



Datasheet



FCD 300

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■ The decentral concept

The FCD 300 Adjustable speed drive is designed for decentral mounting, e.g. in the food and beverage industry, in the automotive industry, or for other material handling applications.

With the FCD 300 it is possible to utilize the cost saving potential by placing the power electronics decentrally, and thus make the central panels obsolete saving cost, space and effort for installation and wiring.

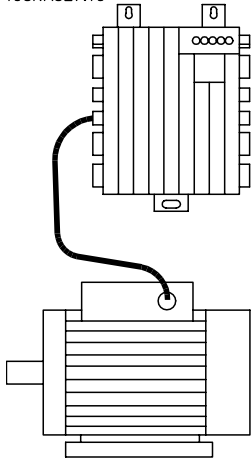
The unit is flexible in its mounting options for as well stand alone mounting and motor mounting. It is also possible to have the unit pre-mounted on a Danfoss Bauer geared motor (3 in one solution). The basic design with a plugable electronic part and a flexible and "spacious" wiring box is extremely servicefriendly and easy to change electronics without the need for unwiring.

The FCD 300 is a part of the VLT frequency converter family, which means similar functionality, programming, and operating as the other family members.

■ Flexible installation options

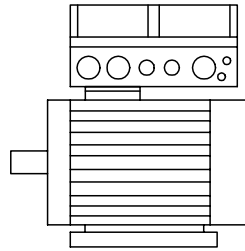
1. Stand alone close to the motor ("wall-mounted")

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- Free choice of motor brand
- Easy retrofitting to existing motor
- Easy interfacing to motor (short cable)
- Easy access for diagnosis and optimal serviceability

2. Mounted directly on the motor ("motor-mounted")

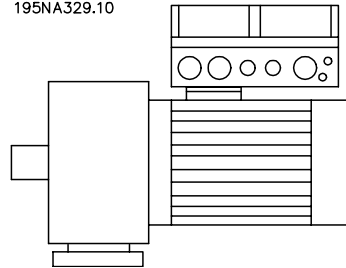


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- Fair choice of motor brands
- No need for screened motor cable

3. "Pre-mounted" on Danfoss Bauer geared motors

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- A fixed combination of motor and electronics supplied by one supplier
- Easy mounting, only one unit
- No need for screened motor cable
- Clear responsibility regarding the complete solution

As the electronic parts are common - same function of terminals, similar operation and similar parts and spare parts for all drives - you are free to mix the three mounting concepts.

Order form

This section makes it easier for you to specify and order an FCD 300.

The frequency converter must be chosen on the basis of the present motor current at maximum loading of the unit. The frequency converter's rated output current I_{INV} must be equal to or greater than the required motor current.

Choice of frequency converter
Mains voltage

FCD 300 is available for connection to mains voltage range: 380-480 V.

Type	Typical shaft output P_{INV}		Max. constant output current I_{INV}	Max. constant output power at 400 V S_{INV}
	[kW]	[HP]		
303	0.37	0.50	1.4	1.0
305	0.55	0.75	1.8	1.2
307	0.75	1.0	2.2	1.5
311	1.1	1.5	3.0	2.0
315	1.5	2.0	3.7	2.6
322	2.2	3.0	5.2	3.6
330	3.0	4.0	7.0	4.8
335**	3.3	5.0*	7.6	5.3

* at mains/motor voltage 3 x 460 - 480 V

** t_{amb} max. 35° C

Enclosure

DMS 300 / FCD 300 units are protected against water and dust as standard.

See also the section entitled *Technical data* for further details.

55011-1A. See the sections *Cable lengths* and *Cross section* for further details.

Brake

FCD 300 is available with or without an integral brake module. See also the section entitled *Brake resistors* for ordering a brake resistor. EB version including mechanical brake control/supply.

Harmonic filter

The harmonic currents do not affect power consumption directly, but they increase the heat losses in the installation (transformer, cables). That is why in a system with a relatively high percentage of rectifier load it is important to keep the harmonic currents at a low level so as to avoid a transformer overload and high cable temperature. For the purpose of ensuring low harmonic currents, the FCD 300 units are fitted with coils in their intermediate circuit as standard. This reduces the input current I_{RMS} by typically 40 %.

24 V external supply

Back up of control supply with 24 V DC is available in EX and EB versions.

Display unit

On the FCD 300 unit there are 5 indicator lamps for voltage (ON), warning, alarm, status and bus.

RFI filter

FCD 300 has an integral 1A RFI-filter. The integral 1A RFI filter complies with EMC standards EN

In addition, a plug for connecting an LCP control panel is available as an option. The LCP control panel can be installed up to 3 metres away from the frequency converter, e.g. on a front panel, by means of a mounting kit.

