmanship for a period of one year from date of purchase. During this warranty period Technologic Systems will repair or replace the defective unit in accordance with the following instructions:

- Contact Technologic Systems and obtain a Return Material Authorization (RMA) number and a copy of the RMA form.
- Fill out the RMA form completely and include it and dated proof of purchase with the defective unit being returned. Clearly print the RMA number on the outside of the package.

This limited warranty does not cover damages resulting from lightning or other power surges, misuse, abuse, abnormal conditions of operation, or attempts to alter or modify the function of the product.

**This warranty is limited to the repair or replacement of the defective unit. In no event shall Technologic Systems be liable or responsible for any loss or damages, including but not limited to any lost profits, incidental or consequential damages, loss of business, or anticipatory profits arising from the use or inability to use this product.**

Repairs made after the expiration of the warranty period are subject to a flat rate repair charge and the cost of return shipping. Please contact Technologic Systems to arrange for any repair service.

## Table Of Contents

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Limited Warranty.....	3
1 Introduction.....	5
2 Standard Headers and Connectors .....	5
3 Dimensions .....	8
Appendix A Enclosure Visuals.....	8
Appendix B - Manual Revisions.....	8

# 1 Introduction

The Technologic System’s metal enclosure(TS-ENC200) is made to hold two cards: a Technologic System’s PC/104 Embedded Personal Computer (EPC), and an “interface” board. The EPC is PC/104 form factor, which could allow any PC/104 board to be used within the metal enclosure. The “interface” board uses ribbon cables to connect the headers and connectors of the EPC board(s) to the connectors on the back-side of the enclosure. It is also used to supply/regulate power to the enclosed board(s), and for controlling the various LEDs.

The metal enclosure has two mounting holes on the underside of the unit (see Appendix A: Enclosure Visuals) so that entire enclosure can be mounted to a wall, shelf, etc.

The metal enclosure can be used with the following Embedded Personal Computer (EPC) boards:

- TS-5300
- TS-3200
- TS-3300
- TS-3400
- TS-3100

# 2 Back Panel Headers and Connectors

The back of the metal enclosure has 7 connectors, labeled Ethernet, COM1, COM2, COM3, COM4, 20-30VDC, and Modem

- **Ethernet:** The Ethernet connector is a standard RJ-45 socket. It can be used to connect a standard 10baseT Ethernet cable into the enclosed EPC. This connector is only present when the TS-3300 or TS-5300 are used as the base SBC. The TS-3100, TS-3200, and TS-3400 do not come with Ethernet ports and thus this connector is not present.
- **COM1:** COM1 is brought in from the enclosed SBC. This RJ-45 connectors use the pin-outs established by the EIA/TIA 561 specification for RS-232. The TxD, RxD, RTS, CTS, and ground pins are supported for RS-232 communications. In order to support the optional RS-485 communications, pins 1 and 2 are used for RS-485 TX+/RX+ and TX-/RX- (respectively).

RJ45 Pin	Signal
1	RX/TX + (option)
2	RX/TX – (option)
3	Not supported
4	Signal Ground
5	Receive Data
6	Transmit Data
7	Clear to Send
8	Request to Send

Table 1: Com 1 RJ-45 pin outs

Pin 1 is the first pin on the left of the connector when holding the enclosure upright, looking at the back-side of the enclosure.

- COM 2:** COM2 is brought in from the base SBC. This RJ-45 connectors use the pin-outs established by the EIA/TIA 561 specification for RS-232. The TxD, RxD, RTS, CTS, and ground pins are supported for RS-232 communications. The RS-232 com port labeled COM2 supports pins 4 through 8.

Pin 1 is the first pin on the left of the connector when holding the enclosure upright, looking at the back-side of the enclosure.

RJ45 Pin	Signal
1	Not supported
2	Not supported
3	Not supported
4	Signal Ground
5	Receive Data
6	Transmit Data
7	Clear to Send
8	Request to Send

Table 2 Com 2 RJ-45 pin outs

- COM3:** This COM port is in addition to the enclosed SBC’s COM port. It is an optically isolated RS232 with support for RS485 or RS422. It supports the same pin-out configuration on the RJ-45 connector as COM1.
- 20-30VDC:** The three-pin connector accepts 20-30VDC of external power to supply power to the board
- Power Indicator Light:** The LED indicator in the back of the enclosure is the power LED. It is turned on anytime power is applied to the unit.
- Ground Lug:** The lug labeled with the chassis ground symbol is used for chassis ground.
- MODEM:** The RJ-11 connector is used for the optional modem and accepts a standard telephone-line cable

### 3 Front-side Connectors and Headers

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- Status LED:** The status LED is located on the front of the board, and is both a Red and Green LED. The Red LED is directly connected to the processor (user) LED of the enclosed EPC. DIO 2, pin 14, controls the Red LED. See you enclosed EPC’s manual for how to control both LED in software. The Green LED can be controlled by accessing IO location 193, bit 0. Writing a 1 will turn it on, writing a 0 will turn it off.

- **Configurable Push Switch:** This push switch is readable under software at IO location 192, bit 0. With JP13 installed, it acts as an on/off power switch to the unit. With JP13 uninstalled, it no longer controls power and its status can be read under software. When IO location 192 bit 0 is set, then the push switch is in the ON position.
- **Side Compact Flash Slot:** The TS-5300 and TS-3300 support Compact Flash in IDE mode. The SBC's Compact Flash connector is accessible from the side of the enclosure.

## 4 Jumper Settings

The following table explains the meaning of the TS-ENC200 jumpers.

JP #	Function
1	IDE device as Primary (on) or Secondary (off)
2	User Jumper @ read-only I/O 190 bit 1
3	User Jumper @ read-only I/O 191 bit 0
IRQ14, IRQ 9, IRQ 5	Selects which IRQ IDE devices uses (Select one only)
IRQ 9 IRQ 6 IRQ 4	Selects Which IRQ COM3 uses (Select one only)
IRQ 7 IRQ 5 IRQ 3	Selects which IRQ COM4 uses (Select one only)
13	<b>Push Switch Function:</b> On = Push Switch Controls Power Off = Push Switch now User Push Switch

Table 3 Jumper Settings of the enclosure's interface board

## 5 Options and other Features

### 5.1 The TS-ENC200 can be ordered with the following options.

- **Modem:** Optionally, COM4 can be configured as a V.34 33.6Kbaud modem. This modem uses industry standard AT commands. For a complete list of AT commands, contact Technologic Systems or visit the downloads page for a PDF.

### 5.2 Standard Internal Features

- **2.5" IDE Connector:** There is an internal 2.5" IDE ("laptop sized" hard-drives) connector with mounting support for a any 2.5" hard-drive. The BIOS can handle hard-drives up to 5 Gigabytes in size.
- **3.5" IDE Connector:** There is an internal 3.5" IDE hard-drive connector for a typical PC sized IDE hard-drive. The BIOS can handle hard-drives up to 5 Gigabytes in size.

## 6 Dimensions

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The enclosure itself is 2.4” (6.1cm) x 5.3” (13.4cm) x 5.8” (14.7cm).

## 7 Cables

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The previous section details the pin assignments of the COM1 and COM2 RJ-45 connectors (see figures 1 and 2). Technologic Systems can provide a cable to connect directly to a P.C.’s com port. See your EPC’s manual for more details on how to communicate with the EPC.

## Appendix A Enclosure Visuals

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Not available at this time.

## Appendix B - Manual Revisions

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Date	Revision
8.08.02	Document Created
6.01.09	Updated mailing address