Danfoss

VLT® Synchronizing Controller MCO 350

Option for VLT® AutomationDrive

The Synchronizing Controller MCO 350 is fully integrated in the VLT® AutomationDrive. No additional wiring is required.

The VLT® Synchronizing Controller is user-friendly, enabling set-up of all parameters via the VLT® Automation-Drive Local Control Panel or via the VLT® set-up software MCT 10.

As the VLT® Synchronizing Control-ler is a standard product with fixed functional properties, no additional application programming is required. To make commissioning easy, a test run function is included.

In addition, the VLT® Synchronizing Controller includes the features: Choice of offset, gear ratios and read out of status.

Synchronising on the user's terms
The technology behind the VLT® Synchronizing Controller option offers a host of user-friendly benefits for synchronising applications in many industries, like:

- Paper and plastic manufacturing
- Food and beverage processing
- Concrete and cement processing
- Bottle manufacturing

The VLT® Synchronizing Controller option for VLT® AutomationDrive expands the functional properties of the frequency converter in synchronising applications.

It replaces traditional mechanical solutions and adds new flexibility to applications like:

- Printing lines
- Bottle washers
- Conveyor belts
- Packaging and material handling systems
- Concrete vibrating machinery

Perfect

match for:

– Synchronising applications

Feature	Benefit
Innovative	
Homing	Ensures high repeatability and accuracy
– Hold function, speed up/down – Four fixed gear ratios – On-line adjustable gear ratio – On-line adjustable position (angle) offset	On the fly system adjustment
– Display of actual synchronising error on frequency converter control panel – Readout of master and follower speed on frequency converter control panel	Monitoring of quality and quantity made easy for the operator
– Speed synchronising – Position (angle) synchronising with or without marker correction	Highly flexible synchronising function, making mechanical systems redundant
Encoder output with virtual master function for synchronisation of multiple followers	Increased accuracy and repeatability of synchronisation
Auto PID calculation	Commissioning made easy

Facts about our products | **VLT®** THE REAL DRIVE

Technical features

- Covers the entire series of VLT® AutomationDrive (power range 0.37–500 kW, voltage range 200 V–500 V)
- Built-in option preserves the IP/NEMA rating
- Control and status signals via I/O or fieldbus. Fieldbus requires an additional option card, the following are available: PROFIBUS, DeviceNet
- Access to VLT® and option parameters via fieldbus or the VLT® AutomationDrive control panel
- Improved encoder resolution thanks to quadrature signals
- Test run, PID optimising, measuring of marker distance
- Restoring of factory settings
- VLT® mode, open loop speed control for emergency VLT® operation
- Control of external electro mechanical brake

Two versions:
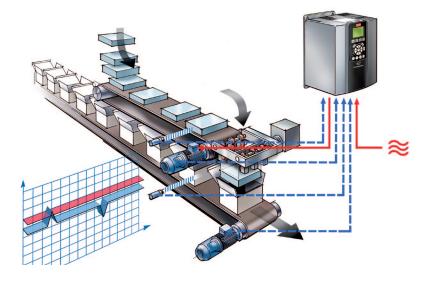The VLT® Synchronizing Controller MCO 350 is available with and without conformal coating.

Option card or built-in:
The option can be supplied either as an option card for field installation or as a built-in option in all VLT® AutomationDrives.

Specifications

Encoder inputs	
Encoder inputs	2

Incremental encoder specifications	
Incr. encoder type	RS422/TTL
Maximum frequency	410 kHz
Phase displacement between A and B	90° ± 30°
Maximum cable length	300 m

Absolute encoder specifications	
Absolute encoder type	SSI
Data coding	Gray
Data length	12 – 37 bit
Clock frequency	78 kHz – 2 MHz
Maximum cable length	150 m

Encoder options (B)	
Sinus/cosinus	
Resolver	

Encoder output (virtual master)	
Number of encoder outputs	1
Signal type	RS422
Maximum frequency	410 kHz
Maximum number of slaves	31 (more with repeater)
Maximum cable length	400 m

Encoder voltage supply	
24 V, max. load	250 mA
8 V, max. load	250 mA
5 V, max. load	400 mA

Control characteristics	
Sample time of position PID loop	1 ms
Positioning static accuracy	± 1 increment
Synchronising static accuracy	± 1 increment

The VLT® AutomationDrive with Synchronizing Controller MCO 350 secures that there is always an item ready to roll off the upper (follower) conveyor when a box passes on the lower (master) conveyor, running at a fixed speed. The transportation of items and boxes is synchronised so that they move forward according to set-up. The follower is positioned in relation with the master, utilising the automatic marker correction function to align items and boxes. To control these movements, the Synchronizing Controller depends on operational data from the encoders and two position sensors.

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