All displays of data are via a 4-line alpha-numerical display, which in normal operation is able to show 4 operating data items and 3 operation modes continuously. During programming, all the information required for quick, efficient parameter Setup of the frequency converter is displayed. As a supplement to the display, the LCP has three indicator lamps for voltage (ON), warning (WARNING) and alarm (ALARM). Most of the frequency converter's parameter Setups can be changed immediately via the LCP control panel. See also the section entitled *The LCP control unit* in the Design Guide.

Profibus is a registered trade mark.

■ FC protocol

Danfoss frequency converters are able to fulfill many different functions in a monitoring system. The frequency converter can be integrated directly in an overall surveillance system, which will allow detailed process data to be transferred via serial communication. The protocol standard is based on an RS 485 bus system with a maximum transmission speed of 9600 baud. The following Drive profiles are supported as standard:

- FC Drive, which is a profile adapted to Danfoss.
- Profidrive, which supports the profidrive profile.

See *Serial communication* for further details of telegram structure and Drive profile.

■ Fieldbus option

The increasing information requirements in industry make it necessary to collect or visualize many different process data. Important process data help the system technician with the daily monitoring of the system. The large amounts of data involved in major systems make a higher transmission speed than 9600 baud desirable.

Profibus is a fieldbus system, which can be used for linking automation devices such as sensors and actuators with the controls by means of a two-conductor cable.

Profibus DP is a very fast communication protocol, made specially for communication between the automation system and various types of equipment. Danfoss FCD 300 can be supplied with the Profibus® DP in a 3 Mbit and a 12 Mbit version. Units with Profibus protocol can either be controlled by FC protocol or Profidrive protocol.

Also available with AS Interface and DeviceNet.

The below explanations refer to the ordering form.

Power sizes (positions 1-6):

0,37 kW – 3,3 kW (See power size selection table)

Application range (position 7):

- P-process

Mains voltage (positions 8-9):

- T4 - 380-480 V three phase supply voltage

Enclosure (positions 10-12):

The enclosure offers protection against dusty, wet, and aggressive environment

- P66 - Protected IP66 enclosure

Hardware variant (positions 13-14):

- ST - Standard hardware
- EX - 24 V external supply for backup of control card
- EB - 24 V external supply for backup of control card, control and supply of mechanical brake and an additional brake chopper

RFI filter (positions 15-16):

- R1 - Compliance with class A1 filter

Display unit (LCP) (positions 17-18):

Connection possibility for display and keypad

- D0 - No pluggable display connector in the unit
- DC - Display connector plug mounted (not available with "only right side" installation box variants)

Fieldbus option card (positions 19-21):

A wide selection of high performance fieldbus options is available (integrated)

- F00 - No fieldbus option built in
- F10 - Profibus DP V0/V1 3 Mbaud
- F12 - Profibus DP V0/V1 12 Mbaud
- F30 - DeviceNet
- F70 - AS-interface

Installation box (positions 22-24):

- T00 - No Installation box
- T11 - Installation box, motor mount, metric thread, only right side
- T12 - Installation box, motor mount, metric thread, double side
- T16 - Installation box, motor mount, NPT thread, double side
- T22 - Installation box, motor mount, metric thread, double side, service switch
- T26 - Installation box, motor mount, NPT thread, double side, service switch
- T51 - Installation box, wall mount, metric thread, only right side
- T52 - Installation box, wall mount, metric thread, double side
- T56 - Installation box, wall mount, NPT thread, double side
- T62 - Installation box, wall mount, metric thread, double side, service switch
- T66 - Installation box, wall mount, NPT thread, double side, service switch
- T63 - Installation box, wall mount, metric thread, double side, service switch, sensor plugs
- T73 - Installation box, wall mount, metric thread, double side, motor plug, sensor plugs, Viton gasket

Coating (positions 25-26):

The IP66 enclosure offers protection of the drive against aggressive environments, which practically eliminates the need for coated printed circuit boards.

- C0 - Non coated boards

■ Ordering form - FCD 300

FCD 3 P T4 P66 R1 D T C

Power sizes
e.g. 315

Application range
P

Mains voltage
T4

Enclosure
P66

Hardware variant
ST
EX
EB

RFI filter
R1

Display unit (LCP)
DO
DC

Fieldbus option card
FO0
F10
F12
F30
F70

Installation box
T00
T11
T12
T16
T22
T26
T51
T52
T56
T62
T63
T66
T73

Coating
CO
C1

No. units of this type

Required delivery date

Ordered by:

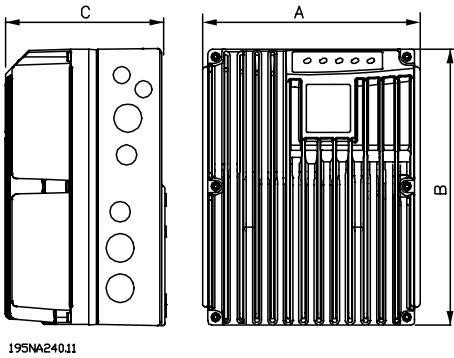
Date: _____

Take a copy of the ordering forms.
Fill them in and send or fax your order to the nearest office of the Danfoss sales organisation

