



**EUROTHERM  
DRIVES**

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# **584S Frequency Inverter**

## **Product Manual**

**COMPATIBLE WITH VERSION 6 SOFTWARE**

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## **WARRANTY**

Eurotherm Drives warrants the goods against defects in design, materials and workmanship for the period of 12 months from the date of delivery on the terms detailed in Eurotherm Drives Standard Conditions of Sale IA058393C.

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## **INTENDED USERS**

This manual is to be made available to all persons who are required to configure, install or service the equipment described herein or any other associated operation.

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# Warnings and Instructions

## GENERAL WARNINGS



### Warning

Only qualified personnel who thoroughly understand the operation of this equipment and any associated machinery should install, start-up or attempt maintenance of this equipment. Non-compliance with this warning may result in personal injury and/or equipment damage.

Never work on any control equipment without first isolating all power supplies from the equipment.

The drive motor must be connected to an appropriate safety earth. Failure to do so presents an electrical shock hazard.

This equipment contains high value capacitors. Allow five minutes for capacitors to discharge prior to removing equipment covers. Failure to do so presents an electrical shock hazard.



### Caution

This equipment was tested before it left our factory. However, before installation and start-up, inspect all equipment for transit damage, loose parts, packing materials etc.

This product conforms to IP20 protection. Due consideration should be given to environmental conditions of installation for safe and reliable operation.

Never perform high voltage resistance checks on the wiring without first disconnecting the product from the circuit being tested.



### Static Sensitive

This equipment contains electrostatic discharge (ESD) sensitive parts. Observe static control precautions when handling, installing and servicing this product.

**THESE WARNINGS AND INSTRUCTIONS ARE INCLUDED TO ENABLE THE USER TO OBTAIN THE MAXIMUM EFFECTIVENESS AND TO ALERT THE USER TO SAFETY ISSUES**

**APPLICATION AREA:** Industrial (non consumer) Motor speed control utilising AC induction or synchronous motors.

**PRODUCT MANUAL:** This manual is intended to provide a description of how the product works. It is **not** intended to describe the apparatus into which the product is installed.

This manual is to be made available to all persons who are required to design an application, install, service or come into direct contact with the product.

**APPLICATIONS ADVICE:** Applications advice and training is available from Eurotherm Drives Ltd.

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**INSTALLATION:** Ensure that mechanically secure fixings are used as recommended.

Ensure that cooling and air flow around the product are as recommended.

Ensure that cables and wire terminations are as recommended and clamped to required torque.

Ensure that the installation and commissioning of this product are carried out by a competent person.

Ensure that the product rating is not exceeded.



**CAUTION:** When power is removed from the product it must not be re-applied for a period of 30 seconds to allow the inrush limit circuit to operate correctly.



**APPLICATION RISK:** The integration of this product into other apparatus or system is not the responsibility of Eurotherm Drives Ltd as to its applicability, effectiveness or safety of operation or of other apparatus or systems.

Where appropriate the user should consider some aspects of the following risk assessment.



**RISK ASSESSMENT:** Under fault conditions or conditions not intended.

1. The motor speed may be incorrect.
2. The motor speed may be excessive.
3. The direction of rotation may be incorrect.
4. The motor may be energised (unless the installation specifically prevents unexpected or unsequenced energisation of the motor).

**In all situations the user should provide sufficient guarding to prevent risk of injury and/or additional redundant monitoring and safety systems.**

NOTE: During power loss the product will not operate as specified.

**MAINTENANCE:** Maintenance and repair should only be performed by competent persons using only the recommended spares (or return to factory for repair). Use of unapproved parts may create a hazard and risk of injury.



**WHEN REPLACING A PRODUCT IT IS ESSENTIAL THAT ALL USER DEFINED PARAMETERS THAT DEFINE THE PRODUCT'S OPERATION ARE CORRECTLY INSTALLED BEFORE RETURNING TO USE. FAILURE TO DO SO MAY CREATE A HAZARD AND RISK OF INJURY.**

**PACKAGING:** The packaging is combustible and if disposed of in this manner incorrectly may lead to the generation of toxic fumes which are lethal.

**WEIGHT:** Consideration should be given to the weight of the product when handling.

**REPAIRS:** Repair reports can only be given if sufficient and accurate defect reporting is made by the user.

Remember, the product without the required precautions can represent an electrical hazard and risk of injury, and that rotating machinery is a mechanical hazard and risk of injury.

