

## Feeder Controller

### General Information

The Congrav® CM-E 3.0 is the latest generation of feeder mounted and pre-wired controller for all Brabender Technologie loss-in-weight or weigh belt gravimetric feeders. There are two modules for each feeder, the Congrav® CM-E feeder control module and the FC CM module for motor speed control. These modules work together to provide dependable and accurate feeding. The Congrav® CM-E 3.0 is supplied with power via the FC CM.

Each Brabender Congrav® CM-E 3.0 module has multiple advanced RISC processors that perform the calculations necessary to provide accurate feeder performance and is designed for demanding industrial environments.

The control module Congrav® CM-E 3.0 is interconnected by a bus and connected to either the Congrav® OP1-S (for a single feeder) Congrav® OP6-E (up to 6 feeders) or the Congrav® OP16-E (up to 16 feeders) Operator Interface via a single cable connection (SCC). The controllers can also communicate directly with most host/SPS systems, whether as a single component or multi-component controller.

The unit conforms to CE directives and is characterized by high electromagnetic compatibility.



### Inputs and outputs

Inputs	6 digital inputs* (24 VDC) often used for start/stop or interlock. 1 digital input can be used as frequency input for digital speed measurement.
Outputs	6 digital outputs* (24 VDC) often used for run, refill and alarms.

\*1 input/output is occupied internally – only 5 inputs/outputs are available for customer use

### Interfaces

The control module Congrav® CM-E offers several interfaces including:

Interface	Function
Interface for IDL-F, MD, DLS load cell and DMS digital Module (RS 422)	To read the load cell weight signal
Host-/SPS-interface	Communicate to host systems. Available protocols: Ethernet Modbus TCP, Profibus DP, Profinet, EtherNet/IP
Brabender-fieldbus interface (RS 485)	For communication to Congrav® OP6-E and OP16-E operator interface or PC for operation, diagnostics and maintenance
Speed controller (RS 485)	To regulate motor speed
Interface to Congrav® OP1-S (RS 485)	For communication to Congrav® OP1-S single feeder operator interface for operation, diagnostics and maintenance

## Feeder Controller

### Technical Specification

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Housing material	Aluminium, painted (RAL 7035)
Ambient temperature	0°C to +45°C (32°F to +113°F)
Transport/storage:	-20°C to +85°C (-4°F to +185°F)
Air humidity	Up to 85% without condensation
Protection	IP 65
Dimensions (HxWxD)	200 x 200 x 72 mm
Mounting	On the gravimetric feeder
Weight	2 kg (4.4 lb)

### Electromagnetic compatibility (EMC)

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Emitted interference	DIN EN 61131-2 : 2008	
	Test method: DIN EN 55016-2-3	
Interference resistance	DIN EN 61131-2 : 2008	
	Requirement	Norm
	ESD	EN 61000-4-2
	HF radiation	EN 61000-4-3
	Burst	EN 61000-4-4
	Surge	EN 61000-4-5
	Inflow	EN 61000-4-6

### Speed Control FC CM

The Brabender FC CM module is a variable frequency drive device that works in conjunction with the Congrav® CM-E. It is used for speed control on all three phase AC motors commonly used on Brabender loss-in-weight and weigh belt feeders.

Mains: 180-264 V ± 0%, 48-62 Hz (1/N/PE AC), operation on TT mains, TN mains or mains with grounded center.

When using a smart motor, a power unit is used instead of the FC CM.