



TS080 Mobile Case



**LIBERATE YOURSELF FROM THE COMPLICATIONS OF AN OUTDATED
INVENTORY MANAGEMENT SYSTEM.**

Table of Contents

Introduction	3
Precautions for Safe Operation.....	3
Cautions for Usage	5
Environmental Conditions.....	5
Receipt Process.....	7
Operating Instructions	8
Maintenance	10
Troubleshooting	10
Disposal	10
Specifications	11
Model Specifics	11
Battery EMC and Safety	11
Safety Check List	13

Introduction

Read this manual carefully before using the case and follow the instructions for safe operation.

Terso Solutions does not guarantee safe operation if the case is not used as intended as outlined in this manual.

Keep this manual in an easily accessible place to refer to as necessary.

The contents of this manual are subject to change without notice due to improvement in performance or functions.

Contact Terso Technical Support if a page of the manual is lost or page order is incorrect.

Contact Terso Technical Support if any point in this manual is unclear or if there are any inaccuracies.

Precautions for Safe Operation

It is imperative that the user complies with this manual as it contains important safety advice.

Items and procedures are described so that you can use this case correctly and safely. If the precautions advised are followed, this will prevent possible injury to the user and any other person.

Precautions are illustrated in the following way:



WARNING

Failure to observe WARNING signs could result in a hazard to personnel possibly resulting in serious injury or death



WARNING

Only use the system as specified in these instructions



CAUTION

Failure to observe CAUTION signs could result in injury to personnel and damage to the case and associated property

Symbol shows:



This symbol means an action is prohibited.

- This symbol means an instruction must be followed.

Be sure to keep this manual in a place accessible to users of this case.



Caution, read all accompanying documents before operating the device.



WARNING



To prevent damage, do not use the case when exposed to moisture, rain, snow, or severe weather. In these conditions current leakage or electric shock may result if opened case is exposed to the elements.



Never use the case in flammable or volatile location. This may cause explosion or fire.



Do not leave the device exposed to a heat source or high temperatures, such as direct sunlight.



Never use the case where acid or corrosive gases are present as current leakage or electrical shock may result due to corrosion.



WARNING

- **If this case is to be used for storing poisons, radioactive material or other harmful products, ensure that it is in a safe area.** Failure to do so may lead to an adverse effect on the health of personnel in the area and local environment. In this case, a request for repair or maintenance will necessitate a safety check sheet for maintenance personnel and that the case is clearly labeled to show such materials.



Never splash water directly into the case as this may cause short circuit.



Never disassemble, repair, or modify this case yourself. Any such work carried out by an unauthorized person may result in fire or injury due to a malfunction.

- **Remove the battery if there is something wrong with the case.** Continued abnormal operation may cause electric shock or fire.
- **The battery should be removed from the case** if it is to be stored for long periods of time.

CAUTION



Do not sit or place heavy objects on the case. This may cause injury by tipping or damage to the case.

- **Always remove the battery from the case prior to any repair or maintenance** of the case in order to prevent electric shock or injury.

Cautions for Usage

1. Always open and close the lid gently. Rough operation may lead to damage of the lid.
2. The case is water-resistant but direct contact with liquids should be avoided.

Environmental Conditions

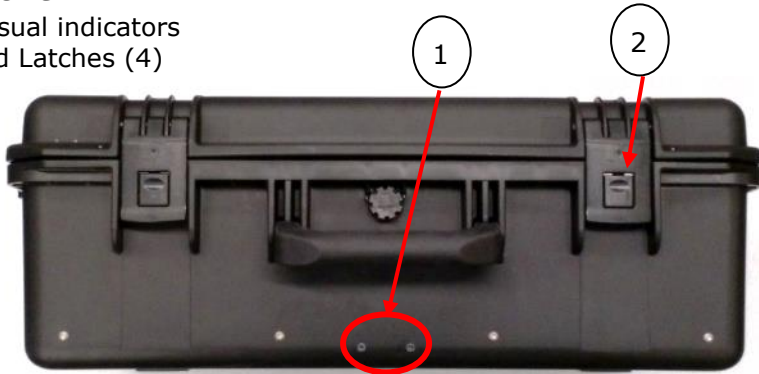
This equipment is designed to be safe under the following conditions at a minimum:

1. 2000m / 6550ft altitude
2. -30° C to 60° C / -22° F to 140° F, ≤80% relative humidity

