



# Danfoss FCD 302 VLT Decentral Drive Installation Guide

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## Danfoss FCD 302 VLT Decentral Drive Installation Guide

declares under our sole responsibility that the

**Product category:** Frequency Converter

**Type designation(s):** FCD302PXXXT4\*

**Character XXX:** K37, K55, K75, 1K1, 1K5, 2K2, 3K0

\*may be any number or letter indicating drive options which do not impact this DoC.

The meaning of the 39 characters in the type code string can be found in appendix 00729776.

Covered by this declaration is in conformity with the following directive(s), regulation(s), standard(s) or other normative document(s), provided that the product is used in accordance with our instructions

### **Low Voltage Directive 2014/35/EU**

**EN61800-5-1:2007 + A1:2017**

Adjustable speed electrical power drive systems Part 5-1: Safety requirements Electrical, thermal and energy.

### **EMC Directive 2014/30/EU**

**EN61800-3:2004+A1:2012**

Adjustable speed electrical power drive systems Part 3: EMC requirements and specific test methods

### **RoHS Directive 2011/65/EU including amendment 2015/863.**

**EN IEC 63000:2018**

Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances

### **Commission Regulation (EU) 2019/1781 under the Ecodesign Directive 2009/125/EC including amendment in Commission Regulation (EU) 2021/341 EN61800-9-2:2017**

Adjustable speed electrical power drive systems-**Part 9-2:** Ecodesign for power drive systems, motor starters,

power electronics and their driven applications Energy efficiency indicators for power drive systems and motor starters

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#### **Machine Directive 2006/42/EC**

EN/IEC 61800-5-2:2007

(Safe Stop function conforms with STO-Safe Torque Off, SIL 2 Capability)

#### **Other standards considered:**

**EN ISO 13849-1:2015**

(Safe Stop function, PL d (MTTFd=14000 years, DC-90%, Category 3) EN/IEC 61508-1:2010, EN/IEC 61508-2:2010 (Safe Stop function, SIL 2 (PFH1E-10/h, 1E-8/h for specific variants, PFD1E-10, 1E-4 for specific variants, SFF>99%, HFT=0))

EN/IEC 62061:2005 + A1:2013

(Safe Stop function, SILCL 2)

Adjustable speed electrical power drive systems – Part 5-

**2: Safety requirements – Functional**

**Safety of machinery – Safety-related parts of control**

**systems – Part 1: General principles for design**

Functional safety of electrical/electronic/programmable electronic safety-related systems

**Part 1: General requirements**

**Part 2: Requirements for electrical/electronic / programmable electronic safety-related systems** Safety of machinery Functional safety of safety-related electrical, electronic and programmable electronic control systems

#### **Further information can be found in manufacturers declarations:**

EU Declaration of conformity 00730213 A.1, 00730215 A.1 and 00730217 A.1 or newer / Manufacturers declaration 00596226 A.9 or newer.

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## **Instructions**

## Safety and Installation Awareness

Both an installation and a safety guide are provided with the VLT® Decentral Drive FCD 302. Before starting installation, familiarize yourself with all safety guidelines and precautions in the safety guide. Additional resources – including the operating guide and design guide – can be downloaded at [www.danfoss.com](http://www.danfoss.com).

## Safety Symbols

The following symbols are used in this guide:

### **D A N G E R**

Indicates a hazardous situation which, if not avoided, will result in death or serious injury.

### **W A R N I N G**

Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

### **C A U T I O N**

Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

### **N O T I C E**

Indicates information considered important, but not hazard-related (for example, messages relating to property damage)

## Safety Precautions

### **W A R N I N G**

#### **LACK OF SAFETY AWARENESS**

This installation guide gives important information on how to prevent injury and damage to the equipment or the system. Ignoring this information can lead to death, serious injury, or severe damage to the equipment.

- Ensure the dangers and safety measures present in the application are understood.
- Before performing any electrical work on the drive, lock out and tag out all power sources from the drive

### **W A R N I N G**

#### **HIGH VOLTAGE**

AC drives contain high voltage when connected to AC mains input, DC supply, or load sharing. Failure to perform installation, start-up, and maintenance by qualified personnel can result in death or serious injury.

