
Enclosure TS-ENC550 User Manual



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Technologic Systems Inc.
Enclosure 550 User Manual
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Note

All modifications from previous versions are listed in Appendix B.

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Product Overview

Introduction

The TS-ENC550 metal enclosure is made to house the [TS-5500](#) Single Board Computer and two [PC/104 peripheral boards](#). The switching power regulator efficiently converts 12-38 VDC to regulated +5 VDC required by the SBC.

Features and Benefits

- 12-38 VDC input provides +5VDC to the SBC
- COM ports adapted to standard 9-pin Sub-D
- PCMCIA slot in front panel
- 2 USB ports available at back panel
- DB25 connector allows 4th COM port or 8 A/D channels or 12 DIO signals to be available at back panel
- Status LED's for Ethernet ports are visible
- Power Good LED visible at back panel
- Reset button recessed into back panel
- Surge suppression on DC power input
- Sturdy metallic design reduces noise
- Dimensions 2-3/8" x 5-3/8" x 7"

Related Products

The TS-ENC550 enclosure is designed for the [TS-5500](#) Single Board Computer and two [PC/104 peripheral boards](#).

Software and Support

- Free system software and documentation updates available on our web site
- Free technical support by phone, fax, or email
- 30-day, money back guarantee on evaluation units
- One-year, full warranty

Installing the Enclosure

Electrostatic Discharge (ESD) precautions

Before performing any set up or placement procedures, take the precautions outlined in this section.



Important

Be sure to take appropriate Electrostatic Discharge (ESD) precautions.

Disconnect the power cable at the rear panel of the enclosure before moving, cabling, or performing any set up procedures.

Setup and Installation Instructions

Follow these guidelines for safety and maximum product performance:

- Observe local health and safety requirements and guidelines for manual material handling.
- Set the enclosure on a level surface with adequate ventilation.
- Ensure the rubber feet are used for protection and stability on level surfaces.
- Wall-mount the unit if placement on a level surface is not available, or desired.

Setup Tools

Depending on the placement and cabling of the enclosure, you may need the following tools:

- Small flat-blade screwdriver
- Small Phillips screwdriver

Setup Procedure

After locating, setting up, grounding, and cabling the enclosure:

1. Apply power to the unit.
The amber-colored LED on the rear panel should be lit.
2. Monitor COM2 using a terminal emulator to verify that the enclosure is operating properly.