Case Components

Case Front

1. Visual indicators
2. Lid Latches (4)



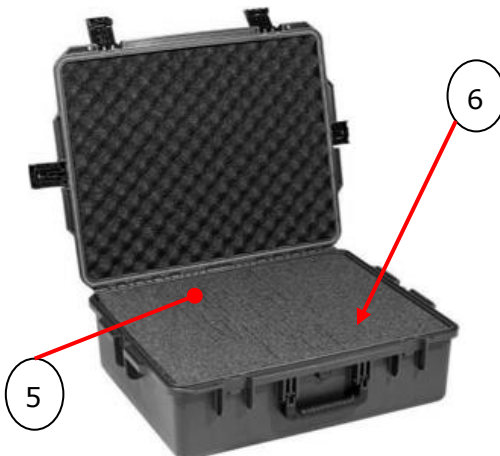
Case Back

3. Charger jack access
4. Charger connection



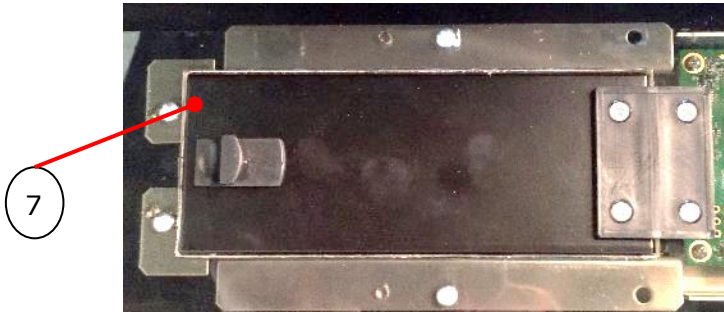
Case Interior

5. Battery access door (foam must be removed)
6. Internal compartments (user configurable)



Battery Door

7. Access door
8. Battery orientation



Receipt Process

Usage

The case should be used within the following guidelines for proper and maximum performance. Using the case in a manner other than as indicated may result in impaired equipment protection.

Inspection

Inspect the case for any damage that may have occurred during transit. If any damage is present, please contact Terso Technical Support at +1 (888) 376-0257 in the US or +49 621 8501 233 in Europe.

Unpacking

- **Remove any accessories from inside the case.** Items that may be included:
 - Battery
 - Battery charger
 - Barcode reader

Proper Handling

Take care to not drop the case from excessive height. Do not force the lid to close and latch; it should close freely. The products inside should not be taller than the case allows.

Operating Instructions

Setup

Battery installation/replacement

The case is initially shipped without the system battery installed. Once installed the battery may remain installed until a recharge is required.

Note: The battery should be fully charged prior to initial use.

Open the battery cover by sliding the latch to the right. Place the connector end of the battery into the compartment with the label face-up. Then press the other end down to seat the battery. Finally press the cover closed until it latches.

When a recharge is needed the external charger may be plugged in at any time. Allow up to 4 hours for a full charge. The case will remain fully operational during recharge.

Note: the case may also be used *without* a battery if the charger is continuously connected.

Optionally the battery may be removed and recharged external to the case. In this case a small internal battery will keep critical circuitry powered until a charged battery is installed. An optional desktop charger is required for external charging.

Basic User Process

To access the case inventory, first open the four push-pull latches and lift open the lid. Any desired products may be added or removed as needed. The case lid should be closed and re-latched when finished. The system will automatically turn on and begin an inventory process.

The updated inventory data will then be transmitted for processing. Typically, the inventory process will take about 2 minutes to complete. The case should remain closed while the inventory process is occurring but can be accessed if needed. The case will enter battery saving mode after a brief period of inactivity.

Visual Indicators

Indicators are only active when case is not in battery saving mode. After the case has been idle for several minutes, the LEDs will be disabled to conserve battery life.

LED Operation			
Left LED (Status)		Right LED (Battery)	
Color	Status	Color	Status
Green	Transmitting Data	Green	Good
Red	Communication Error	Yellow	Low
		Red	Critical

Both LEDs will be off while the case is in battery saving mode. Once the case lid has been closed, one or both LEDs may begin flashing. This indicates the case is exiting battery saving mode. Both LEDs will turn solid when the system is fully operational. Once the RFID scan is complete and the inventory is transmitted to Terso, the case will enter back into battery saving mode.

Log Entry Events

All case log entry events are automatically sent to Terso Solutions. Terso Solutions staff may contact the individual transporting the case to assist in correcting a potential problem.

Low Battery

An event will be generated and sent to Terso when the battery passes below the low battery threshold, which by default is 20%. The case will continue to function as normal when in this state.

Note: There is a fuel gauge on the battery for quick reference.

Critical Battery

An event will be generated and attempted to be sent to Terso when the battery passes below the critical battery threshold, which by default is 10%. While in this state, no RFID scans will be attempted. Additionally, if the battery is too low, it may not be able to send in this event. The battery should either be replaced or recharged to at least 50% before continued use.