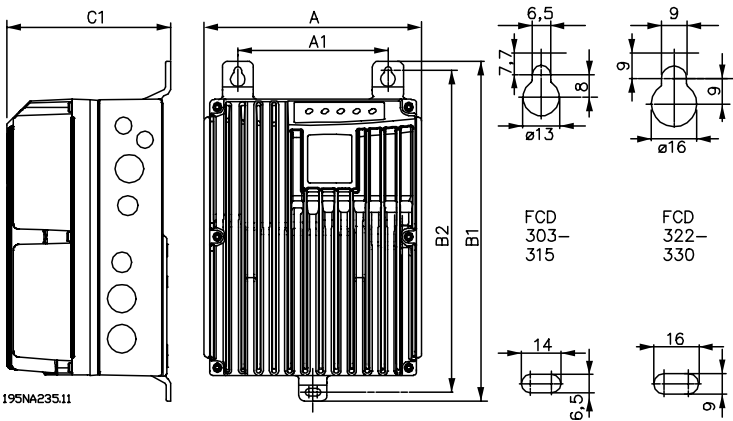
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■ Installation

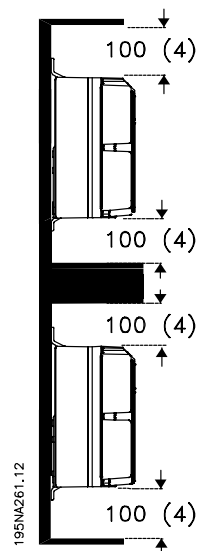
■ Mechanical dimensions, FCD, motor mounting



■ Mechanical dimensions, stand alone mounting



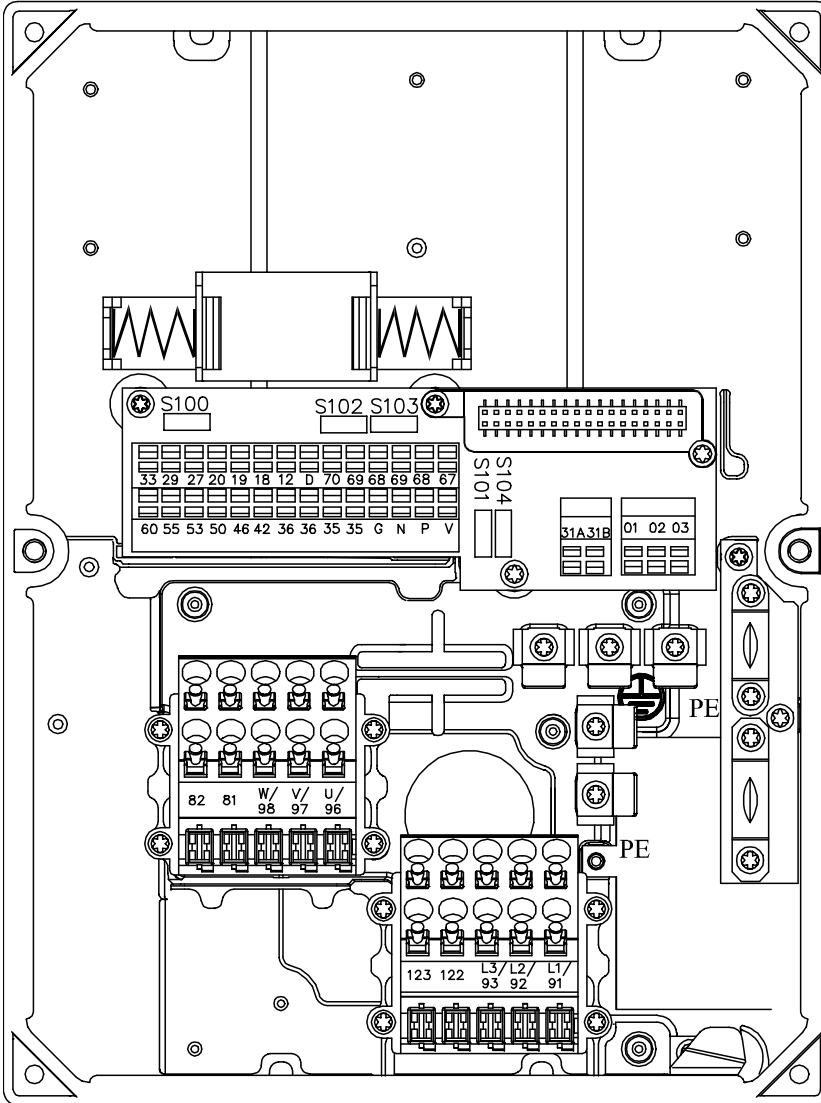
Mechanical dimensions in mm	FCD 303-315	FCD 322-330
A	192	258
A1	133	170
B	244	300
B1	300	367
B2	284	346
C	142	151
C1	145	154
Cable Gland sizes	M16, M20, M25 x 1.5 mm	
Space for cable inlets and service switch handle	100-150 mm	



