

# System Safety Information

## Ericsson Products

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### SAFETY INSTRUCTION

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**Abstract**

This document presents system safety information that applies when working with Ericsson products.



# Contents

<b>1</b>	<b>Introduction</b>	<b>1</b>
1.1	Target Group	1
1.2	Educational Requirements	1
<b>2</b>	<b>Admonitions and Safety Symbols</b>	<b>3</b>
2.1	Special Hazard Symbols	3
<b>3</b>	<b>Batteries</b>	<b>5</b>
3.1	Overheated Batteries	5
3.2	Treating Hazardous Waste from Leaks	5
<b>4</b>	<b>Electrical Installation</b>	<b>7</b>
4.1	Safety Precautions for Working with Electrical Installations	7
<b>5</b>	<b>Electrostatic Discharge</b>	<b>8</b>
5.1	Handling Printed Board Assemblies and IC Components	9
5.2	Storing and Transporting Printed Board Assemblies and IC Components	9
<b>6</b>	<b>Equipment Handling</b>	<b>10</b>
<b>7</b>	<b>Ground Connection</b>	<b>11</b>
<b>8</b>	<b>Lightning Protection</b>	<b>12</b>
<b>9</b>	<b>System, Data, and Traffic Protection</b>	<b>13</b>





# 1 Introduction

This document contains the system used for describing system safety information for Ericsson products. The instructions included are mandatory to ensure product safety while working with Ericsson products.

Local regulations must be taken into consideration. The system safety information in this document is in addition to local regulations.

Reduce the risk of accidents by studying all the instructions carefully before starting work. If questions arise regarding the safety instructions, contact the supervisor or the local Ericsson company for clarification.

For information on personal health and safety for Ericsson products, refer to:



*Personal Health and Safety Information 124 46–2885*

## **Local Regulations**

Local regulations, essentially national regulations, override the information in this document. Where no applicable local regulations are available, follow the information in this document.

## **Product Exclusion Indication**

The information in this document covers system safety information for all Ericsson products. As the information does not apply to a specific product, you must be familiar with the potential hazards indicated on the product you are working with to understand which parts of the document apply to your product.

## 1.1 Target Group

The target group for this information is personnel who work with Ericsson products. All personnel who work with engineering, installation, test, and operation and maintenance of Ericsson products must be familiar with this information.

## 1.2 Educational Requirements

The product safety instructions in the relevant manuals or documents require that those working on Ericsson products have the necessary education, training and competence required to do the work correctly. For certain work, additional



or special training might be required, for example authorization for Authorized Service Providers (ASP). ASP is an Ericsson certification procedure.

A good understanding of technical English is required, or of the language into which the information is translated, to ensure that these instructions are understood and followed correctly.



## 2 Admonitions and Safety Symbols

This section describes the types of admonitions and safety symbols used in all documents for Ericsson products. The three system safety admonitions indicating risk to products are Do!, Stop!, and Attention!. When admonitions are encountered anywhere in a document, the information should be read and any instructions must be followed.

The symbols used to indicate product safety are as follows:



Figure 1 Do Safety Symbol



Figure 2 Stop Safety Symbol



Figure 3 Safety Hazard Symbol

The terms Do!, Stop!, and Attention! are defined below:

<b>Do!</b>	Indicates an action that must be performed to prevent equipment damage, software corruption, data loss or service interruption.
<b>Stop!</b>	Indicates that action must be avoided to protect equipment, software, data or service.
<b>Attention!</b>	<p>Indicates a hazard where incorrect handling could result in product or system failure, or loss of software or data.</p> <p>This level is not yet implemented. For the time being, Do! is used together with the safety hazard symbol, see Section 9 on page 13.</p>

A “**Note:**” is used to indicate important information that might otherwise be overlooked.

### 2.1 Special Hazard Symbols

This section shows the special hazard symbol used to indicate the risk of Electrostatic Discharge (ESD):



*Figure 4 Electrostatic Discharge Hazard Symbol*





## 3 Batteries

This section provides information on damage that can be caused to products containing batteries that are damaged.

### 3.1 Overheated Batteries



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#### Do!

Check batteries for signs of overheating. The casing surrounding overheated batteries can become soft and warped. Replace damaged batteries according to instructions.

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If you suspect that batteries are overheated, check the following:

- The internal temperature of the equipment is below +60°C (140°F).
- The batteries have not leaked.

#### Corrective Actions

To correct the problem:

1. Replace overheated batteries.
2. Treat leakages from batteries as described in Section 3.2 on page 5.

### 3.2 Treating Hazardous Waste from Leaks



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#### Do!

Check batteries for signs of acid leakage. Acid causes corrosion, which can seriously damage the product. Replace leaking batteries according to instructions.

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Ensure that sufficient absorbers or neutralizing materials are available on site to deal with cases of a spillage of hazardous substances. Spillage can occur



when installing, removing, replacing or servicing batteries. The absorbers and neutralizing materials must be suitable for the hazardous substances involved. Typical neutralizing agents are shown in Table 1.

*Table 1 Typical Neutralizers*

Typical Neutralizers	Chemical Compound
Baking soda (sodium bicarbonate)	$\text{NaHCO}_3$
Sal soda	$\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$
Soda ash	$\text{Na}_2\text{CO}_3$

**Note:** Absorbers and neutralizing products will vary, depending on the country and battery manufacturer. Consult the battery manufacturer for specific details of absorbers and neutralizing materials.