Disconnecting AC Power

1. Unplug the power cord from the power source.
2. Disconnect the power cord from the rear panel of the enclosure.

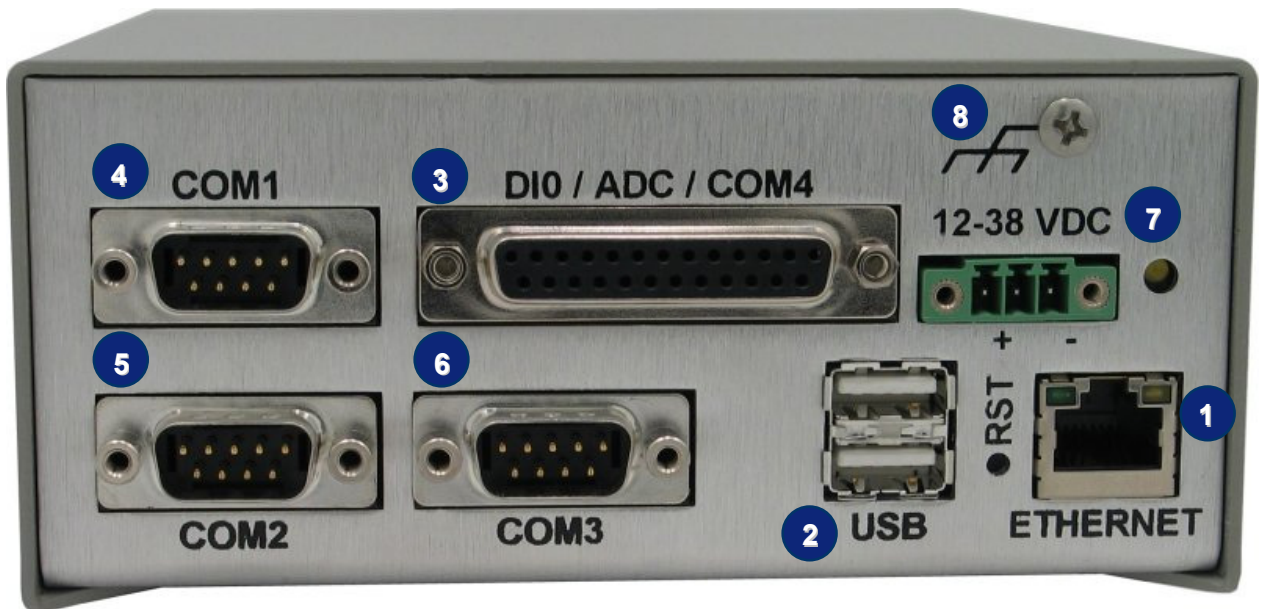
Components

Standard Headers and Connectors

Front Panel

See Appendix A for a view of the enclosure’s front panel.

Rear Panel



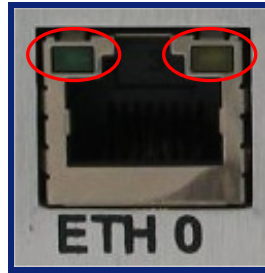
TS Enclosure 550 Rear Panel Connectors

The rear panel of the metal enclosure has six connectors and two additional elements, as indicated in the above view. Identifiers, and a description for each, are listed in the tables below.

Identifier	Connector Description
1	Ethernet 0
2	USB
3	DIO/ADC/COM4
4	COM1
5	COM2
6	COM3

Additional Elements

Identifier	Description
7	12-38VDC and Power Indicator LED
8	Chassis Grounding Lug



Enclosure TS-ENC550 Ethernet Port 0
Left and Right LEDs highlighted

- **Ethernet:** The Ethernet connector is a standard RJ-45 socket. It can be used to connect a standard 10/100 Ethernet cable into the enclosed EPC.



Note

The right side LED above the Ethernet port indicates a 100-Mbit link, while the left side LED indicates network activity. Both LEDs are highlighted red in the above graphic.



Enclosure TS-ENC550 COM1 Port
Pin 1 highlighted

- **COM 1:** COM1 is brought in from the base SBC. This 9-pin SubD connector is industry standard for a PC. The TxD, RxD, RTS, CTS, and ground pins are supported for RS-232 communications.

COM1 9-Pin SubD Outs Table

RS-232	
9-Pin SubD	Signal
1	
2	Receive data
3	Transmit data
4	
5	Ground
6	
7	Request to Send
8	Clear to Send
9	

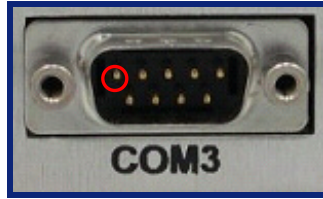


Enclosure TS-ENC550 COM2 Port
Pin 1 highlighted

- **COM 2:** COM2 is brought in from the base SBC. This 9-pin SubD connector is industry standard for a PC. The TxD, RxD, RTS, CTS, and ground pins are supported for RS-232 communications.

COM2 9-Pin SubD Outs Table

RS-232	
9-Pin SubD	Signal
1	
2	Receive data
3	Transmit data
4	
5	Ground
6	
7	Request to Send
8	Clear to Send
9	



Pin 1 highlighted

- **COM3:** COM3 is brought in from the enclosed SBC. This 9-pin SubD connector is industry standard for a PC. The TxD, RxD, RTS, CTS, and ground pins are supported for RS-232 communications.

See the table below for RS-485 operation.

COM3 9-Pin SubD Outs Table

Half Duplex RS-485		RS-232		Full Duplex RS-485	
9-Pin SubD	Signal	9-Pin SubD	Signal	9-Pin SubD	Signal
1	RX/TX +	1		1	TX +
2		2	Receive data	2	
3		3	Transmit data	3	
4		4	Ground	4	RX +
5	Ground	5	Ground	5	Ground
6	RX/TX -	6		6	TX -
7		7	Request to Send	7	
8		8	Clear to Send	8	
9		9		9	RX -



