ABB INDUSTRIAL DRIVES

DCT880 Thyristor power controller
16 A to 960 A
Recycling instructions and environmental information
LIST OF RELATED MANUALS

<table>
<thead>
<tr>
<th>Drive hardware manuals and guides</th>
<th>Code (English)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DCT880 Recycling instructions and environmental information</td>
<td>3ADW000529</td>
</tr>
<tr>
<td>DCT880 Manual</td>
<td>3ADW000431</td>
</tr>
</tbody>
</table>

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.
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Release: May 2018

Document number: 3ADW000529R0101
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1. INTRODUCTION TO THE MANUAL

1.1 What this chapter contains

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

1.2 Applicability

This document covers the environmental information of the following products: DCT880 Thyristor power controllers with options.

1.3 Target audience

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

1.4 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.

Power controllers 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 Power controller.

The WEEE directive does not apply to Power controllers 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 national recycling requirements.

1.5 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 power controller. The frame size is also shown in the rating tables for each power controller type. The rating tables are in the power controller user’s manual.

1.6 Disclaimer

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3ADW000529R0101 DCT880 Recycling instructions e a
2. PRODUCT MATERIALS

2.1 Contents of this chapter

This chapter describes the main components and product materials of the DCT880 Thyristor power controllers.

2.2 Materials for frames T1 to T5

<table>
<thead>
<tr>
<th>Part</th>
<th>Category</th>
<th>Qty</th>
<th>Materials</th>
<th>Weight (g)</th>
<th>Weight (g)</th>
<th>Weight (g)</th>
<th>Weight (g)</th>
<th>Weight (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Housing</td>
<td>2</td>
<td>hot-dip galvanized Fe</td>
<td>3950</td>
<td>4400</td>
<td>6010</td>
<td>9000</td>
<td>(3) / 11400</td>
</tr>
<tr>
<td>2</td>
<td>Resistor</td>
<td>1</td>
<td>Various materials</td>
<td>200</td>
<td>200</td>
<td>200</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td>3</td>
<td>Sheet metal part</td>
<td>1</td>
<td>hot-dip galvanized Fe</td>
<td>570 / -</td>
<td>850 / -</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>4</td>
<td>Heatsink</td>
<td>2</td>
<td>Aluminum AlMgSi</td>
<td>1590 / 2390</td>
<td>2500 / 4500</td>
<td>6930</td>
<td>9900</td>
<td>11400</td>
</tr>
<tr>
<td>5</td>
<td>Busbars</td>
<td>W02</td>
<td>Zn-plated CU</td>
<td>140 / 240</td>
<td>270 / 430</td>
<td>1290</td>
<td>1800</td>
<td>7850</td>
</tr>
<tr>
<td></td>
<td>W03</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td>2180</td>
<td>3050</td>
<td>7850</td>
</tr>
<tr>
<td>6</td>
<td>Current transformer</td>
<td>2</td>
<td>Various materials, plastic</td>
<td>540</td>
<td>-</td>
<td>600</td>
<td>600</td>
<td>600</td>
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<tr>
<td></td>
<td>3</td>
<td></td>
<td>parts</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Fan</td>
<td>1</td>
<td>Various materials, plastic</td>
<td>400</td>
<td>400</td>
<td>400</td>
<td>2000</td>
<td>3000</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td></td>
<td>parts</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>800</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>8</td>
<td>Plastic parts</td>
<td>6</td>
<td>PC / PA66 / ABS / GPO3</td>
<td>770</td>
<td>725</td>
<td>835</td>
<td>1280</td>
<td>1430</td>
</tr>
<tr>
<td>9</td>
<td>Semiconductor</td>
<td>W02</td>
<td>Cu, AL oxide, Sn, silicone gel,</td>
<td>140</td>
<td>330</td>
<td>1500</td>
<td>2800</td>
<td>(3) / 4200</td>
</tr>
<tr>
<td></td>
<td>W03</td>
<td>3</td>
<td>PBT, GF</td>
<td>210</td>
<td>495</td>
<td>2250</td>
<td>4200</td>
<td>(6) / 8400</td>
</tr>
<tr>
<td>10</td>
<td>Printed circuit boards</td>
<td>2</td>
<td>Various materials, electronic</td>
<td>840</td>
<td>840</td>
<td>840</td>
<td>840</td>
<td>840</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>components</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Control panel</td>
<td>1</td>
<td>See subsection materials of the</td>
<td>130</td>
<td>130</td>
<td>130</td>
<td>130</td>
<td>130</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control panel on page 8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control unit on page 7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Cables / Wires</td>
<td>N/A</td>
<td>PVC, Cu, GF, Sn, Au, Ni, phos-</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>phor bronze, thermoplastic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>polyester, glass filled nylon</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

DCT880 frames T1 to T4 product materials
2.3 Materials of the control unit

The main components are shown in the figure below.

