

# MACO®

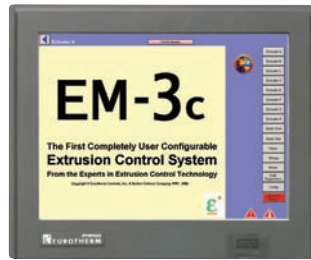
## EM-3c Control System

### MODEL

- Choice of operating systems
- Adaptive auto-tuning temperature control
- Melt pressure control
- Extrusion process monitoring & alarming
- Security password protection
- Bumpless transfers
- Alarm logging
- Historic trending
- Multi-lingual for global use
- Ethernet communications

### APPLICATIONS

- Pipe extrusion
- Profile extrusion
- Compounding
- Cast film
- Blown film
- Rigid sheet
- Wire & cable coating
- Thermoforming
- Temperature control
- Melt pressure control
- Drive coordination
- Rubber extrusion



## Extrusion Master Control System Specification Sheet

The EM-3c is specifically designed for small extruders but is packed with the features of the popular EM-3 Extrusion Control System. The operator interface is either a MACO Compact running Microsoft CE.net or the rugged Optima Touch PC running Wonderware InTouch™ and can be used just for extruder temperature and pressure control or complete line control. A building block architecture has been used to create a standard implementation of an extrusion control system that is applicable to many extrusion processes. Standard control system definitions save valuable engineering time and expense. Preprogrammed components can be connected for true out-of-the-box performance. These built-in functions manage temperature, pressure, and line speed. Ramping and bumpless transfer ensures smooth processing. The temperature card is designed specifically for single-screw, twin-screw, co-extrusion or blown film applications. Fully automatic adaptive tuning (as well as conventional tuning) is provided. Predefined screens and sequence logic greatly simplify installation and setup. Applications that match the predefined screens and logic will not require additional programming. For applications that differ, installers can use the predefined application as the basis for custom control.

### General

- Adaptive Autotune Temperature Control
- Ethernet Modbus TCP Comms
- Autotune Pressure Control

### Operator Station

- 12.1 inch Color Screen
- Touch Screen
- USB Port for Recipe Storage
- Optional 15 inch PC

### Controller

- Six Analog Inputs for Monitoring, 4 Analog Outputs, 4 DC Digital Inputs, and 4 DC Digital Outputs
- Eight Loops of Adaptive Auto-tuning Temperature Control with 16 Digital DC Outputs
- Ethernet Modbus TCP Comms

### Controller Options

- Up to 24 Loops of Adaptive Auto-tuned Temperature control per Block
- Preconfigured for up to 192 Temperature Loops (8 Blocks)
- Customizable Utilizing MACO DS/RS Assemblies

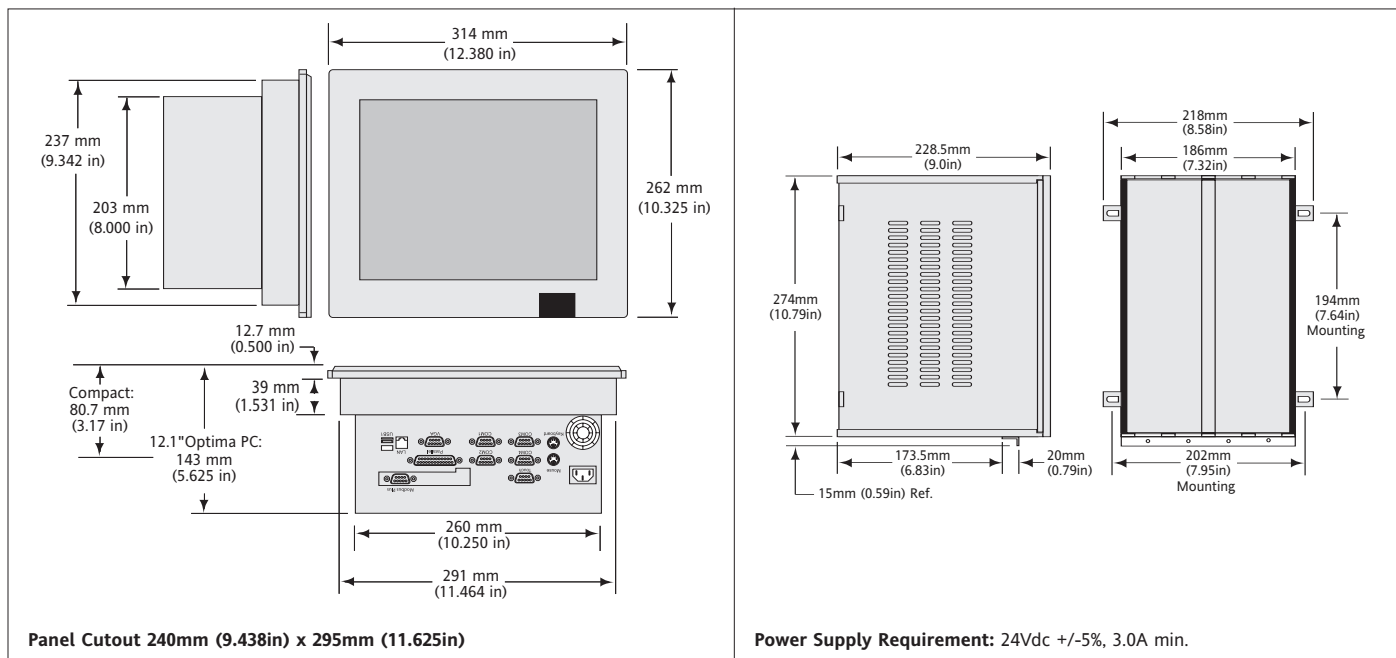
### Optional Alarm Block

- 16Ch Logic Output
- 16Ch Logic Input
- PLC with Ethernet Modbus TCP and Modbus Ports
- High/Low/Deviation Alarms
- Heater Failure Alarm
- Sensor Break

### Optional Analog Block

- 2 Pressure Inputs (Closed Loop Pressure Control)
- Ramping
- Bumpless Transfer
- Ratio Control
- 2 RPM Inputs
- 2 Load Inputs
- 8Ch. Logic Output
- 8Ch. Logic Input

## Dimensions



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