



**EUROTHERM
DRIVES**

620 Vector Drive S/W Release 2.X

User Manual

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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.

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.



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.



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.



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 protected by double insulation, i.e. Class 2 insulation. 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.

How to Use this Manual

This manual provides information to support the installation and operation of the 620 Vector Drive. 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 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 EMC installation. 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 and switch settings 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 - FUNCTION BLOCKS

This section provides reference information for the more advanced programming capabilities of the 620 Vector series controllers.

Each section describes a particular functional area and the associated menu options which are used to alter the parameters. Where appropriate, a functional block diagram illustrates the how the function operates. Reference to the Functional Description and Microprocessor Block Diagram in Chapter 2 may be of assistance in understanding the relationship between these functional diagrams.

CHAPTER 6 - 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 7 - EMC AND THE 'CE' MARK

This chapter sets out Eurotherm Drives Limited responsibilities to the recent European 'EMC, low voltage and machinery' Directives, and explains how Eurotherm are assisting their customers in achieving conformance

CHAPTER 8 - 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 9 - APPENDICES

Appendix A contains advanced tuning notes.

Appendix B contains MMI print-out.

Appendix C contains Tag listings.

Appendix D contains Tags by Number.

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1	Initial Issue of HA389130 Replaces HA388463 Additions and corrections for Release 2.1 S/W	10144	25/4/95	RM	RBR
2	Removed ducted airflow option from block 4. General spelling corrections. Up-dated block diagram. Show maximum ambient of drive in IP20 enclosure as 40°C.	M10062	11.07.95	RM	RBR
3	EMC 'CE' Conformance Changes. General revisions and corrections	10136	09.01.96	MP	DS
4	Page 1-1 Removed paragraph "Equipment Supplied". Page 1-9 Added to title "For Installations ... Standards paragraph "For installations ... standards:", removed paragraph "External Surge Suppressor". Page 2-13 Added circle around ground symbols, to end of paragraph "Power earth." added "(ground)", replaced GND with GRD in Figure 2.10. Page 2-14 Same as for page 2-13. Page 2-15 Same as for page 2-13. Page 2-16 Same as for page 2-13. Page 3-3 removed "Earthing" paragraph. Page 3-4 changed in table "Controller Type" to "Controller Rating" and the subsequent listing. Moved "Earthing" paragraph to next page. Page 3-5 Removed paragraph "A substantial earth connection should be made to the earth terminal of the frequency inverter." Added from "ALL FREQUENCY CONVERTERS MUST BE PERMANENTLY EARTHED" and Earthing section to page 3-8. Page 5-31 Corrected after Jumpers "DM F.1" to "DFI (a 15V RS232)"	10741 10728 " " " 10731 " "			
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	<p>Page 7-1 added “ (as confirmed ... chapter) to 6th paragraph. Page 7-2 added boxes “EMC STANDARDS:” , “NO ... MODULE” & “THE E.D. ... CORRECTLY”. Last box re- written.</p> <p>Page 7-3 replaced 22G/21/CDV with 22G/31/FDIS. Page 7-5 added “Generic Standard” column to table. added “Eurotherm Guide” heading.</p> <p>Page 7-7 added Manufacturers EMC Declaration.</p>	10846			
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