

INVT Servo Drives

Recycling instructions and environmental information

SV-DA200 product family



List of related manuals

Drive hardware manuals and guides

- Recycling instructions and environmental information SV-DA200 product family
- Various hardware manuals of the SV-DA200 product family available in INVT Library

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 INVT representative.

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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:

- DA200 modules of frame sizes A to H
- Accessories and option modules.

1.3 Target audience

This document is intended for INVT 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.

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.

1.5 Frame size

This manual covers all different frame sizes of the product family. The frame size is shown in the rating tables for each drive type. The rating tables are in different hardware manuals of the DA200 product family.

1.6 Disclaimer

The information presented in this publication does not form part of any quotation or contract, is believed to be accurate and reliable and may be changed without notice. No liability will be accepted by the publisher for any consequences of its use. Publication thereof does not convey nor imply any license under patent - or other industrial or intellectual - property rights.

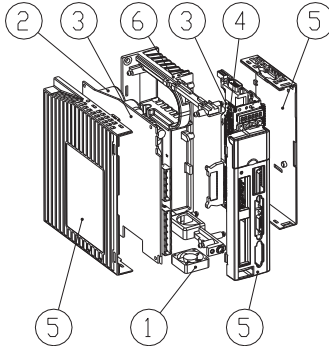
2 Product materials

2.1 Contents of this chapter

This chapter describes the main components and product materials of the DA200 module of frame sizes A to H.

2.2 Structure of the DA200 module frame size A

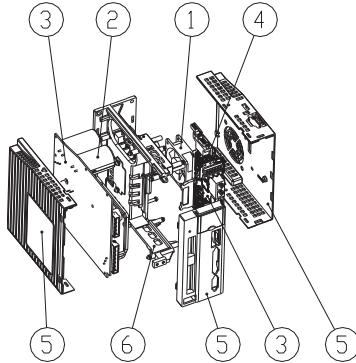
The main components are shown in the figure below.



Part No.	Name	Qty	Materials	Weight / g
1	Fans	1	Various, plastic parts PBT+PA	10
2	Electrolytic capacitors	2	Al, electrolytic solute	90
3	Printed circuit boards	2	Various (FR4)	380
4	Semiconductors	1	Epoxy, Cu, Al, Si, Si gel, PBT, Pb, PPS, SiN, AlN	30
5	Cover parts	4	ABS	160
6	Heatsinks	1	Aluminum alloy (Mg, Si)	400
	Cables	1	PVC, Cu, GF, Sn, Au, Ni, phosphor bronze, thermoplastic polyester, glass-filled nylon	
Total weight				1.1kg

2.3 Structure of the DA200 module frame size B

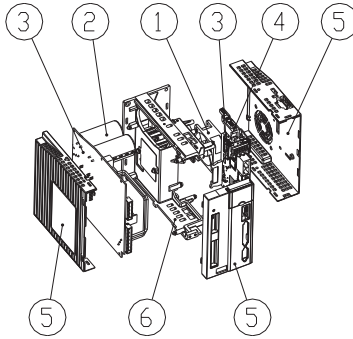
The main components are shown in the figure below.



Part No.	Name	Qty	Materials	Weight / g
1	Fans	1	Various, plastic parts PBT+PA	50
2	Electrolytic capacitors	2	Al, electrolytic solute	150
3	Printed circuit boards	2	Various (FR4)	410
4	Semiconductors	1	Epoxy, Cu, Al, Si, Si gel, PBT, Pb, PPS, SiN, AlN	30
5	Cover parts	4	ABS	220
6	Heatsinks	1	Aluminum alloy (Mg, Si)	460
	Cables	1	PVC, Cu, GF, Sn, Au, Ni, phosphor bronze, thermoplastic polyester, glass-filled nylon	
Total weight				1.4kg

2.4 Structure of the DA200 module frame size C

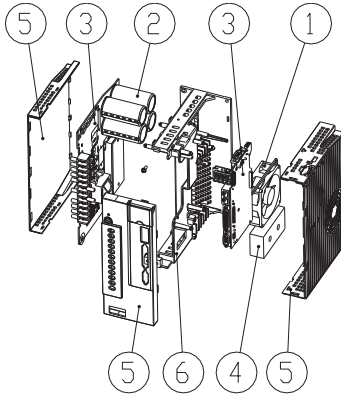
The main components are shown in the figure below.