■ Spacing for mechanical installation

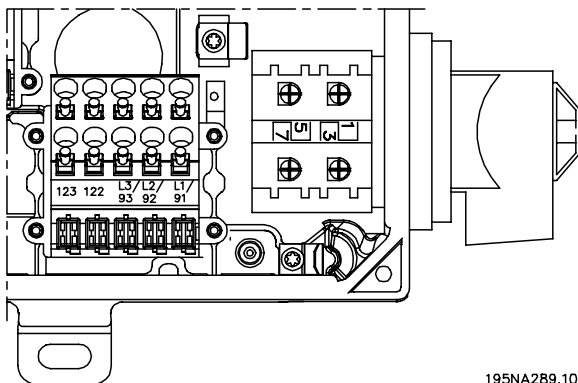
All units require a minimum of 100 mm air from other components above and below the enclosure.

■ Location of terminals



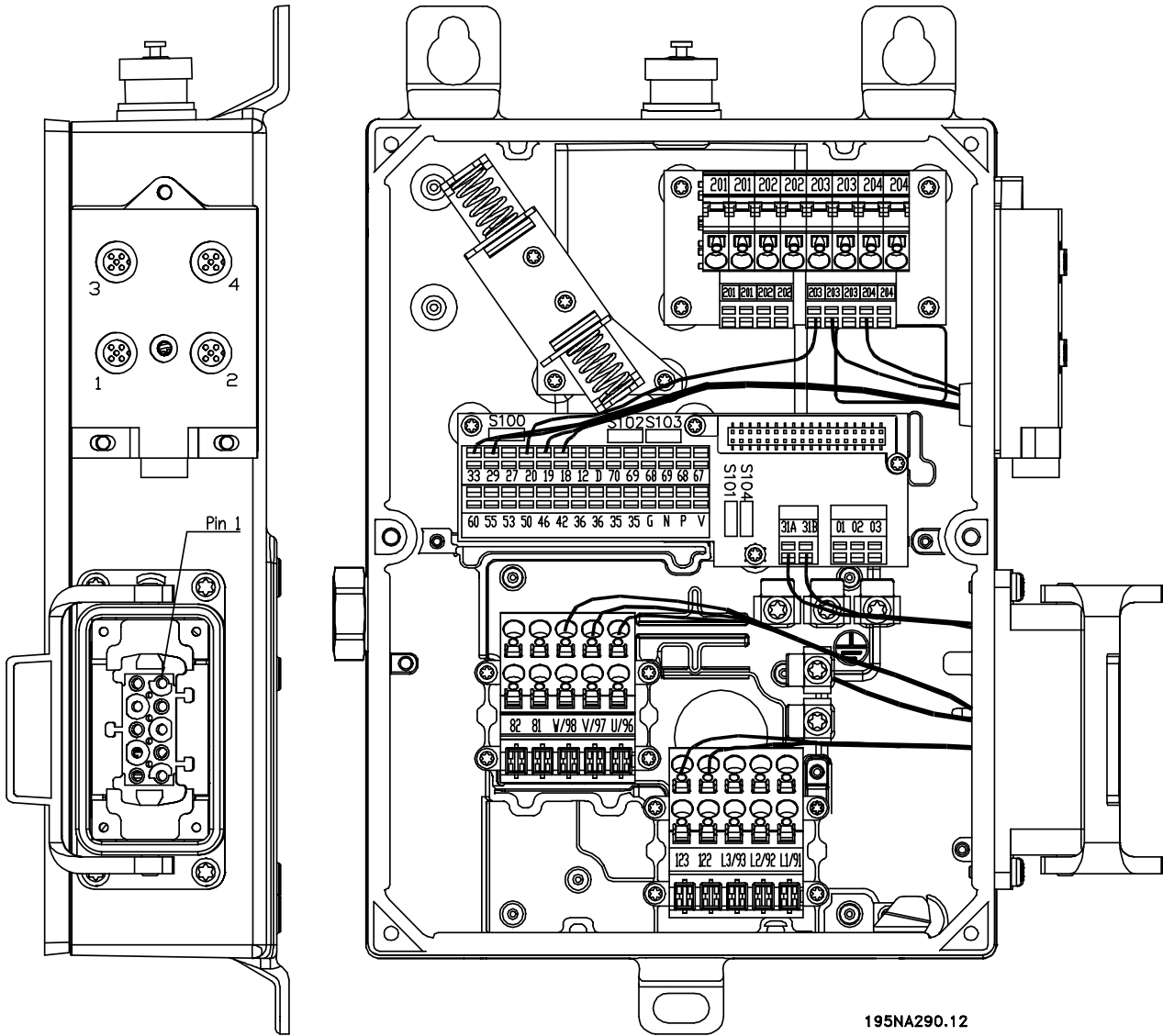
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T11, T12, T16, T52, T56