Enclosure TS-ENC550 DIO/ADC/COM4 Port

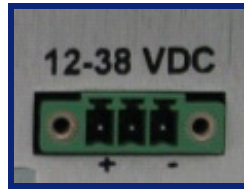
DIO/ADC/COM4 25-Pin SubD Outs Table

RS-232		Analog to Digital		Digital I/O	
25-Pin SubD	Signal	25-Pin SubD	Signal	25-Pin SubD	Signal
2	Transmit data	9	Ground	1	DIO0
3	Receive data	10	AD0	2	DIO1
4	Request To Send	11	AD1	3	DIO2
5	Clear To Send	12	AD2	4	DIO3
6	Data Set Ready	13	AD3	5	DIO4
7	Ground	22	AD4	6	DIO5
8	Data Carrier Detect	23	AD5	7	DIO6
20	Data Terminal Ready	24	AD6	8	DIO7
22	Ring Indicator	25	AD7	14	Ground
				15	DIO8
				16	DIO9
				17	DIO10
				18	DIO11
				19	DIO12
				20	DIO13
				21	+5v @ 250 mA

■ DIO/ADC/COM4: COM4 for the ENC550 can be connected internally to one of three functions.

- COM4 RS-232
- Analog to Digital Converter inputs
- Digital I/O points

The DIO is a standard feature of all Technologic Systems SBCs. By default the 25-pin connector is plugged into DIO1. If the ADC or COM4 options are purchased, the 25-pin connector is plugged into the purchased option. Only one of the headers on the TS-ENC550 power supply board may be connected at one time. Plugging more than one of the headers in may damage the circuitry.



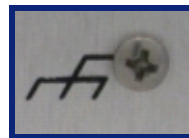
Enclosure TS-ENC550 12-38 VDC Connector

- **12-38VDC:** The three-pin connector accepts 12-38 VDC of external power to supply power to the board.



Power Indicator Light

- **Power Indicator Light:** The amber-colored LED indicator on the rear panel, shown highlighted above in red, is the power LED. It is lit whenever power is applied to the unit.



Chassis Grounding Lug

- **Chassis Grounding Lug:** The lug labeled with the chassis ground symbol is used to ground the chassis (optional).



Note

Connect this to earth ground during installation.

Product Specifications

Dimensions

The TS Enclosure 550 measures 2-3/8" x 5-3/8" x 7"

Cabling

- A mating power connector is supplied with the enclosure
- A null modem cable is available as CB7-05

Environmental

To ensure optimum product operation you must maintain the operational environmental specifications listed in the table below.

Environmental Specifications	Standard Temp Products	Extended Temp Products
Ambient Temperature	0 - 60° C The internal temperature must not exceed +70° C.	Allow for a much greater range. Note: Refer to your product manual, or contact Customer Service at Technologic Systems if the environmental temperature of the location is in doubt.
Relative Humidity	Not to exceed 90% noncondensing	Not to exceed 90% noncondensing.

Options and Other Features

- RS-485 is optional on COM3
- A wall-mounted power supply is available for this product

Limited Warranty

Technologic Systems warrants this product to be free of defects in material and workmanship for a period of one year from date of purchase.

Repairs

During this warranty period Technologic Systems will repair or replace the defective unit in accordance with the following process:

A copy of the original invoice must be included when returning the defective unit to Technologic Systems, Inc. at the address below.

Not Covered

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.



Important

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.

Out-of-Warranty Repairs

Repairs made after the expiration of the warranty period are subject to a repair charge and the cost of return shipping.

Please contact Technologic Systems to arrange for any repair service and to obtain repair charge cost information.

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Regulatory Notices

FCC Advisory Statement

! Warning

This equipment generates, uses, and can radiate radio frequency energy and if not installed and used properly (that is, in strict accordance with the manufacturer's instructions), may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class A computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the owner at his own expense will be required to correct the interference.

If this equipment does cause interference, which can be determined by turning the unit on and off, the user is encouraged to try the following measures to correct the interference:

1. Reorient the receiving antenna.
2. Relocate the unit with respect to the receiver.
3. Plug the unit into a different outlet so that the unit and receiver are on different branch circuits.
4. Ensure that mounting screws and connector attachment screws are tightly secured.
5. Ensure that good quality, shielded, and grounded cables are used for all data communications.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The following booklets prepared by the Federal Communications Commission (FCC) may also prove helpful:

- **How to Identify and Resolve Radio-TV Interference Problems** (Stock No. 004-000-000345-4)
- **Interface Handbook** (Stock No. 004-000-004505-7)

