# Recycling instructions and environmental information
# ACS160 product family



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# List of related manuals

| Drive hardware manuals and guides | Code (English) |
|---|---|
| *Recycling instructions and environmental information ACS160 product family* | *3BFE64478974* |
| *ACS160 Frequency Converter User's Manual* | *3BFE64364120* |

You can find manuals and other product documents in PDF format on the Internet. See section *Document library on the Internet* on the inside of the back cover. For manuals not available in the Document library, contact your local ABB representative.

# Recycling instructions and environmental information
## ACS160 product family

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# Table of contents

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# Introduction to the manual

## What this chapter contains

This chapter describes the contents of the manual. It also contains information on the compatibility and intended audience.

## Applicability

This document covers the environmental information of the following products:
- ACS160 frequency converter
- accessories and option modules.

## Target audience

This document is intended for ABB customers and for professional recyclers.

## Contents of the manual

The document contains information for treatment facilities in accordance with the EU directive on waste electrical and electronic equipment (WEEE).

This manual contains the following chapters:
- *Product materials*
- *Manufacturing and use*
- *Product disposal*

The WEEE directive is implemented through national regulations and therefore requirements vary in each EU member state.

Drives are always parts of other machines or equipment and they are covered by the WEEE directive when the end product is covered. Inclusion or exclusion depends on the application of the drive.

The WEEE directive does not apply to drives which are used in large-scale fixed installations, large-scale stationary industrial tools, means of transport for persons and goods, or non-road mobile machinery made available exclusively for professional use.

We recommend to contact local environmental authorities for up-to-date information about proper product material recovery or other treatment.

# Frame size

This manual covers all different frame sizes of the product family. The frame size is marked on the type designation label of the drive. The frame size is also shown in the rating tables for each drive type. The rating tables are in the drive user's manual.

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# Product materials

## Contents of this chapter

This chapter describes the main components and product materials of the ACS160 frequency converter.

ACS160 is available as a motor-mounted version and as a wall-mounted version.

# Structure of ACS160

The figure below shows the main components of the wall-mounted version.

If the ACS160 frequency converter is mounted on the motor, the unit does not contain components 10 to 15.
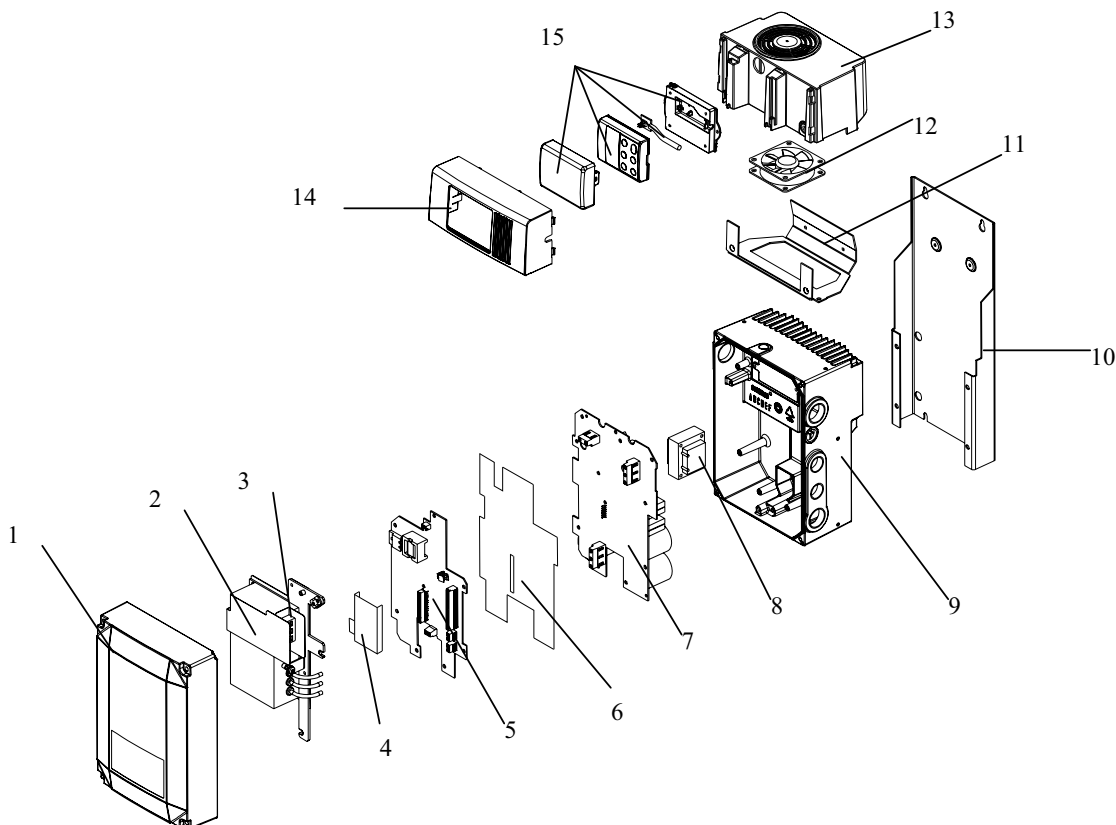