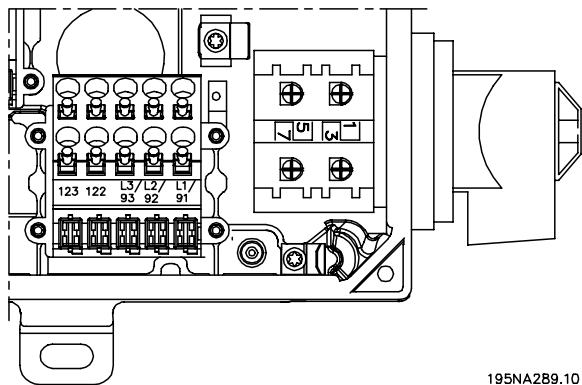
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T22, T26, T62, T66versions with service switch



195NA290.12

T73 version with motor plug and sensor plugs
Version is supplied from Danfoss with wiring as shown



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T63 version with service switch (no motor plug)

■ General technical data

Mains supply (L1, L2, L3):

Supply voltage FCD 305-335 380-480 V	3 x 380/400/415/440/480 V ±10%
Supply frequency	50/60 Hz
Max. imbalance on supply voltage	± 2.0% of rated supply voltage
Power factor (400 V) / cos. Φ_1	0.90 / 1.0 at rated load
Number of connections at supply input L1, L2, L3	2 times/min.
Max. short-circuit value fuses	100,000 A
Max. short-circuit value circuit breakers	10,000 A

See Special Conditions section in the Design Guide

Output data (U, V, W):

Output voltage	0 - 100% of supply voltage
Output frequency	0.2 - 132 Hz, 1 - 1000 Hz
Rated motor voltage, 380-480 V units	380/400/415/440/460/480 V
Rated motor frequency	50/60 Hz
Switching on output	Unlimited
Ramp times	0.02 - 3600 sec.

Torque characteristics:

Starting torque (parameter 101 Torque characteristic = Constant torque)	160% in 1 min.*
Starting torque (parameter 101 Torque characteristics = Variable torque)	160% in 1 min.*
Starting torque (parameter 119 <i>High starting torque</i>)	180% for 0.5 sec.*
Overload torque (parameter 101 Torque characteristic = Constant torque)	160%*
Overload torque (parameter 101 Torque characteristic = Variable torque)	160%*

*Percentage relates to frequency converter's nominal current.

Control card, digital inputs:

Number of programmable digital inputs	5
Terminal number	18, 19, 27, 29, 33
Voltage level	0 - 24 V DC (PNP positive logic)
Voltage level, logic '0'	< 5 V DC
Voltage level, logic '1'	> 10 V DC
Maximum voltage on input	28 V DC
Input resistance, R_i (terminals 18, 19, 27)	approx. 4 k Ω
Input resistance, R_i (terminal 29, 33)	approx. 2 k Ω

All digital inputs are galvanically isolated from the supply voltage (PELV) and other high-voltage terminals, and can be functionally separated from other control terminals by opening switch S100. See section entitled Galvanic Isolation.

Control card, analogue inputs:

Number of analogue voltage inputs	1 pcs.
Terminal number	53
Voltage level	$\pm 0 - 10$ V DC (scaleable)
Input resistance, R_i	approx. $10\text{ k}\Omega$
Max. voltage	20 V

Number of analogue current inputs	1 pcs.
Terminal number	60
Current level	0/4 - 20 mA (scaleable)
Input resistance, R_i	approx. $300\ \Omega$
Max. current	30 mA

Resolution for analogue inputs	10 bit
Accuracy of analogue inputs	Max. error 1% of full scale
Scan interval	13.3 msec

The analogue inputs are galvanically isolated from the supply voltage (PELV) and other high-voltage terminals. See section entitled Galvanic Isolation.

Control card, pulse inputs:

Number of programmable pulse inputs	2
Terminal number	29, 33
Max. frequency at terminal 29/33	110 kHz (Push-pull)
Max. frequency at terminal 29/33	5 kHz (open collector)
Min. frequency at terminal 33	4 Hz
Min. frequency at terminal 29	30 Hz
Voltage level	0 - 24 V DC (PNP positive logic)
Voltage level, logic '0'	< 5 V DC
Voltage level, logic '1'	> 10 V DC
Maximum voltage on input	28 V DC
Input resistance, R_i	approx. $2\text{ k}\Omega$
Scan interval	13.3 msec
Resolution	10 bit
Accuracy (100 Hz- 1 kHz) terminal 33	Max. error: 0.5% of full scale
Accuracy (1 kHz - 67.6 kHz) terminal 33	Max. error: 0.1% of full scale

The pulse input is galvanically isolated from the supply voltage (PELV) and other high-voltage terminals. See section entitled Galvanic Isolation.