<table>
<thead>
<tr>
<th>Part</th>
<th>Category</th>
<th>Qty</th>
<th>Materials</th>
<th>Weight (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Housing parts</td>
<td>1</td>
<td>Plastic: ABS PC</td>
<td>190</td>
</tr>
<tr>
<td>2</td>
<td>Sheet metal parts</td>
<td>1</td>
<td>Zn-plated Fe</td>
<td>1160</td>
</tr>
<tr>
<td>3</td>
<td>Printed circuit board</td>
<td>1</td>
<td>Various material, electronic components.</td>
<td>500</td>
</tr>
<tr>
<td>4</td>
<td>Connectors</td>
<td>13</td>
<td>PA plastic, Fe, Sn, Cu</td>
<td>120</td>
</tr>
<tr>
<td>5</td>
<td>Memory unit</td>
<td>1</td>
<td>Plastic: ABS, electronic components.</td>
<td>10</td>
</tr>
</tbody>
</table>
2.4 Materials of the control panel

The main components are shown in the figure below.

<table>
<thead>
<tr>
<th>Part</th>
<th>Category</th>
<th>Qty</th>
<th>Materials</th>
<th>Weight (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Housing parts</td>
<td>4</td>
<td>Plastic: ABS PC</td>
<td>40</td>
</tr>
<tr>
<td>2</td>
<td>Lens</td>
<td>1</td>
<td>Plastic: PC</td>
<td>15</td>
</tr>
<tr>
<td>3</td>
<td>LCD display</td>
<td>1</td>
<td>Various materials</td>
<td>20</td>
</tr>
<tr>
<td>4</td>
<td>Printed circuit board</td>
<td>1</td>
<td>Various material, electronic components.</td>
<td>45</td>
</tr>
<tr>
<td>5</td>
<td>Keypad</td>
<td>2</td>
<td>Silicone rubber</td>
<td>20</td>
</tr>
<tr>
<td>6</td>
<td>CR 2032 lithium battery</td>
<td>1</td>
<td>Various materials</td>
<td>3</td>
</tr>
</tbody>
</table>

2.5 Package

The product package is made of corrugated cardboard. You can recycle all materials used in the package. To avoid pollution caused by unnecessary transportation, the factory does not take back used packages. The local ABB companies give instructions on the package recycling when necessary. ABB recommends package recycling as it preserves raw materials and reduces waste being landfilled.

2.6 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.
3. MANUFACTURING AND USE

3.1 Manufacturing

ABB Automation Products GmbH (Germany) 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.

3.2 Use

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

- Process control is optimized. An electric power controller enables a process to achieve the right temperature while maintaining its accuracy.
- Need for maintenance is reduced. Being able to vary the temperature of a process means there is less wear and higher output.
4. PRODUCT DISPOSAL

4.1 Contents of this chapter

This chapter contains product disposal instructions.

4.2 Disposal

The main parts of the power controller 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.

4.3 Dismantling

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

4.3.1 Manual dismantling

Sort the parts of the product according to their material contents as follows:

- ferrous metals (plates, screws)
- aluminum (heatsink)
- plastics
- printed circuit boards
- electrolytic capacitors
- other.

You can recycle metal parts (iron and aluminum) and most of the other materials according to local regulations. For information on harmful materials, see subsection ABB list of prohibited and restricted substances.

4.3.2 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 power controller in the shredder.

4.4 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 electrical and electronic equipment.
4.4.1 Reference list


   - 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.


4.5 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.