- Only qualified personnel must perform installation, start-up, and maintenance.

### **W A R N I N G**

#### **UNINTENDED START**

When the drive is connected to the AC mains, the motor may start at any time, causing risk of death, serious injury, and equipment or property damage. The motor may start by activation of an external switch, a fieldbus command, an input reference signal from the LCP or LOP, via remote operation using MCT 10 Set-up software, or after a cleared fault condition.

- Press [Off] on the LCP before programming parameters.
- Disconnect the drive from the mains whenever personal safety considerations make it necessary to avoid unintended motor start.
- Check that the drive, motor, and any driven equipment are in operational readiness

### **W A R N I N G**

#### **DISCHARGE TIME**

The drive contains DC-link capacitors, which can remain charged even when the drive is not powered. High voltage can be present even when the warning indicator lights are off. Failure to wait the specified time after power has been removed before performing service or repair work could result in death or serious injury.

- Stop the motor.
- Disconnect AC mains, permanent magnet type motors, and remote DC-link supplies, including battery back-ups, UPS, and DC-link connections to other drives.
- Wait for the capacitors to discharge fully. The time for full discharge of the capacitors is minimum 4 minutes for VLT® Decentral Drive FCD 302, 400 V AC, 0.37–3.0 kW (0.5 4.0 hp).
- Before performing any service or repair work, use an appropriate voltage measuring device to make sure that the capacitors are fully discharged.

## CAUTION

### INTERNAL FAILURE HAZARD

An internal failure in the drive can result in serious injury when the drive is not properly closed.

- Ensure that all safety covers are in place and securely fastened before applying power.

## Tools Required

**Table 1:** Recommended Tools and Equipment

Equipment	Size	Description
Screwdrivers	–	–
Socket (Hex)	8	For fastening inverter screws/mounting of brackets
Slotted	0.4×2.5	For spring loaded power and control terminals
Slotted/Torx	1.0×5.5/TX20	For cable clamps inside the installation box
Spanner	19, 24, 28	For blind-plugs

### Verifying the Shipment and the Contents

Ensure that the items supplied and the information on the nameplate correspond to the order confirmation.

**Illustration 1:** Example nameplate

1. Type code
2. Ordering number
3. Serial number
4. Power rating
5. Input voltage, frequency, and current (at low/high voltages)
6. Output voltage, frequency, and current (at low/high voltages)
7. Enclosure type and protection rating
8. Maximum ambient temperature
9. Certifications
10. Enclosure rating

## Additional Resources

The full operating guide for VLT® Decentral Drive FCD 302 and the Safe Torque Off operating guide are available online at <http://drives.danfoss.com>.

**Table 2: Additional Resources**

Document	Contents
VLT® Decentral Drive FCD 302 Operating Guide	Information about the installation, commissioning, and operation of the FCD 302.
VLT® Frequency Converters Safe Torque Off Operating Guide	Information about functional safety standards, Danfoss VLT® FC Series Safe Torque Off (STO) function, the related installation and commissioning, and service and maintenance for STO.

## Dimensions

**There are 2 sizes of FCD 302:**

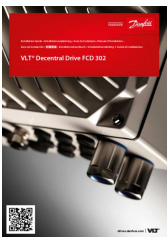
- Variants PK37, PK55, PK75, and P1K1 are the small size unit.
- Variant P3K0 is the large size unit

**Illustration 2: PK37, PK55, PK75, P1K1**

**Illustration 3: P3K0**

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## Documents / Resources

	<p><a href="#">Danfoss FCD 302 VLT Decentral Drive [pdf] Installation Guide</a> FCD 302 VLT Decentral Drive, FCD 302, VLT Decentral Drive, Decentral Drive, Drive</p>
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## References

- [Global AC drive manufacturer - Danfoss Drives | Danfoss](#)
- [Search | Danfoss](#)
- [Global AC drive manufacturer - Danfoss Drives | Danfoss](#)
- [Engineering Tomorrow | Danfoss](#)
- [User Manual](#)

