



UR Family

Recycling and Disposal

Instructions



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This document outlines how to recycle and dispose of a GE Universal Relay (UR).

Introduction

GE Grid Solutions is committed to reduce waste, by optimizing its designs for recycling and reuse of a product at the end of its life. This document outlines end-of-life treatment principles, dismantling, and recycling routes recommended for the UR family of products. In addition to or in lieu of the information presented here, dispose of the products according to the legislation of the applicable country.

Directives

WEEE directive



The Waste Electrical and Electronic Equipment European (WEEE) directive 2012/19/EU was first introduced in 2003 with the aim of reducing the amount of electrical and electronic equipment as unsorted municipal waste and to facilitate separate collection within Europe. As a producer of such equipment, GE Grid Solutions falls into the scope of this directive.

IEC recyclability and recovery

The International Electrotechnical Commission (IEC) technical report (TR) 62635:2012 titled “Guidelines for end-of-life information provided by manufacturers and recyclers and for recyclability rate calculation of electrical and electronic equipment” applies.

Principles

Guiding principles include the following:

- Avoid incineration and disposal to water courses

- Dispose of the equipment in a safe manner
- Remove batteries from any equipment before disposal, taking precautions to avoid short circuits

Before decommissioning:

- Completely isolate the equipment power supplies (both poles of any DC supply)
- To avoid electric shock, discharge the capacitors using the external terminals before decommissioning. The auxiliary supply input can have capacitors in parallel, which inadvertently can still be charged.
- Do not withdraw any modules or extender cards from the device while it is energized
- Take care when removing modules from the device, as internal modules and assemblies can have sharp edges

Disassemble

See a UR instruction manual to uninstall software and clear files and data.

The C60 product in the UR family of products is used in the example outlined here.

The steps to disassemble a UR are as follows:

- Separate the front panel, modules, and chassis
- Disassemble the front panel
- Disassemble the modules
- Disassemble the chassis



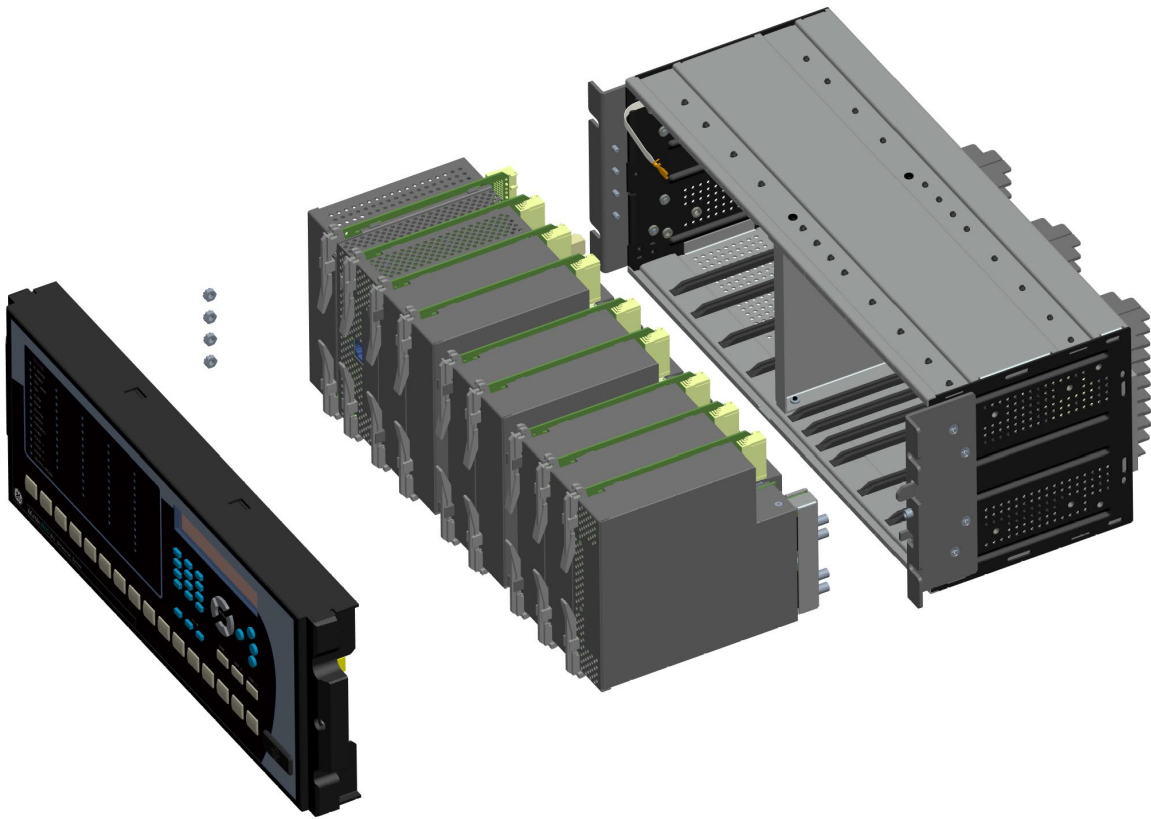
WARNING Ensure that the unit is disconnected from power before handling, else death or serious injury can result.