Part No.	Name	Qty	Materials	Weight / g
1	Fans	1	Various, plastic parts PBT+PA	60
2	Electrolytic capacitors	2	Al, electrolytic solute	160...200
3	Printed circuit boards	2	Various (FR4)	570
4	Semiconductors	1	Epoxy, Cu, Al, Si, Si gel, PBT, Pb, PPS, SiN, AlN	40
5	Cover parts	4	ABS	230
6	Heatsinks	1	Aluminum alloy (Mg, Si)	800
	Cables	1	PVC, Cu, GF, Sn, Au, Ni, phosphor bronze, thermoplastic polyester, glass-filled nylon	
Total weight				1.9kg

2.5 Structure of the DA200 module frame size D

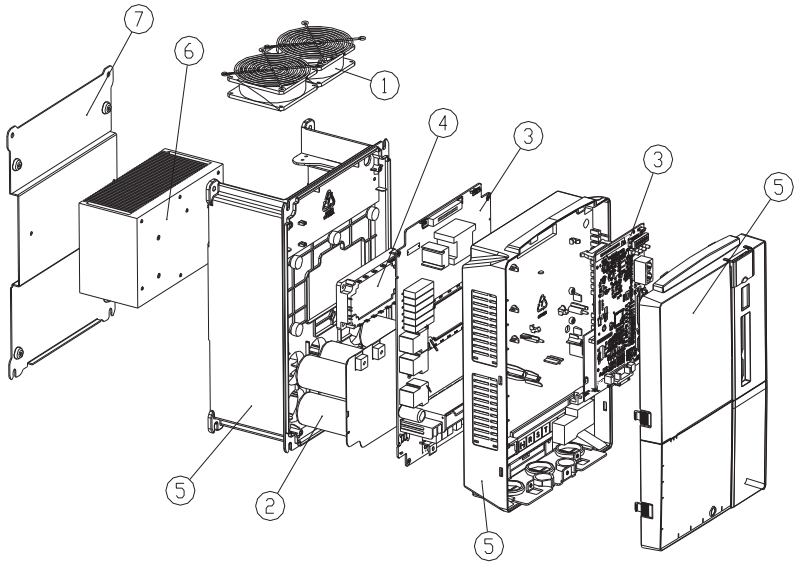
The main components are shown in the figure below.



Part No.	Name	Qty	Materials	Weight / g
1	Fans	1	Various, plastic parts PBT+PA	100
2	Electrolytic capacitors	3...4	Al, electrolytic solute	250...330
3	Printed circuit boards	2	Various (FR4)	630
4	Semiconductors	1	Epoxy, Cu, Al, Si, Si gel, PBT, Pb, PPS, SiN, AlN	180
5	Cover parts	5	ABS	390
6	Heatsinks	1	Aluminum alloy (Mg, Si)	1200
	Cables	1	PVC, Cu, GF, Sn, Au, Ni, phosphor bronze, thermoplastic polyester, glass-filled nylon	
Total weight				2.9kg

2.6 Structure of the DA200 module frame size F

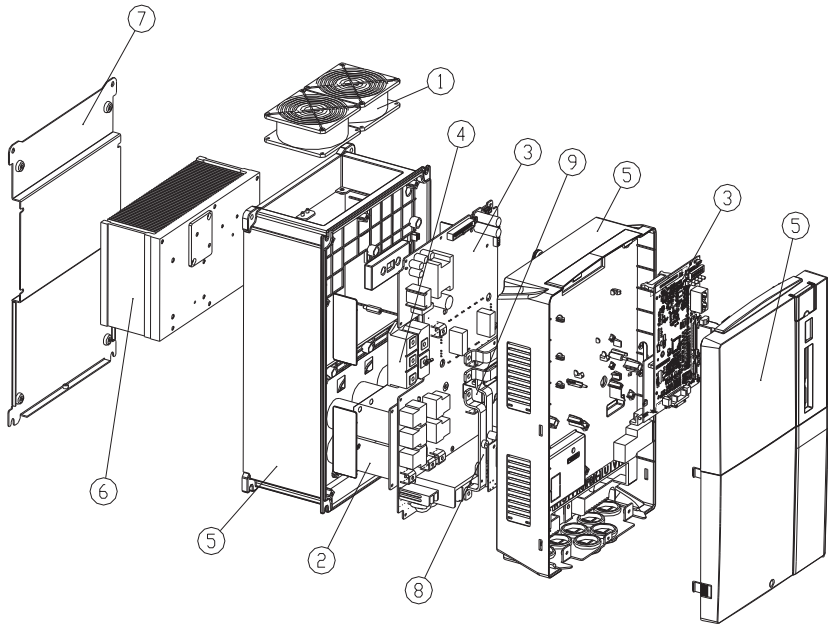
The main components are shown in the figure below.