Control card, digital/frequency output:

Number of programmable digital/pulse outputs	1 pcs.
Terminal number	46
Voltage level at digital/frequency output	0 - 24 V DC (O.C PNP)
Max. output current at digital/frequency output	25 mA.
Max. load at digital/frequency output	$1\text{ k}\Omega$
Max. capacity at frequency output	10 nF
Minimum output frequency at frequency output	16 Hz
Maximum output frequency at frequency output	10 kHz
Accuracy on frequency output	Max. error: 0.2 % of full scale
Resolution on frequency output	10 bit

The digital output is galvanically isolated from the supply voltage (PELV) and other high-voltage terminals. See section entitled Galvanic Isolation.

Control card, analog output:

Number of programmable analog outputs	1
Terminal number	42
Current range at analog output	0/4 - 20 mA
Max. load to common at analog output	500 Ω
Accuracy on analog output	Max. error: 1.5 % of full scale
Resolution on analog output	10 bit

The analog output is galvanically isolated from the supply voltage (PELV) and other high-voltage terminals. See section entitled Galvanic Isolation.

Control card, 24 V DC output:

Terminal number	12
Max. load supplied from mains / 24 V external	240/65 mA

The 24 V DC supply is galvanically isolated from the supply voltage (PELV) , but has the same potential as the analogue and digital inputs and outputs. See section entitled Galvanic Isolation.

Control card, 10 V DC output:

Terminal number	50
Output voltage	10.5 V ±0.5 V
Max. load	15 mA

The 10 V DC supply is galvanically isolated from the supply voltage (PELV) and other high-voltage terminals. See section entitled Galvanic Isolation.

Control card, RS 485 serial communication:

Terminal number	68 (TX+, RX+), 69 (TX-, RX-)
Terminal number 67	+ 5 V
Terminal number 70	Common for terminals 67, 68 and 69

Full galvanic isolation. See section entitled Galvanic Isolation.

Relay outputs:

Number of programmable relay outputs	1
Terminal number, control card	1-3 (break), 1-2 (make)
Max. terminal load (AC) on 1-3, 1-2, control card	240 V AC, 2 A
Min. terminal load on 1-3, 1-2, control card	24 V DC 10 mA, 24 V AC 100 mA

The relay contact is separated from the rest of the circuit by strengthened isolation. See section entitled Galvanic Isolation.

External 24 Volt DC supply:

Terminal nos	35, 36
Voltage range	21-28 V (max. 37 V DC for 10 sec.)
Max. voltage ripple	2 V DC
Power consumption with/without mains supply	<1W/5-12W

Reliable galvanic isolation: Full galvanic isolation if the external 24 V DC supply is also of the PELV type.

Sensor supply (T63, T73):

Terminal nos	201, 202, 203, 204
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Cable lengths and cross sections:

Max. motor cable length, screened/armoured cable	10 m
Max. motor cable length, unscreened/unarmoured cable	10 m
<i>Max. cross section to motor, see next section.</i>	
Max. cross section to control wires, rigid wire	4.0 mm ² /10 AWG
Max. cross section to control cables, flexible cable	2.5 mm ² /12 AWG
Max. cross section to control cables, cable with ferrules	2.5 mm ² /12 AWG
Max. cross section extra terminals for 24 V ext, T73 version, rigid cables	6.0 mm ² /9 AWG
Max. cross section extra terminals for 24 V ext, T73 version, flexible cable	4 mm ² /10 AWG
Max. cross section extra terminals for 24 V ext, T73 version, cable with ferrules	4 mm ² /10 AWG
Max. cross section PE	10 mm ² /7 AWG
Max. cross section external PE for T73 version	16 mm ² / 5 AWG

If UL/cUL is to be complied with, cable with temperature class 60/75°C must be used. Use copper wires only.

When complying with EN 55011 1A the motor cable must be screened/armoured. See EMC emission.

 Control characteristics:

Frequency range	0.2 - 132 Hz, 1 - 1000 Hz
Resolution of output frequency	0.013 Hz, 0.2 - 1000 Hz
Repeat accuracy of <i>Precise start/stop</i> (terminals 18, 19)	≤ ± 0.5 msec
System response time (terminals 18, 19, 27, 29, 33)	≤ 26.6 msec
Speed control range (open loop)	1:15 of synchronous speed
Speed control range (closed loop)	1:120 of synchronous speed
Speed accuracy (open loop) <1.1 kW	150 - 3600 rpm: Max. error of ±23 rpm
Speed accuracy (open loop) >0.75 kW	90 - 3600 rpm: Max. error of ±23 rpm
Speed accuracy (closed loop)	30 - 3600 rpm: Max. error of ±7.5 rpm

All control characteristics are based on a 4-pole asynchronous motor

 Surroundings:

