ENGINEERING TOMORROW

Installation Guide • Installationshandbuch • Manuel d'installation • Guida di installazione • 安装指南 • Guía de instalación • Guia de Instalação

iC7-Automation Frequency Converters Quick Installation Guide

FA09–FA12/FK09–FK12/FB09–FB12 (206–1260 A)

DESIGN AWARD 2023

drives.danfoss.com | iC7

English

1 Instructions

1.1 Safety and Installation Awareness

A quick installation guide and a safety guide are provided with the drive. Before starting installation, read all safety guidelines and precautions in the safety guide (136R0243). For details on cyber security, see Security Features in the application guide (136R0283). Additional resources - including a design guide, an application guide, and a comprehensive installation guide - can be downloaded at www.danfoss.com/service-and-support.

1.2 Required Tools

- Lifting aid
- Measuring tape
- Wrench with extensions and 8, 17, 19 mm sockets
- Torx and slotted screwdrivers (T25, SL1, and SL2)
- Wire crimper
- Sheet metal punch and/or pliers for cable entry plate

1.3 Verifying the Shipment and the Contents

Make sure that the items supplied and the information on the product label correspond to the order confirmation. The product label is placed on the lower right corner of the exterior door and also on the interior of the drive.

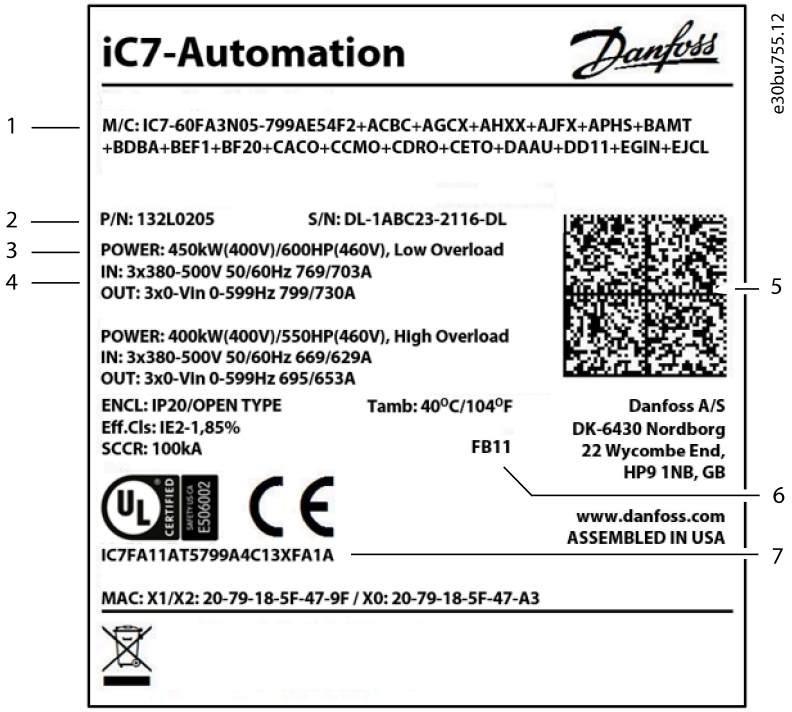

Illustration 1: Example of the Model Code on the Product Label

1	Model code	5	2D code – accessible by using a Datamatrix ECC 200 compatible barcode reader – containing the model code, code number, serial number, and manufacture date
2	Code number, serial number, and manufacture date (YYWW)	6	Frame designation
3	Power rating	7	Compliance code
4	Input and output voltage, frequency, and current		

1.4 EMC-compliant Installation

For EMC-compliant installation, refer to the operating or design guide and follow the electrical installation instructions.

- Use shielded cables for motor (unshielded cables in metal conduit are acceptable), brake, DC, and control wiring.
- Connect the shield to the enclosures at both ends. If the shield connection points have a voltage potential difference, connect a low impedance equalizing wire parallel to the shielded cable. Otherwise, break the shield connection on 1 end to prevent ground current loops.
- Ensure that motor, brake, and DC cables are as short as possible to reduce the interference level from the entire system.
- Provide a minimum 200 mm (7.9 in) separation between mains input, motor cables, and control cables.
- Convey the currents back to the unit using a metal mounting plate. Ensure good electrical contact from the mounting plate through the mounting screws to the drive chassis.

1.5 Installing the Drive

⚠ WARNING ⚠

SHOCK HAZARD

Touching an uncovered motor, mains, or DC connection plug or terminal can result in death or serious injury.

- All plugs and terminal protection covers for the motor, mains, and DC connections must be installed within the IP20 enclosure to provide an IP20 protection rating. If the plug and terminal covers are not installed, the protection rating is considered IP00.

Installation location is important. Full output current is available when the following installation conditions are met. For temperatures and altitudes outside this range, consult the Derating section in the design guide.

- Maximum ambient air temperature for high overload operation: 45 °C (113 °F) average over 24 hrs and 50 °C (122 °F) for 1 hr. For low overload, maximum ambient air temperature: 40 °C (104 °F) average over 24 hrs and 45 °C (113 °F) for 1 hr.
- Minimum ambient air temperature: -30 °C (-22 °F).
- Altitude < 1000 m (3280 ft) above sea level.

Procedure

1. Identify the frame designation. See Illustration 1.
2. Make sure that the operating environment and electrical installation meet the following standards.
   - **a.** Indoor unconditioned/pollution degree 2.
   - **b.** Overvoltage category 3.
3. Review the wiring diagram. See step 1 in the Illustrations section.

   All wiring must comply with local and national regulations regarding cross-section and ambient temperature requirements. Loose connections can cause equipment faults or reduced performance. Tighten the terminals according to the proper torque value shown in step 8.
4. Review the fuse specifications. See step 2 in the Illustrations section.

   The drive can be suitable for use on a circuit capable of delivering up to 100 kA short circuit current rating (SCCR) at the respective drive voltage rating. For mains disconnect switch SCCR ratings, see the design guide.
5. Review the power cable specifications. See step 3 in the Illustrations section.

   Use copper wire with a minimum 70 °C (158 °F) rating. For aluminum wire, see the design guide.
6. Install the drive following the numbered steps in the Illustrations section. Certain illustrations/steps pertain to specific frame designations and are marked as such. If the illustration or step applies to all variants, the 2nd character in the frame designation is replaced with an x – for example Fx09 indicates FA09, FB09a, FB09c, FK09a, and FK09c. In instances where FK09 or FK10 frame designations are used, the illustration/step includes both the standard height (a) and extended height (c) variants.
   - **a.** Attach the components from the accessory bag to the drive (step 4).
   - **b.** Mount the drive on or against a solid, non-combustible mounting surface such as concrete or metal (step 5). If configured with the heat sink access panel option, provide clearance for the access panel.

     FK09a/FB09a, FK09c/FB09c, and FK10a/FB10a can be free-standing if installed with the optional pedestal kit.
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