Part No.	Name	Qty	Materials	Weight / g
1	Fans	2	Various, plastic parts PBT+PA	120
2	Electrolytic capacitors	6	Al, electrolytic solute	900
3	Printed circuit boards	3	Various (FR4)	1400
4	Semiconductors	1	Epoxy, Cu, Al, Si, Si gel, PBT, Pb, PPS, SiN, AlN	500
5	Cover parts	3	ABS	2000
6	Heatsinks	1	Aluminum alloy (Mg, Si)	2700
7	Sheet metal parts	3	Zn-coated steel	800
	Cables	1	PVC, Cu, GF, Sn, Au, Ni, phosphor bronze, thermoplastic polyester, glass-filled nylon	
Total weight				8.9kg

2.7 Structure of the DA200 module frame size F2

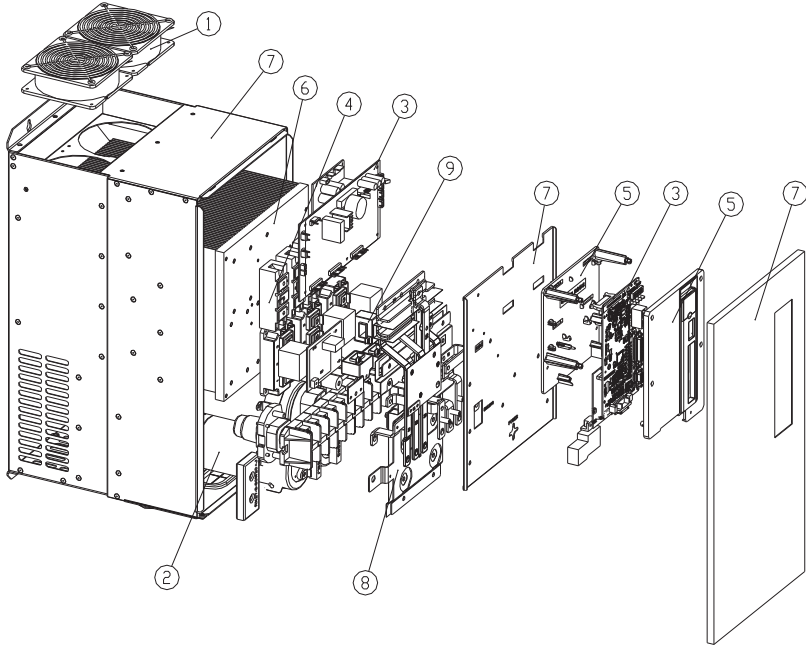
The main components are shown in the figure below.



Part No.	Name	Qty	Materials	Weight / g
1	Fans	2	Various, plastic parts PBT+PA	290
2	Electrolytic capacitors	8	Al, electrolytic solute	1400
3	Printed circuit boards	5	Various (FR4)	1000
4	Semiconductors	3	Epoxy, Cu, Al, Si, Si gel, PBT, Pb, PPS, SiN, AlN	900
5	Cover parts	3	ABS	2640
6	Heatsinks	1	Aluminum alloy (Mg, Si)	3300
7	Sheet metal parts	1	Zn-coated steel	1160
8	Busbars	7	Sn-coated Cu	130
9	Transducers	2	PC (Lexan 2814), PUR (Damival 13552), Cu	120
	Cables	1	PVC, Cu, GF, Sn, Au, Ni, phosphor bronze, thermoplastic polyester, glass-filled nylon	
Total weight				11.4kg

2.8 Structure of the DA200 module frame size G

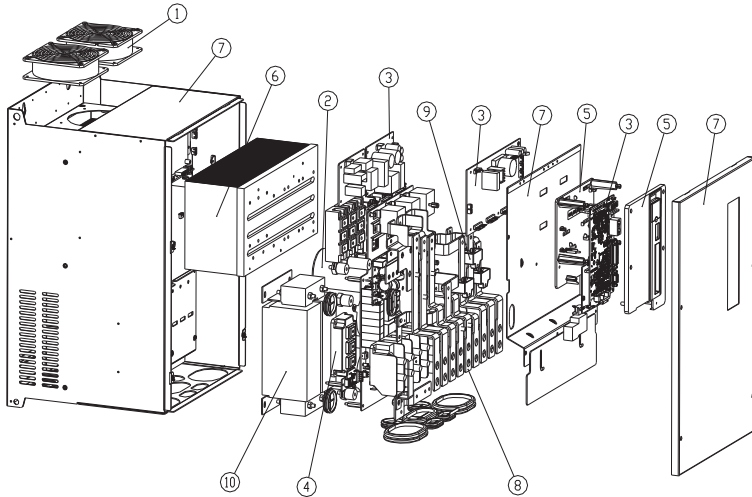
The main components are shown in the figure below.