Enclosure	IP 66, TYPE 4x (indoor)
Enclosure T73 version	IP 65, TYPE 12
Vibration test	1.0 g
Max. relative humidity	95% <i>see Air humidity in the Design Guide</i>
Ambient temperature (FCD 335 max. 35 °C)	Max. 40 °C (24-hour average max. 35 °C)
<i>Derating for ambient temperature, see special conditions in the Design Guide</i>	
Min. ambient temperature during full-scale operation	0 °C
Min. ambient temperature at reduced performance	- 10 °C
Temperature during storage/transport	-25 - +65/70 °C
Max. altitude above sea level	1000 m

Derating for air pressure, see special conditions in the Design Guide

EMC standards used, Emission	EN 50081-1-2, EN 61800-3, EN 55011
EMC standards used, immunity	EN 61000-6-2, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6

See section on special conditions in the Design Guide

Safeguards:

- Electronic thermal motor protection against overload.
- Temperature monitoring of the power module ensures that the frequency converter cuts out if the temperature reaches 100 °C. An overload temperature cannot be reset until the temperature of the power module is below 70 °C.
- The frequency converter is protected against short-circuits on motor terminals U, V, W.
- If a mains phase is missing, the frequency converter will cut out.
- Monitoring of the intermediate circuit voltage ensures that the frequency converter cuts out if the intermediate circuit voltage is too low or too high.
- The frequency converter is protected against earth fault on motor terminals U, V, W.

■ Technical data, mains supply 3 x 380 - 480 V

According to international standards	Type	303	305	307	311	315	322	330	335**
Output current (3 x 380-480V)	I_{INV} [A]	1.4	1.8	2.2	3.0	3.7	5.2	7.0	7.6
	I_{MAX} (60s) [A]	2.2	2.9	3.5	4.8	5.9	8.3	11.2	11.4
Output power (400 V)	S_{INV} [KVA]	1.0	1.2	1.5	2.0	2.6	3.6	4.8	5.3
Typical shaft output	$P_{M,N}$ [kW]	0.37	0.55	0.75	1.1	1.5	2.2	3.0	3.3
Typical shaft output	$P_{M,N}$ [HP]	0.50	0.75	1.0	1.5	2.0	3.0	4.0	5*
Max. cable cross section, motor	[mm ² /AWG] ¹⁾	4/10	4/10	4/10	4/10	4/10	4/10	4/10	4/10
Input current (3 x 380-480 V)	$I_{L,N}$ [A]	1.2	1.6	1.9	2.6	3.2	4.7	6.1	6.8
	$I_{L,MAX}$ (60s)[A]	1.9	2.6	3.0	4.2	5.1	7.5	9.8	10.2
Max. cable cross section, power	[mm ² /AWG] ¹⁾	4/10	4/10	4/10	4/10	4/10	4/10	4/10	4/10
Max. pre-fuses	[IEC/UL ²⁾ [A]	25/25	25/25	25/25	25/25	25/25	25/25	25/25	25/25
Efficiency ³⁾	[%]	96							
Power loss at max. load	[W]	22	29	40	59	80	117	160	190
Weight	[kg]	5.8	5.8	5.8	5.8	5.8	9.5	9.5	9.5

* At mains voltage min 3 x 460 - 480 V

** t_{amb} max. 35° C.

1. American Wire Gauge. Max. cable cross section is the largest cable cross section that can be attached to the terminals. Always observe national and local regulations.

2. Typr gG / gL pre fuses or corresponding circuit breakers should be used.

If you want to maintain UL/cUL branch circuit fuses according to NEC should be used. Alternatively a circuit breaker Danfoss type CTI 25 MB or equivalent should be used.

To be placed for protection in a circuit that is capable of supplying a maximum of 100,000 amps for fuses / 10,000 amps for circuit breakers.

3. Measured using a 10 m screened/armoured motor cable with a rated load and rated frequency.

■ Accessories for FCD 300

Type		Description	Ordering no.
LCP2 control unit	FCD	LCP2 for programming the frequency converter	175N0131
Cable for LCP2 control unit	FCD	Cable from LCP2 to frequency converter	175N0162
LCP2 remote-mounting kit	FCD	Kit for remote-mounting of LCP2 (incl. 3 m cable, excl. LCP2)	175N0160
LOP (Local Operation Pad)	FCD	LOP can be used for setting the reference and start/stop via the control terminals	175N0128
Motor adaption plate	DMS/FCD	Plate for adapting to non Danfoss Bauer motors	175N2115
Membrane	DMS/FCD	Membrane for preventing condensation	175N2116
Plug kit for LCP2	FCD	Plug for LCP2 for mounting in the terminal box.	175N2118
Motor star terminal	DMS/FCD	Terminal for interconnection of motor wires (star point)	175N2119
Installation kit	FCD	Installation kit for mounting in panels	175N2207
M 12 plug	FCD	E.g. for DeviceNet	175N2279
Viton Gasket	FCD 303-315	Painting shop compatible	175N2431
Viton Gasket	FCD 322-335	Painting shop compatible	175N2450
Data Cable	FCD	For PC communication	175N2491

■ PC Software tools**PC Software - MCT 10**

All drives are equipped with a serial communication port. We provide a PC tool for communication between PC and frequency converter, VLT Motion Control Tool MCT 10 Set-up Software.