Separate front panel, modules, chassis

Unscrew and separate the front panel, pull-out modules, and chassis as follows.

1. With power to the unit disconnected, at the back of the unit, disconnect all wires.
2. On the front panel, unscrew the screw on the right, open the front panel, unplug the two wires connecting the panel and UR, unscrew the screws on the left side, and remove the front panel.
3. For each module inside the chassis, pull out the two clips, and slide the module out. Set aside the power supply module in the first slot, labelled A.

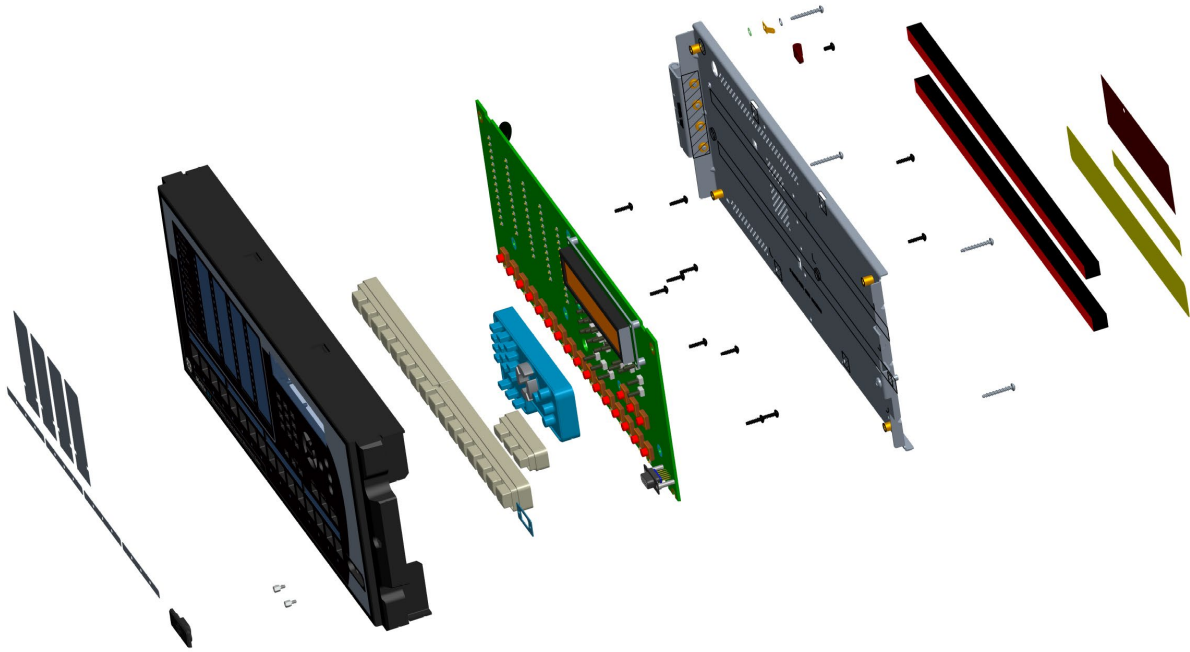
Figure 1: Separate front panel, modules, chassis



Disassemble front panel

Remove all parts.