## 4 Electrical Installation

This section contains information that ensures that AC and DC powered products are not damaged because of improper installation.



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**Stop!**

Improper installation or modification of AC or DC powered equipment can seriously damage the equipment. Only a qualified and authorized electrician is permitted to install or modify electrical installations.

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**Stop!**

Applying AC or DC power to the cabinet before the installation is finished can damage units. Install all units in the cabinet before applying AC or DC power.

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### 4.1 Safety Precautions for Working with Electrical Installations

Observe the following precautions when working with electrical installations:

1. Ensure that approved circuit breakers or fuses are installed.
2. Ensure that the cables used have a sufficient cross-sectional area in accordance with product requirements and local laws and regulations.
3. Ensure that conductors are connected according to the connection diagram.
4. Label the cables correctly.
5. Check the installation work upon completion.

## 5 Electrostatic Discharge

This section contains information and instructions on Electrostatic Discharge (ESD) product safety. ESD is described below.

### ESD

A static electric charge accumulates when a body rubs against clothes, slides against a chair, when shoes rub on a floor, when plastics are handled, and so on. The electrostatic charge can remain for a some time and is discharged when the body comes into contact with conductive material.

Always use an ESD wrist strap when working with ESD sensitive components, even in equipment rooms fitted with ESD protective floor covering. Although ESD floor covering reduces the risk of ESD, if the wrong type of shoes are used, or if the person is already charged when they enter the room, the floor covering in itself does not protect from this.

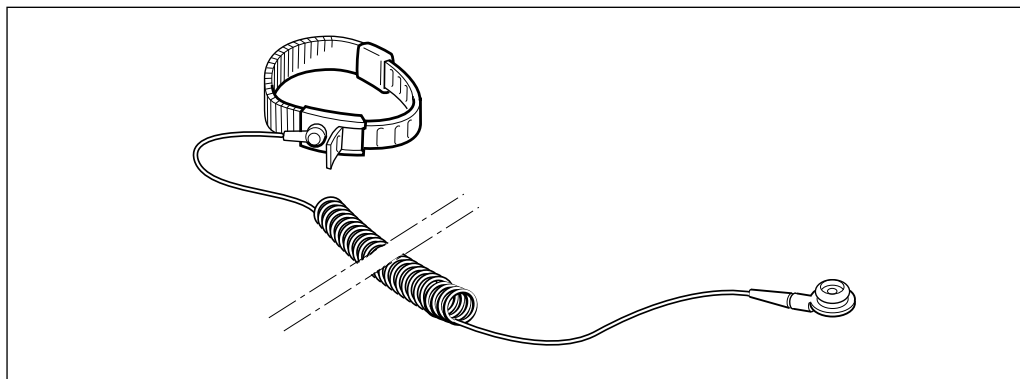


Figure 5 Standard ESD Wrist Strap

**Note:** Other types of ESD wrist strap are available than that shown in the figure above. For details, see the specific CPI for each product.

The ESD wrist strap contains a resistor with resistance greater than 1 M $\Omega$  in the cable to protect the user. The resistance value is low enough to discharge the electrostatic voltage. The ESD wrist strap must be connected to ground.

### Using ESD Wrist Strap

To use the ESD wrist strap:

1. Place the ESD wrist strap around your wrist. Ensure that the ESD wrist strap is in contact with the skin.
2. Connect the other end of the cable to the closest grounding (earthing) point on the equipment.



3. Always use the wrist strap when and where its use is required.

**Note:** Test the ESD wrist strap regularly.

## 5.1 Handling Printed Board Assemblies and IC Components

Treating all components as if they are ESD sensitive, whether they have IC components or not, reduces the risk of ESD and increases the operating time between failure.



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### Stop!

This product contains components sensitive to ESD. Use an approved ESD wrist strap, connected to the product grounding point, to avoid damaging these components.

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### Do!

Use an ESD wrist strap to avoid damage to components mounted on printed board assemblies.

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## 5.2 Storing and Transporting Printed Board Assemblies and IC Components

When storing or transporting printed board assemblies or IC components, ensure one of the following:

- The item is stored or transported in its original packaging, or in other ESD approved material.
- Use shielding bags or boxes with shielding properties made out of conductive material if the item is to be stored or transported outside an ESD Approved Area.



## 6 Equipment Handling

This section contains information on how to avoid damage to products when handling them.



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### **Do!**

Tip risk. This equipment has a high center of gravity without all units installed. Secure the equipment before opening the door.

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### **Stop!**

Never lift a unit by its cables as this can damage the equipment.

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## 7 Ground Connection

This section contains information on product grounding (earthing).

**Note:** The terms “grounding” and “earthing” are synonyms.



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### Do!

Products not connected to ground risk damage from overvoltage or overcurrent.  
Always ground products according to instructions.

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## 8 Lightning Protection

This section contains information on protecting products from damage from lightning where a lightning protection system is available.



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### **Do!**

Connect products to the lightning protection system to protect the equipment from transient surges.

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## 9 System, Data, and Traffic Protection

This section contains information on protecting a product or system from failure because of incorrect handling of the software, or when software configuration or settings can severely impair system performance.



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**Do!**

Carefully read the following information before proceeding.

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**Do!**

Attention: Risk of system malfunction or traffic disturbance.

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**Do!**

Attention: Risk of data loss or data corruption.

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