| Part No. | Name | Qty | Materials | Weight / g |
|---|---|---|---|---|
| 1 | Cover | 1 | Aluminum alloy | 1000 |
| 2 | Insulation plate | 1 | Lexan® FR700 | 5 |
| 3 | Filter | 1 | Various | 1000 |
| 4 | Insulation plate | 1 | Lexan® FR700 | 5 |
| 5 | Printed circuit board | 1 | Various | 150 |
| 6 | Insulation plate | 1 | Lexan® FR700 | 15 |
| 7 | Printed circuit board | 1 | Various | 650 |
| 8 | Choke | 1 | Various | 500 |
| 9 | Frame | 1 | Aluminum alloy | 2200 |
| 10* | Wall mounting plate | 1 | Zinc-coated steel | 1400 |
| 11* | Support plate | 1 | Zinc-coated steel | 200 |
| 12* | Fan | 1 | Various | 40 |
| 13* | Fan cover | 1 | Various | 50 |
| 14* | Panel cover | 1 | ABS-PC | 30 |
| 15* | Control panel in IP65 covers | 1 | Various** | 70 |
| | | | **Total weight** | **7315 g** |

\* Parts 10 to 15 are included only in the wall-mounted version of ACS160.

\*\* Structure and materials of the control panel in IP65 cover are listed in section *Accessories and option modules*. When the control panel is installed in a wall-mounted ACS160 module, the cable is shorter than in an accessory part.

**Note:** Parts 7 to 9 are in a resin casting.

Weights of the ACS160 module parts are calculated based on a R2 frame size unit with an RFI filter. This is the heaviest module of the ACS160 product family.

The following table gives different weights of aluminum cover and frame parts and also the maximum total weight of the unit version. Also, most of the weights of other parts vary depending on the module type.

| ACS160 module type | Cover weight / g | Frame weight / g | Total weight of the wall-mounted unit (includes resin) | Total weight of the motor-mounted unit (includes resin) |
|---|---|---|---|---|
| R1 without RFI filter | 350 | 1900 | 5100 | 3900 |
| R2 without RFI filter | 400 | 2200 | 5800 | 4600 |
| R1 with RFI filter | 850 | 1900 | 6700 | 5500 |
| R2 with RFI filter | 1000 | 2200 | 7500 | 6300 |

# Accessories and option modules

## ■ IP65 control panel kit
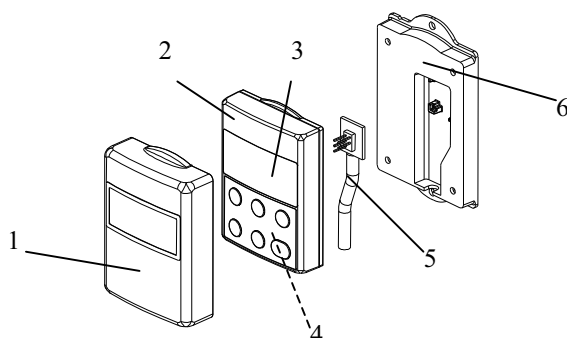


| Part No. | Name | Qty | Materials | Weight / g |
|---|---|---|---|---|
| 1 | IP65 cover | 1 | Silicon | 10 |
| 2 | Panel cover | 1 | PC+ABS = (Bayblend®) | 20 |
| 3 | LCD display | 1 | Various | 1 |
| 4 | Printed circuit board | 1 | Various | 15 |
| 5 | Cable | 1 | Various | 100 |
| 6 | Backplate | 1 | PA+GF | 14 |
| | | | Total weight | 160 g |