Figure 2: Disassemble front panel



Disassemble modules

Remove all parts. The next figure shows how to remove the battery from the power supply module that was in the first slot of the chassis. See a UR instruction manual for photos of the battery location and, for the European Union, how to dispose of the battery as per the WEEE directive. Then, Figure 4 shows how to take apart each digital signal processor (DSP) module.

Figure 3: Remove battery from power supply module

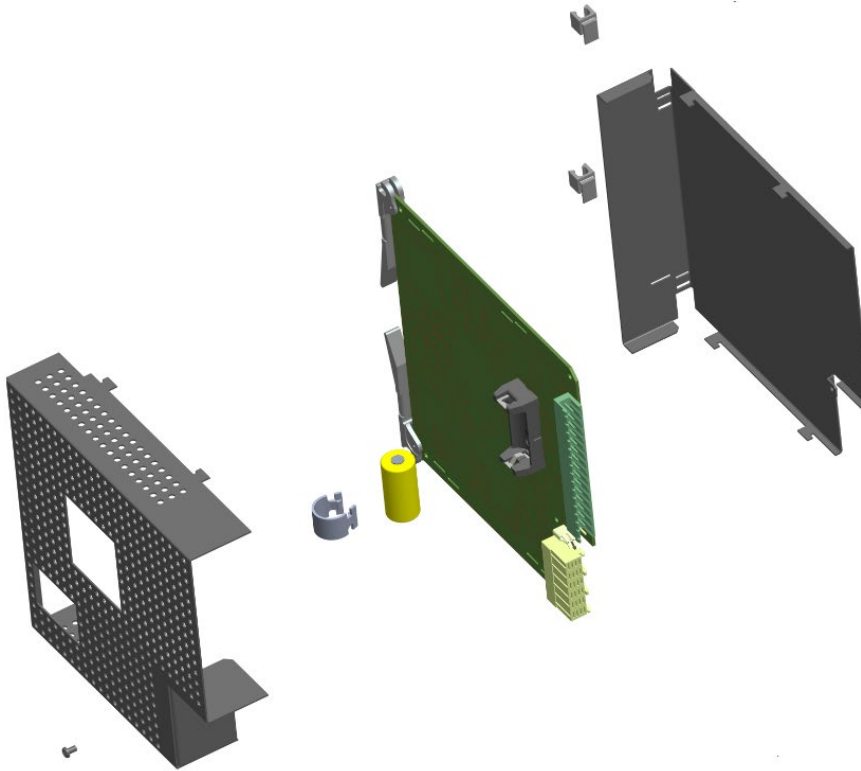
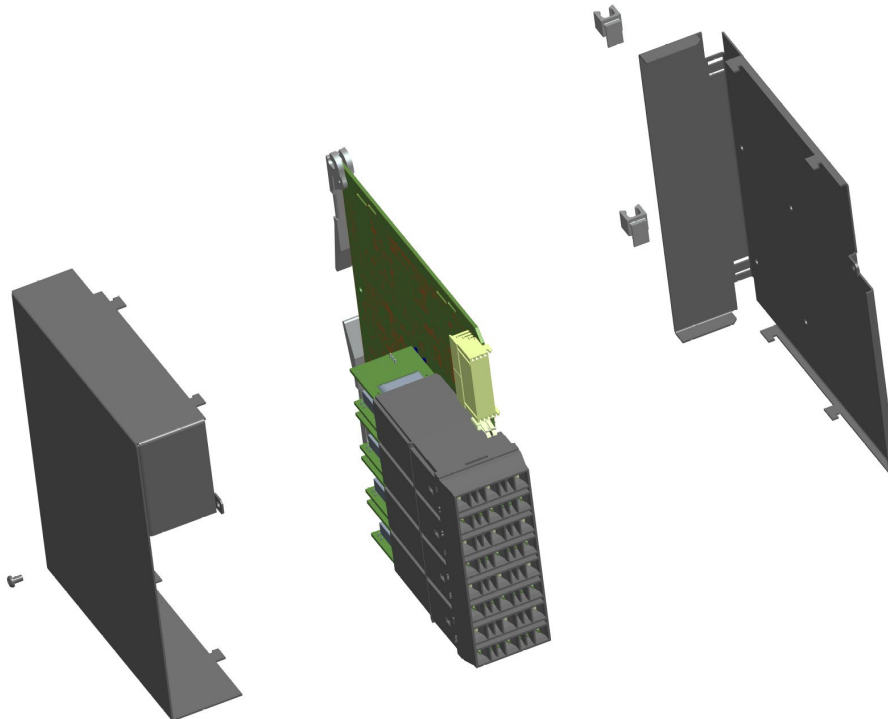