Lid Open

If the lid is left open for longer than the lid open threshold time, an event will be queued. The case will remain operational in this condition but will no longer report real-time inventory.

System Failure

The case will automatically attempt to correct any hardware errors preventing itself from functioning correctly. In the event that a hardware component fails the case may discontinue inventory operations. Continued usage may result in incorrect inventory reports. Terso Solutions staff will be in contact with appropriate staff if this occurs.

Maintenance

There are no user-serviceable parts in the case. Please contact Terso Solutions for any service related inquiries.

Exterior Cleaning

Use a dry cloth to wipe off small amounts of dirt on the outside and inside of the case. Never pour water onto or into the case. Doing so can cause electric shock or a short circuit.

Do not clean the case with scrubbing brushes, acid, thinner, solvents, powdered soap, cleanser or hot water. Plastic and rubber parts can be easily damaged by these materials. Especially never use any volatile solvent to clean the plastic or rubber parts. When a neutral dishwashing detergent is used to clean the case, wipe it up thoroughly with a cloth soaked in clean water.

Troubleshooting

If the case does not appear to be operating correctly, check to ensure that the battery is sufficiently charged and that the lid closes properly. If further support is needed, contact Terso Technical Support at +1 (888) 376-0257 in the US or +49 621 8501 233 in Europe. Support can also be contacted by visiting <http://support.tersosolutions.com>.

Disposal

Terso Solutions will handle the disposal of the case and its components. Please contact Terso Solutions at +1 (888) 376-0257 in the US or +49 621 8501 233 in Europe to arrange for case disposal.

Specifications

	Attribute	Specification (Imperial)	Specification (Metric)
TS080	External Dimension	24.6 x 19.7 x 8.6 in	625 x 500 x 218 mm
	Internal Dimension	22 x 17 x 6 in	560 x 432 x 150 mm
	Volume	1.3 ft ³	37 L
	Case Weight (empty)	18 lbs.	8 kg
TS080-L	External Dimension	24.6 x 19.7 x 14.4 in	625 x 500 x 366 mm
	Internal Dimension	22 x 17 x 12.7 in	560 x 432 x 323 mm
	Volume	2.75 ft ³	77 L
	Case Weight (empty)	23.5 lbs.	11 kg
Operational Range		-20° F to 140° F	-30° C to 60° C
Maximum Weight (stocked)		40 lbs.	18 kg
Battery / Model		12VDC, 8.7Ah, Li-ion / Inspired Energy PN: VEF50US12	
Power Consumption		7W max	
System Charger		24V/2.7A ATS065T-P240	
Environmental Protection		IP52	
Communications		4G LTE with fallback support	
Case Color		Black (custom colors available)	
Maximum # of tagged items		100	
Organization		Pick 'n' Pluck foam or custom configuration	

Model Specifics

Model	Country	RFID Frequency
TS080-US	US	902-928 MHz
TS080-EU	EU	865-868 MHz
TS080-USL	US	902-928 MHz
TS080-EUL	EU	865-868 MHz

Battery EMC and Safety

The battery complies with the following regulations:

- EMC Directive 2004/108/EC
- Low Voltage Directive 2006/95/EC
- Battery Recycling Directive 2006/66/EC
- RoHS Directive 2002/95/EC

- CE [EN55022:2006 (ITE Class B) & EN55024:1998 (ITE)]
- FCC Part 15 Class B

It is the responsibility of the user to follow any, or all IATA or other shipping guidelines when shipping Li-ION batteries. Though widely used, most people are not aware that lithium batteries are dangerous goods and can pose a safety risk if not prepared in accordance with the transport regulations.

To help with their compliance requirements, IATA has developed guidance information for shippers, freight forwarders, ground handlers, airlines and passengers.

Please consult www.iata.org for more information.

Note: Design or specifications are subject to change without prior notice

Safety Check List



CAUTION

Please fill out this form before servicing and ensure that the case is properly marked with any applicable markings to denote any hazards inside.

Provide this form to the service engineer to keep for safety purposes.

Safety Check List

Serial Number: _____

Case Contents:

Risk of infection.....	Yes	No
Risk of toxicity	Yes	No
Risk of radioactive sources.....	Yes	No

Please list any potentially hazardous materials that have been stored in this case:

Contamination of the Case

No contamination	Yes	No
Decontaminated	Yes	No
Contaminated	Yes	No

Manufactured by:
Terso Solutions, Inc.
5540 Research Park Dr.
Fitchburg, WI 53711