MCT 10 Set-up Software

MCT 10 has been designed as an easy to use interactive tool for setting parameters in our frequency converters. The MCT 10 Set-up Software will be useful for:

- Planning a communication network off-line. MCT 10 contains a complete frequency converter database
- Commissioning frequency converters on line
- Saving settings for all frequency converters
- Replacing a drive in a network
- Expanding an existing network
- Future developed drives will be supported

MCT 10 Set-up Software support Profibus DP-V1 via a Master class 2 connection. It makes it possible to

on line read/write parameters in a frequency converter via the Profibus network. This will eliminate the need for an extra communication network.

The MCT 10 Set-up Software Modules

The following modules are included in the software package:

**MCT 10 Set-up Software**

Setting parameters
Copy to and from frequency converters
Documentation and print out of parameter settings incl. diagrams

SyncPos

Creating SyncPos programme

Ordering number:

Please order your CD containing MCT 10 Set-up Software using code number 130B1000.

Ordering numbers for brake resistors

Internally mountable brake resistors for low duty cycle braking (1-3%). The resistors are self-protecting. Internal brake resistors cannot be mounted in FCD 303-315 with service switch.

Type		Description	Ordering no.
Internal brake resistor	FCD 303-307	Brake resistor for mounting inside the terminal box	175N2154
Internal brake resistor	FCD 311-335	Brake resistor for mounting inside the terminal box	175N2117

Flatpack brake resistors IP 65

Type	P _{motor} [kW]	R _{MIN} [Ω]	Size [Ω] / [W] per item	Duty cycle %	2 wires Order no. 175Uxxxx	Screened cable Order no. 175Nxxxx
303 (400 V)	0.37	520	830 Ω / 100 W	20	1000	2397
305 (400 V)	0.55	405	830 Ω / 100 W	20	1000	2397
307 (400 V)	0.75	331	620 Ω / 100 W	14	1001	2396
311 (400 V)	1.10	243	430 Ω / 100 W	8	1002	2395
315 (400 V)	1.50	197	310 Ω / 200 W	16	0984	2400
322 (400 V)	2.20	140	210 Ω / 200 W	9	0987	2399
330 (400 V)	3.00	104	150 Ω / 200 W	5.5	0989	2398
335 (400 V)	3.30	104	150 Ω / 200 W	5.5	0989	2398

Mounting bracket for brake resistors

Type	Order no. 175Nxxxx
303-315	2402
322-335	2401

Coiled wire brake resistors Duty-cycle 40%

VLT type	Intermittent braking period time [seconds]	P _{motor} [kW]	R _{min} [Ω]	R _{rec} [Ω]	P _{b, max} [kW]	Therm.relay [Amp]	Code number 175Uxxxx	Cable cross section [mm ²]
303 (400 V)	120	0,37	520	830	0,45	0,7	1976	1,5*
305 (400 V)	120	0,55	405	830	0,45	0,7	1976	1,5*
307 (400 V)	120	0,75	331	620	0,32	0,7	1910	1,5*
311 (400 V)	120	1,1	243	430	0,85	1,4	1911	1,5*
315 (400 V)	120	1,5	197	330	0,85	1,6	1912	1,5*
322 (400 V)	120	2,2	140	220	1,00	2,1	1913	1,5*
330 (400 V)	120	3,0	104	150	1,35	3,0	1914	1,5*
335 (400 V)	120	3,3	104	150	1,35	3,0	1914	1,5*

*Always observe national and local regulations

P_{motor}	: Rated motor size for VLT type
R_{min}	: Minimum permissible brake resistor
R_{rec}	: Recommended brake resistor (Danfoss)
$P_{\text{b, max}}$: Brake resistor rated power as stated by supplier
Therm. relay	: Brake current setting of thermal relay
Code number	: Order numbers for Danfoss brake resistors
Cable cross section	: Recommended <u>minimum</u> value based upon PVC insulated cober cable, 30 degree Celsius ambient temperature with normal heat dissipation

Externally mounted brake resistors in general

No use of aggressive cleaning solvents. Cleaning solvents must be pH neutral.

■ Supplied with the unit

Below is a list of the literature available for FCD 300. It must be noted that there may be deviations from one country to the next.

Supplied with the unit:

Operating instructions MG.04.BX.YY

Various literature for FCD 300:

Data sheet MD.04.AX.YY

Design Guide - Decentral Solutions MG.90.FX.YY

Communication with FCD 300:

Profibus DP V1 Operating Instructions MG.90.AX.YY

DeviceNet Operating Instructions MG.90.BX.YY

AS-i Operating Instructions MG.04.EX.YY

X = version number

YY = language version



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