Figure 4: Disassemble DSP module

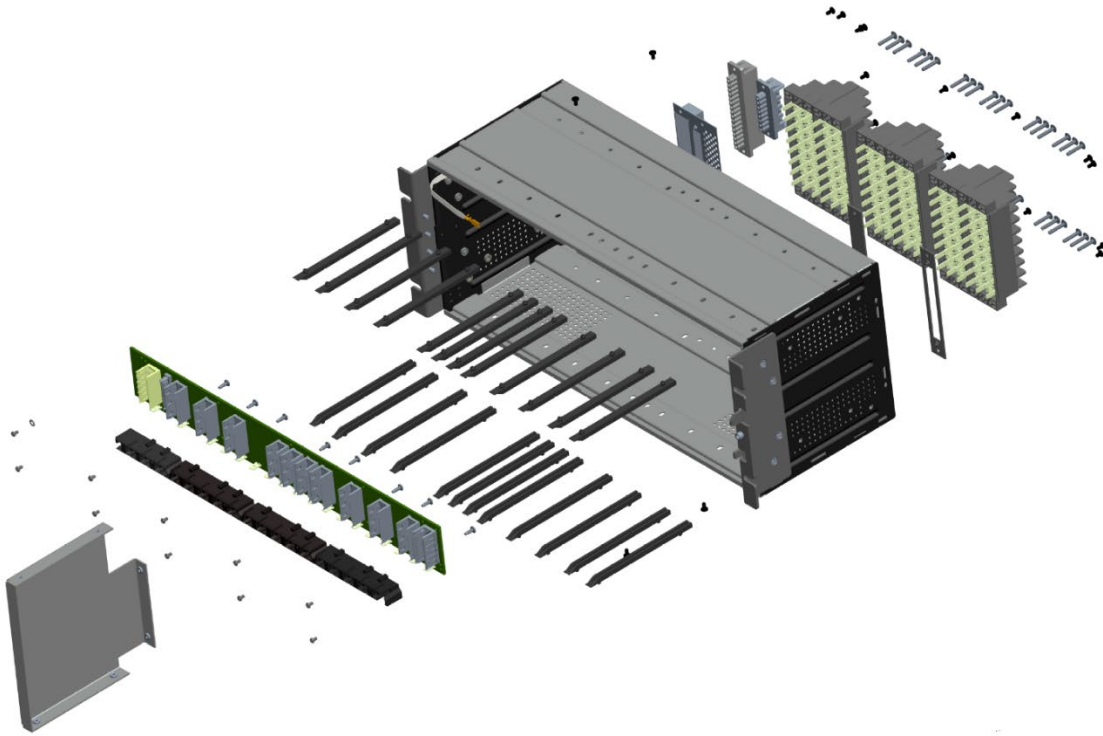


Disassemble chassis

Remove the fixing screws and spacers to remove the terminal connectors.