# ■ Communication gateway
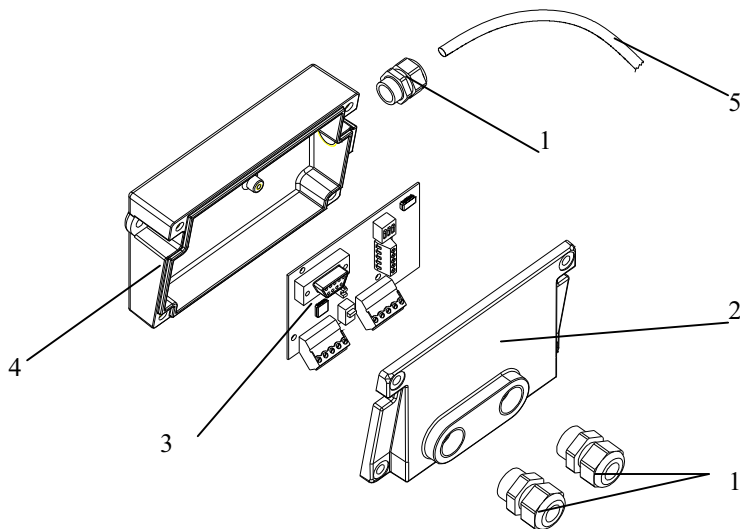


| Part No. | Name | Qty | Materials | Weight / g |
|---|---|---|---|---|
| 1 | Cable gland | 3 | PA (O-ring NBR) | 20 |
| 2 | Cover | 1 | Aluminum | 100 |
| 3 | Printed circuit board | 1 | Various | 20 |
| 4 | Frame | 1 | Aluminum | 150 |
| 5 | Cable | 1 | Various | 20 |
| | | | Total weight | 350 g |

# ■ Motor mounting kit
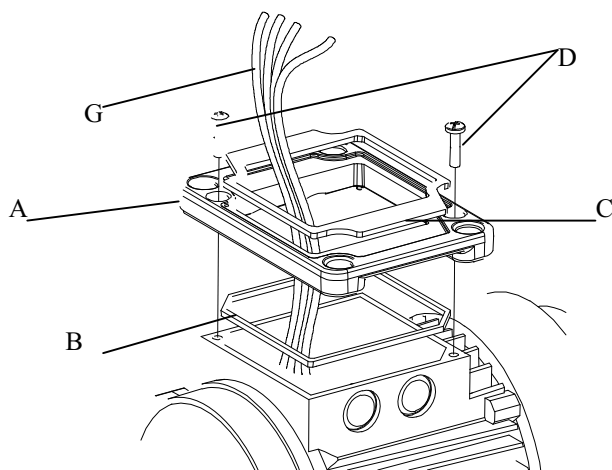


| Part | Name | Qty | Materials | Weight / g |
|---|---|---|---|---|
| A | Adapter | 1 | Aluminum | 200 |
| B | Gasket | 1 | NBR | 5 |
| C | Gasket | 1 | NBR | 11 |
| D | Screw | 2 | Zinc-coated steel | 5 |
| E | Bolt (not shown in figure) | 4 | Zinc-coated steel | 5 |
| F | Washer (not shown in figure) | 4 | Steel | 1 |
| G | Motor connection wires | 4 | Various | 5 |
| | | | Total weight | 270 g |

Motor mounting kit information is given for type CMK-A-80-100. Design of the other motor mounting kits may differ from this in some parts, but the basic structure and materials are the same.