## **PROTECTIVE INSULATION:**

1. All exposed metal insulation is protected by basic insulation and bonding to earth i.e. Class 1.
2. NOTE: Earth bonding is the responsibility of the installer.
3. All signal terminals are SELV, i.e., protected by double insulation (Class 2). The purpose of this protection is to allow safe connection to other low voltage equipment and is not designed to allow these terminals to be connected to any unisolated potential. Ensure all wiring rated for highest system voltage.

NOTE: Thermal sensors contained within the motor are to be double insulated.

**WALL MOUNTING:** - To maintain compliance with the European Low Voltage Directive standards VDE 0160 (1994)/prEN50178(1995) only units supplied and fitted with the UL Type 1 top cover are to be mounted on the wall.

**RCDs** - Compatible with Type B RCDs only.

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# How to Use this Manual

This manual provides information to support the installation and operation of the 584S Frequency Inverter. A description of each of the chapters is given here to assist in locating and using the information contained within the manual.

## CHAPTER 1 - PRODUCT OVERVIEW

This chapter contains a brief description of the drive controller including a technical specification of the equipment. The purpose of this chapter is to familiarise the reader with the purpose and scope of the equipment.

## CHAPTER 2 - PRE-INSTALLATION PLANNING

This chapter contains a functional description of the equipment, wiring information and a description of the signals on the input/output terminals. The purpose of this chapter is to allow the user to understand the function of the equipment and to assist in designing a particular installation configuration.

## CHAPTER 3 - INSTALLATION PROCEDURE

This chapter contains information regarding the physical mounting arrangements, cable and fuse selection as well as information regarding good EMC installation techniques. The purpose of this chapter is to provide guidelines for the safe and efficient installation of the equipment. The theory of, and requirement for, dynamic braking is also explained within this chapter.

## CHAPTER 4 - SETTING UP AND COMMISSIONING

A description of the user adjustments to configure the drive for a particular application. The purpose of this chapter is to guide the user through pre- and post-power on checks and provide running performance adjustment procedures. Information is also provided on the function and set-up of operational parameters using the Man-Machine Interface (MMI).

## CHAPTER 5 - DIAGNOSTICS AND FAULT FINDING

A description of the procedures to diagnose and trace faults on the equipment. The purpose of this chapter is to guide the user through the on-board diagnosis and fault finding facilities, using the MMI diagnostic and alarm display.

## CHAPTER 6 - SERVICING

This chapter provides the routine maintenance and repair procedures. The purpose of this chapter is to assist returning the controller to service following a fault condition.

## CHAPTER 7 - EMC AND THE 'CE' MARK

This chapter sets out Eurotherm Drives Limited responsibility to the recent European "EMC, Low Voltage and Machinery" Directives, and explains how Eurotherm are assisting their customers in achieving conformance. The north American requirements are also discussed.

## CHAPTER 8 - APPENDICES

Appendix A contains application notes.

Appendix B contains a description of the ASCII and binary communication options.

Appendix C contains a Parameter Language translation sheet.

Appendix D contains an easy table method of calculating parabolic ramp response times.

Appendix E contains an easy table method of calculating s ramp response times.

Appendix F contains 584S Type 7 Mechanical Outline Drawings.

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4	Version 6 software changes. Corrections to table on page 3-4. Barcode added to back page. LVD 'CE' manual revisions. Added paragraph "CAUTION ... operate correctly" to page 2 of Warnings and Instructions and page 4-8. Pages 7-6, 7 & 8 Declarations given drawing numbers & issue.	10891 11169 11026 11116 11230 11124	23.9.96	FEP	AFL
5	Page 2-14 Added to Terminal Description number 2 "(a), (b) and note". Page 4-32 added "Note".				
	Revisions to pages 1-9 and 10 for UL compliance.	11333			GS
	Pages 1-4 & 5 - added "* Suitable for earth referenced (TN) as non earth referenced (IT) supplies" and removed "Note 1. Class "T" Fuses". Page 1-10 Added information for UL compliance.	11363			GS
	Added signed "Low Voltage Directive" certificate.	11455			MP
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6	Page 3-11 changed CZ388397 to CZ463068, actioned against ECN10858. Page 3-13 added "Watt Loss" column. Replaced "Nema 1" with "UL Type 1". Chapter 1- revisions to pages 4 through to 14, and page 8.52 to provide clarification/corrections for UL (c-UL) Listing requirements. Page 1-13 changed Block 10 references from "Filters" to "Aux Supply".	11945   12329  11965	     17.12.97	     FEP	
FIRST USED ON		MODIFICATION RECORD			
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