If there is a reinforcing bracket in the middle of the case, remove the bracket first to allow removal of the bus board.

Figure 5: Disassemble chassis

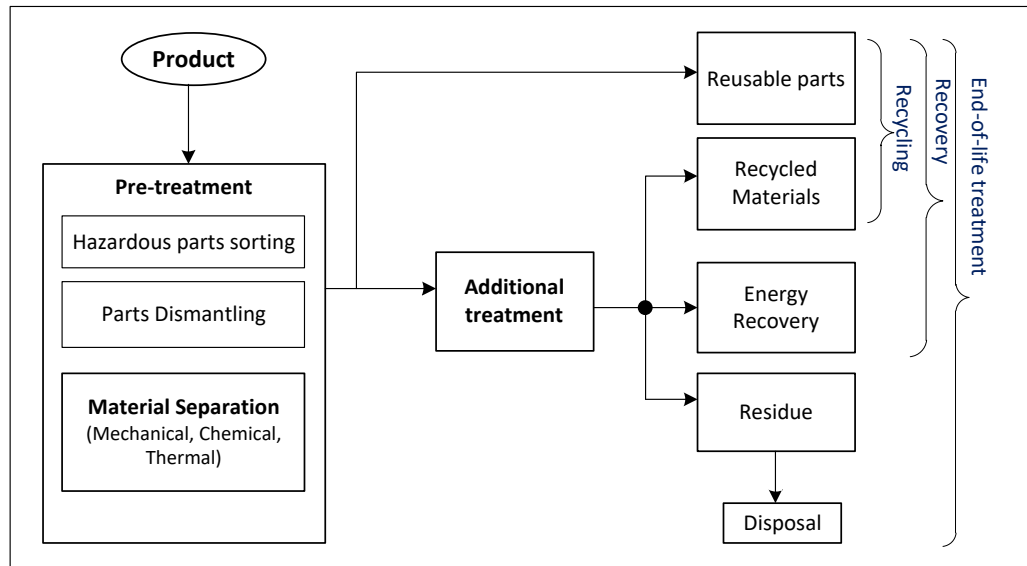


Recycle, disposal

Recycle as many of the parts as possible, such as the battery and metal screws and plats. Disposal applies after all parts have been handed over to a facility for product and part reuse, material recycling, energy recovery, and residue disposal.

The figure shows the life cycle. Additional Treatment shown in the middle can mean magnetic current and eddy current separation where non-ferrous metals are separated from ferrous metals.

Figure 6: End-of-life product cycle



Source: based on IEC TR 62635:2012

Material content

The table shows the composition of a C60. While other products in the UR family have different modules, terminals, and front panels, their structure is similar to the C60.

Table 1: UR material composition

Category	Composition %
Steel alloys	55.32
Copper alloys	2.76
Plastics	11.61
Electronics	29.89
Other	0.43

Recycling and recovery

The table shows how much of a UR can be recycled and recovered, as per IEC TR 62635:2012.

Recyclability refers to reuse and recycling.

Recoverability refers to reuse, recycling, and energy recovery.

Table 1: UR recyclability and recoverability by material type

Material	Recyclability rate %	Recoverability rate %
Printed wiring board (PWB) with components - rich	18	61
Steel	95	95
Copper	95	95
Other metals	70	70
Nylon	94	95

Material	Recyclability rate %	Recoverability rate %
Polycarbonate (PC) with or without additive	0	5

The next table shows the rates for the C60.

Table 2: C60 recyclability and recoverability

Product	Recyclability rate %	Recoverability rate %
C60	60.55	73.98

For further assistance

For product support, contact the information and call center as follows:

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