## ■ Brake resistor
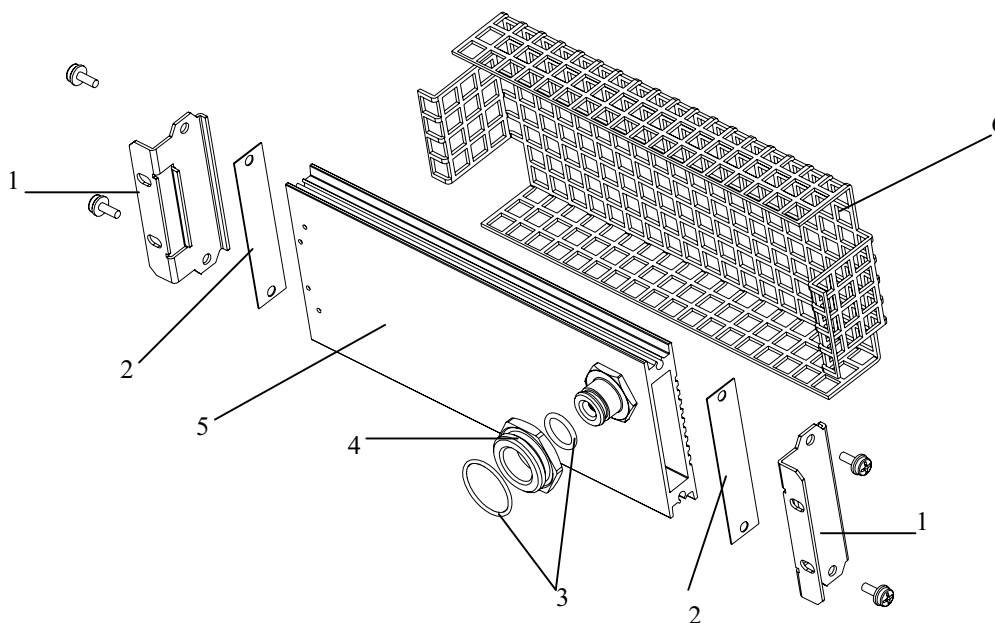


| Part No. | Name | Qty | Materials | Weight / g |
|---|---|---|---|---|
| 1 | Mounting bracket | 2 | Stainless steel | 10 |
| 2 | Gasket | 2 | Gore-tex® | 4 |
| 3 | O-ring | 2 | Viton® | 1 |
| 4 | Bushing | 1 | Aluminum | 5 |
| 5 | Resistor | 1 | Various (filled with quarts sand) | 515 |
| 6 | Shielding frame | 1 | Zinc-coated steel | 100 |
| | | | Total weight | 650 g |

Brake resistor weights are for the brake resistor of type CA-BRK-R2 which can be used with ACS160 units of frame size R2. This is the heaviest brake resistor option of the ACS160 product family.

The following table gives different weights of the resistor part and also the maximum total weight of the brake resistor version. Weights of other parts do not considerably vary depending on the brake resistor type.

| Brake resistor type | Resistor weight / g | Total weight of brake resistor / g |
|---|---|---|
| CA-BRK-R1-1 | 465 | 600 |
| CA-BRK-R1-2 | 465 | 600 |
| CA-BRK-R2 | 515 | 750 |

All screws in ACS160: carbon steel, Pozidrives or Torx recess, zinc plating

All plastic parts (weight > 25 g) are marked according to ISO 1043 and DIN 54840.

| Plastics and rubbers: | |
|---|---|
| ABS | Acrylonitrile-butadiene-styrene |
| GF | Glass fiber |
| NBR | Nitrile rubber |
| PA | Polyamide |
| PC | Polycarbonate |
| PVC | Polyvinyl chloride |

# Package

The product package is made of corrugated board.

You can recycle all materials used in the package.

To avoid pollution caused by unnecessary transportation, the factory does not take back used packages. Contact your local ABB office for package recycling instructions if needed.

ABB recommends package recycling as it preserves raw materials and reduces waste being landfilled.

# Product manuals and sales brochures

To save natural resources and reduce paper waste, all product manuals are available in ABB Library and on the Internet.

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# Manufacturing and use

## Manufacturing

ABB Oy (Finland) has a company-wide integrated quality, environmental and occupational health & safety management system. The system is certified in accordance with requirements of the international standards ISO 9001:2015 and ISO 14001:2015.

The Integrated Management System applies to all units of the company.

## Use

The use of a drive has several positive environmental impacts, such as:

- Substantial energy savings and reduced operating costs can be reached using a drive. Rather than have an electric motor running continuously at full speed, an electric drive allows the user to slow down or speed up the motor.

- Process control is optimized. An electric drive enables a process to achieve the right speed and torque while maintaining its accuracy.

- Need for maintenance is reduced. Being able to vary the speed and torque of an electric motor means there is less wear and tear on the motor and the driven machine.

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# Product disposal

## Contents of this chapter

This chapter contains product disposal instructions.

## Disposal

The main parts of the drive can be recycled to preserve natural resources and energy. Product parts and materials should be dismantled and separated.