These booklets may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402

Appendix A: Enclosure Views and Diagrams

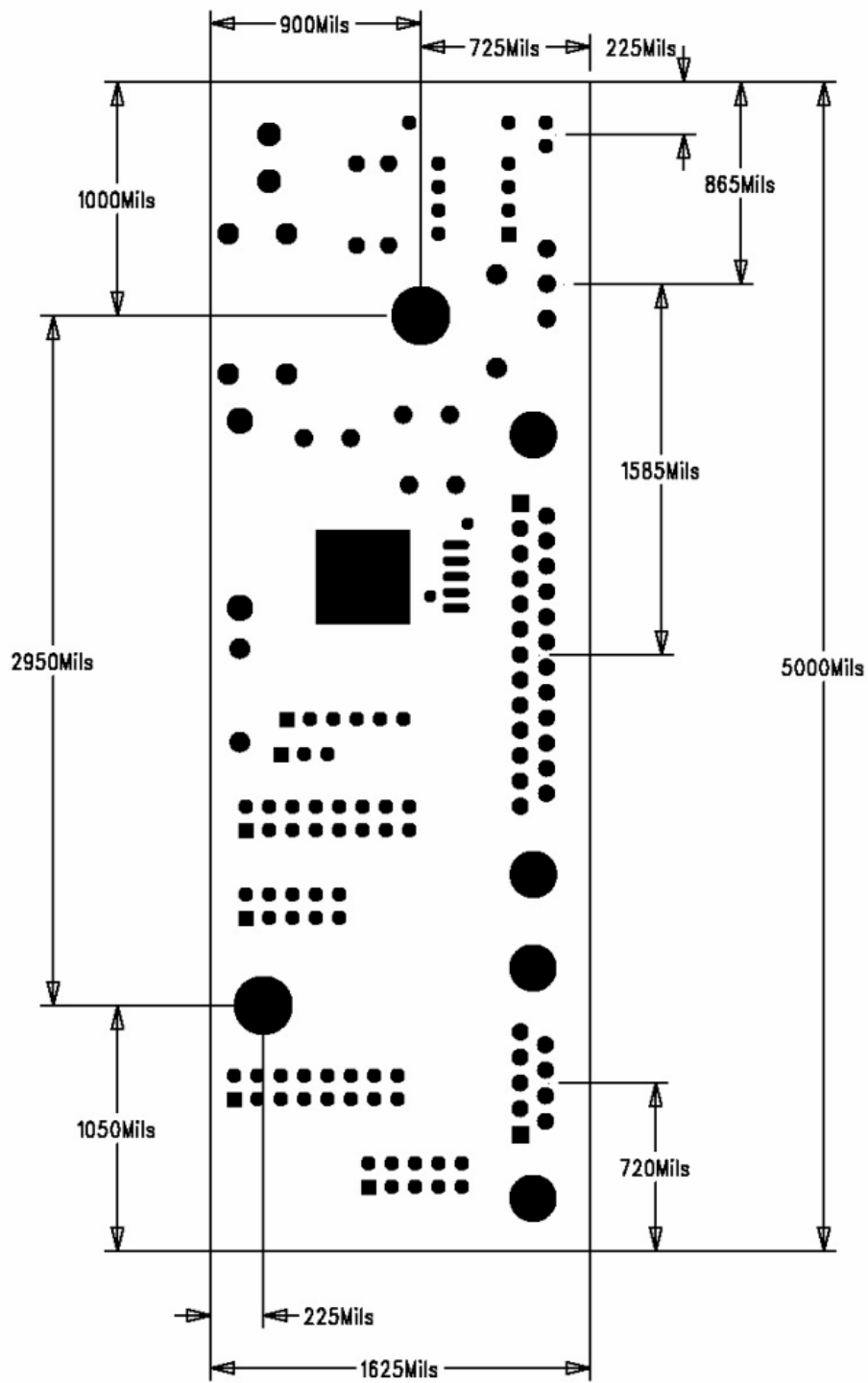


Enclosure TS-ENC550 Front-Top View



Enclosure TS-ENC550 Rear Panel View

TS-ENC550 Board



TS-ENC550 Board Diagram and Dimensions

Appendix B: User Manual Revisions

Date of Issue/Revision	Revision Number	Comments
January 2005	1.0	First release

Contact Information



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