



VLT® Refrigeration Drive FC 103

Regardless if you want to operate compressors, pumps or fans, the VLT® Refrigeration Drive FC 103 provides you the possibility to save energy and extend the lifetime of the components.



Speed control provides many benefits in all motor driven parts of refrigeration applications. The VLT® Refrigeration Drive moves the user in the position to profit from this in a very simple way.

One drive for all

The VLT® Refrigeration Drive FC 103 covers a power range between 1.1-250 kW. Available in a variety of protection classes the drive suits the needs of pump, fan and compressor applications. Every application and power size can be operated and programmed with the same common user interface.

Refrigeration language

For setting up the drive in the most efficient and logical way, the text and language used make complete sense to refrigeration engineers and installers.

Setup wizard applications

The built-in “Wizard set-up menu” guides users through the setup of the drive in a clear and structured manner and supports following functionalities:

- Multi compressor control
- Multi condenser and evaporator fan
- Multi condenser and evaporator pumps

General features	Benefits
Robust single enclosure	Maintenance free
Protection classes IP 20/21/55/66	Fits every application
Coated electronics (class 3C2 or 3C3)	Withstands challenging environments
Max. ambient temp. 50° C without derating	No external cooling or oversize necessary
Software features	Benefits
Sleep mode	Optimum system efficiency
Thermostat/Pressostat function	System protection
Fieldbus (AKD LON, Modbus RTU...)	Open for all kind of controllers
Velocity-to-flow conversion	Saves costs
Day/Night Control	Reduces wear and energy consumption
Advanced energy monitoring	Overview of energy consumption
Compressors features	Benefits
High starting torque	Operates all types of compressor
PO optimization	Optimum system efficiency
Injection on/off	Improves refrigeration processes
Discharge temperature monitor	Protects the compressor
Pack controller	Saves energy and reduce maintenance
Neutral zone controller	Handling of unsymmetrical zones
Pump features	Benefits
Pump cascade controller	Saves energy and reduce maintenance
Dry pump protection and end of curve	Protects the pump
Flow compensation	Saves energy
Fan features	Benefits
Broken belt detection	Protects the system
Operate induction motors in parallel	Reduces investment cost
Automatic Energy Optimizer AEO function	Saves energy
No EMC concerns	Benefits
Integrated DC link harmonic filters	Low harmonic load on mains
Integrated EMC filters	No external filters required

Dedicated

to refrigeration application

The VLT® Refrigeration Drive FC 103 is designed to suit fans, pumps and compressors in any kind of refrigeration application.

Product range

3 x 200 – 240 V 1.1 – 45 kW
 3 x 380 – 480 V 1.1 – 250 kW
 3 x 525 – 600 V 1.1 – 90 kW
 With 110% overload torque

Available enclosure ratings

IP 20 (NEMA 1) 1.1 – 90 kW
 IP 21 (NEMA 1) 1.1 – 250 kW
 IP 54 (NEMA 12) 1.1 – 250 kW
 IP 55 (NEMA 12) 1.1 – 90 kW
 IP 66 (NEMA 4X) 1.1 – 90 kW

Standard coating providing extra protection for aggressive environments.

Options

A wide range of VLT® Refrigeration FC 103 options are available mounted and tested from the factory or as plug-and-play options for update.

General purpose I/O (MCB 101)

3 digital inputs, 2 digital outputs,
 1 analogue current output,
 2 analogue voltage inputs

Relay outputs (MCB 105)

3 relay outputs

Analogue I/O (MCB 109)

3 Pt1000/Ni1000 inputs,
 3 analogue voltage outputs
 Buffer for Real Time Clock

External 24 V DC supply (MCB 107)

24 V DC external supply can be connected to supply control- and option cards.

Filters

- **Advanced harmonic filters:**
For critical demands on harmonic distortion
- **dU/dt filters:**
For special demands on motor isolation protection
- **Sine wave filters (LC filters):**
For noiseless motor or special demands on motor isolation protection

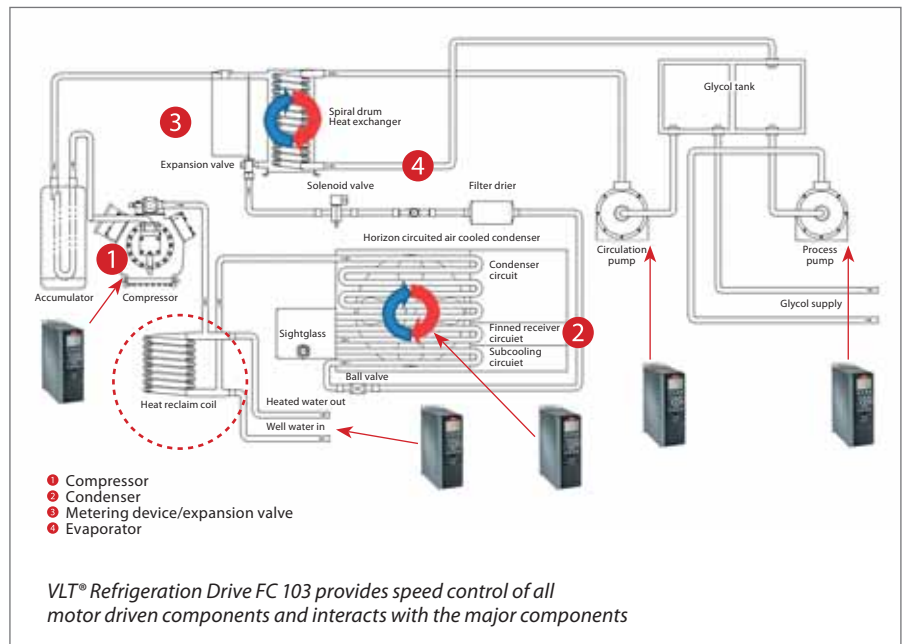
HVAC PC software tools

- **MCT 10:** Ideal for commissioning and servicing the drive

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Specifications

Mains supply (L1, L2, L3)	
Supply voltage	200 – 240 V ±10% 380 – 480 V ±10% 525 – 600 V ±10%
Supply frequency	50/60 Hz
Displacement Power Factor (cos φ)	Near unity (> 0.98)
Switching on input supply L1, L2, L3	1-2 times/min.
Output data (U, V, W)	
Output voltage	0 – 100% of supply voltage
Switching on output	Unlimited
Ramp times	1 – 3600 sec.
Closed loop	0 – 132 Hz
Digital inputs	
Programmable digital inputs	6*
Logic	PNP or NPN
Voltage level	0 – 24 V
* 2 can be used as digital outputs	
Relay output	
Programmable relay outputs	2 (240 VAC, 2 A and 400 VAC, 2 A)
Analogue input	
Analogue inputs	2
Modes	Voltage or current
Voltage level	0 – 10 V (scaleable)
Current level	0/4 to 20 mA (scaleable)
Fieldbus communication	
Standard built-in: FC Protocol Modbus RTU N2 Metasys	Optional: LonWorks for AKD (MCA 107)



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