Generally all metals, such as steel, aluminum, copper and its alloys, and precious metals can be recycled as material. Plastics, rubber, cardboard and other packaging material can be used in energy recovery.

Printed circuit boards and DC capacitors need selective treatment according to IEC 62635 guidelines.

To aid recycling, plastic parts are marked with an appropriate identification code.

Contact your local ABB distributor for further information on environmental aspects. End of life treatment must follow international and national regulations.

## Dismantling

You can dismantle the drive manually or in a shredding machine. The chapter is divided in two sections on basis of the dismantling method.

### Manual dismantling

Resin is used for fixing some components of the ACS160 module. Therefore complete dismantling manually is difficult.

Parts 7 to 9 are in a resin casting. The resin casting is a mixture of Resin (Polyol XB 5631, supplier Ciba Specialty Chemicals) and Resin hardener (Isocyanate XB 5610, supplier Ciba Specialty Chemicals).

You can recycle metal parts (iron and aluminum) and most of the other materials according to local regulations.

## ■ Mechanical shredding

In this method, a whole product is mechanically shredded into small pieces and materials are sorted using dedicated sorting processes.

Remove the harmful material before shredding the drive in the shredding machine. See subsection *ABB list of prohibited and restricted substances*.

# ABB list of prohibited and restricted substances

The purpose of this list is to comply with legislation to avoid chemical substances that may present hazards to the environment or the health.

This document provides information about "Prohibited substances", substances that must not be used, and "Restricted substances", substances whose use should be limited within ABB.

Definitions and regulations of hazardous materials differ from country to country and are likely to change when knowledge of materials increases. The materials used in the product are materials typically used in electric and electronic devices.

## ■ Reference list

1.  Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS II).

2.  Regulation No 1907/2006/EC of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH):
    *   Annex XIV: List of substances subject to authorization
    *   Annex XVII: Restrictions on use of substances in articles
    *   SVHC: Candidate list of substances of very high concern for authorization.

3.  Directive 2012/19/EU of the European Parliament and of the Council of 4 July 2012 on waste electrical and electronic equipment (WEEE).

# Recycling information in accordance with the WEEE

The product is marked with the wheelie bin symbol. It indicates that at the end of life the product should enter the recycling system.

You should dispose of it separately at an appropriate collection point and not place it in the normal waste stream.

The figure below shows the wheelie bin symbol indicating separate collection for electrical and electronic equipment (EEE).
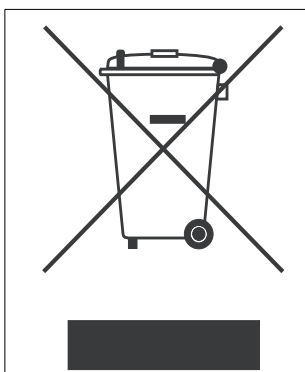


The horizontal bar underneath the crossed-out wheelie bin indicates that the equipment has been manufactured after the Directive came into force in 2005.

The wheelie bin symbol is added to the type designation label of the product since 2017.

The figure below shows an example.

# A recycling example

This example complies with typical national regulations valid at the time of publishing this manual.

| Materials | Recycling method |
| --- | --- |
| Steel | Recycled as material |
| Aluminum | Recycled as material |
| Plastics | Energy recovery (incineration) |
| Printed circuit boards | Sent to hazardous material treatment |
| Electrolytic capacitors | Sent to hazardous material treatment |
| Cables | Recycled as material |
| Ceramics | Landfilled |
| Other materials | Energy recovery (incineration) |

# Further information

## Product and service inquiries

Address any inquiries about the product to your local ABB representative, quoting the type designation and serial number of the unit in question. A listing of ABB sales, support and service contacts can be found by navigating to www.abb.com/searchchannels.

## Product training

For information on ABB product training, navigate to new.abb.com/service/training.

## Providing feedback on ABB manuals

Your comments on our manuals are welcome. Navigate to new.abb.com/drives/manuals-feedback-form.

## Document library on the Internet

You can find manuals and other product documents in PDF format on the Internet at www.abb.com/drives/documents.

## ABB environment policy

You can find ABB's environmental policy on the Internet at new.abb.com/sustainability/environment-policy.

## ABB group sustainability objectives

For information on ABB group sustainability objectives, navigate to new.abb.com/sustainability/creating-value/objectives

## ABB list of prohibited and restricted substances

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