<table>
<thead>
<tr>
<th>Materials</th>
<th>Recycling method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steel</td>
<td>Recycled as material</td>
</tr>
<tr>
<td>Aluminum</td>
<td>Recycled as material</td>
</tr>
<tr>
<td>Plastics</td>
<td>Energy recovery (incineration)</td>
</tr>
<tr>
<td>Printed circuit boards</td>
<td>Recycled as WEEE</td>
</tr>
<tr>
<td>Electrolytic capacitors</td>
<td>Recycled as WEEE</td>
</tr>
<tr>
<td>Cables</td>
<td>Recycled as material</td>
</tr>
<tr>
<td>Ceramics</td>
<td>Landfilled</td>
</tr>
<tr>
<td>Other materials</td>
<td>Energy recovery (incineration)</td>
</tr>
</tbody>
</table>
5. FURTHER INFORMATION

5.1 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.

5.2 Product training

For information on ABB product training, navigate to www.abb.com/drives and select Training courses.

5.3 Providing feedback on ABB Drives manuals

Your comments on our manuals are welcome.


5.4 Document library on the Internet

You can find manuals and other product documents in PDF format on the Internet. Go to www.abb.com/drives and select Document Library. You can browse the library or enter selection criteria, for example a document code, in the search field.

5.5 ABB environment policy

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

5.6 ABB group sustainability objectives

For information on ABB group sustainability objectives, navigate to new.abb.com/sustainability/creating-value/objectives
6. ABB LIST OF PROHIBITED AND RESTRICTED SUBSTANCES

You can find the ABB list of prohibited and restricted substances at new.abb.com/sustainability/environment.
7. ABB AUTOMATION PRODUCTS

**DCS550**

ABB offers the machine building industry a DC drive which combines state-of-the-art drive technology with proven DC technology. The new converter series is suited both for new installations and retrofitting, due to its robust technology and compact design.

Integrated “Winder”, programmability and a powerful field converter provide machine manufacturers with a maximum of flexibility in terms of machine integration.

**AC500**

ABB's powerful flagship PLC offering provides wide range of performance levels and scalability within a single simple concept where most competitors require multiple product ranges to deliver similar functionality.

*Programmability*

Automation Builder integrates the engineering and maintenance for PLC, drives, motion, HMI and robotics. It complies with the IEC 61131-3 standard offering all five IEC programming languages for PLC and drive configuration. Automation Builder supports a number of languages and comes with new libraries, FTP functions, SMTP, SNTP, smart diagnostics and debugging capabilities.

**DC motors**

ABB’s DMI generation of DC motors turns many ingrained concepts upside down

Thanks to creative innovations and state-of-the-art computerized optimization of technical solutions that earlier were considered to have reached the “design limits”, a completely new generation of DC motors has evolved.

The DMI generation of DC motors offers completely new opportunities for improving productivity as a result of the substantially faster speed control. At the same time, the investment costs are lowered. Thanks to the precise optimization of the electrical and mechanical characteristics and the wide speed range, oversizing of motor drives to achieve the desired speed range is unnecessary.

**DCT880**

ABB’s DCT880 offers their customers a thyristor power controller for the accurate control of ohmic or inductive heating elements and infrared radiators in glass, plastic, annealing, drying, melting or heating applications.

DCT880 controllers are available in eight compact sizes, ranging from 20 A to 4,200 A

The integrated three-phase current measurement allows for implementing all load configurations from star, delta, single- and two-phase all the way to reactive-power optimized transformer control.

**DCS880-R**

The DCS880-R Rebuild Kit replaces the control electronics of an existing DC drive. All power components, including the thyristors, are retained. The DCS880-R Rebuild Kit is suitable for almost all existing drives from different manufacturers. In addition, ABB has developed specifically tailored solutions for some existing types of converter: this is a cost-efficient option for DC Drive revamping.

**ACS500-S**

A PLC based modular automation solution that makes it easier than before to mix and match standard and safety I/O modules to expertly meet your safety requirements in all functional safety applications. “Extreme conditions” version is also offered.

**All-compatible drives portfolio**

The all-compatible drives share the same architecture; firmware platform, tools, user interfaces and options. Yet, there is an optimal drive from the smallest water pump to the biggest cement kiln, and everything in the between. When you have learned to use one drive it is easy use the other drives in the portfolio.

**Jokab safety products**

ABB Jokab Safety offers an extensive range of innovative products and solutions for machine safety systems. It is represented in standardization organisations for machine safety and works daily with the practical application of safety requirements in combination with production requirements.
Contacts

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www.abb.com/dc-drives