Part No.	Name	Qty	Materials	Weight / g
1	Fans	2	Various, plastic parts PBT+PA	520
2	Electrolytic capacitors	4	Al, electrolytic solute	3200
3	Printed circuit boards	6	Various (FR4)	1100
4	Semiconductors	6	Epoxy, Cu, Al, Si, Si gel, PBT, Pb, PPS, SiN, AlN	1500
5	Cover parts	2	ABS	300
7	Sheet metal parts	3	Zn-coated steel	2000
	Sheet metal parts (painted)	4	Steel (Polyester powder paint)	9600
8	Busbars	18	Sn-coated Cu	1800
9	Transducers	3	PC (Lexan 2814), PUR (Damival 13552), Cu	180
	Cables	1	PVC, Cu, GF, Sn, Au, Ni, phosphor bronze, thermoplastic polyester, glass-filled nylon	
Total weight				28kg

2.9 Structure of the DA200 module frame size H

The main components are shown in the figure below.



Part No.	Name	Qty	Materials	Weight / g
1	Fans	2	Various, plastic parts PBT+PA	800
2	Electrolytic capacitors	3...4	Al, electrolytic solute	3700...4200
3	Printed circuit boards	6	Various (FR4)	1500
4	Semiconductors	7	Epoxy, Cu, Al, Si, Si gel, PBT, Pb, PPS, SiN, AlN	2000
5	Cover parts	2	ABS	300
6	Heatsinks	1	Aluminum alloy (Mg, Si)	7000
7	Sheet metal parts (painted)	7	Steel (Polyester powder paint)	16000
8	Busbars	23	Sn-coated Cu	3000
9	Transducers	3	PC (Lexan 2814), PUR (Damival 13552), Cu	180
10	Electric reactors	1	Fe, Cu, Sn	7200
	Cables	1	PVC, Cu, GF, Sn, Au, Ni, phosphor bronze, thermoplastic polyester, glass-filled nylon	
Total weight				43kg

2.10 Package

The product package is made of corrugated board, plywood or wood. 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 INVT office for package recycling instructions if needed.

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

2.11 Product manuals and sales brochures

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

3 Manufacturing and use

3.1 Manufacturing

INVT 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 9001:2017.

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

3.2 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.

4 Product disposal

4.1 Contents of this chapter

This chapter contains product disposal instructions.

4.2 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.

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

4.3 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

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

- Ferrous metals (plates, screws)
- Aluminum (heatsink)
- Copper (busbars)
- 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 INVT list of prohibited and restricted substances on page 13.

◆ 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 INVT list of prohibited and restricted substances.

4.4 INVT 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 INVT.

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

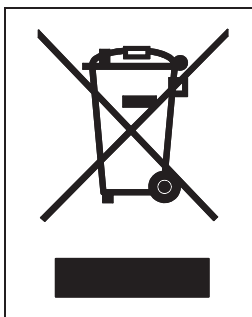
1. Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS II).
2. Regulation No 1907/2006/EC of the European Parliament and of the Council of 18 December 2006 concerning 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).

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.

伺服驱动器 SERVO DRIVES		型号: SV-DA200-0R1-2-E0 MODEL: SV-DA200-0R1-2-E0	
输入 INPUT	1P/3P AC 220V (-15%)~240V (+10%) 47~63Hz 0.9A/0.4A		
输出 OUTPUT	3P AC 0V~V _{in} 0~400Hz 1.3A 100W		
S/N:		 Made in China	
 上海英威腾工业技术有限公司 INVT INDUSTRIAL TECHNOLOGY (SHANGHAI) CO., LTD.			

4.6 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
Copper	Recycled as material
Aluminum	Recycled as material
Plastics	Energy recovery (incineration)
Printed circuit boards	Recycled as WEEE
Electrolytic capacitors	Recycled as WEEE
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 INVT representative, quoting the type designation and serial number of the unit in question. A listing of INVT sales, support and service contacts can be found by navigating to <http://www.invt.com/service/>.

Document library on the Internet

You can find manuals and other product documents in PDF format on the Internet at <http://www.invt.com/service/download/data-download.html>.

Contact us

<http://www.invt.com/>

<http://www.invt.com/products/automation/servo/>

