APPLICATION
The ECM-OS is an electronic control module specifically designed for the Offshore Industry to control electric heat trace circuits used in freeze protection and temperature maintenance applications. Available in wall (WP) mount option, the ECM serves both the temperature control as well as the sensor and power connection for a heat trace circuit.

The ECM-OS is housed in a stainless steel enclosure with an environmental protection rating of IP66. Depending on options selected, the ECM-OS may be used as a combination temperature control and limiter, a temperature controller with either low or high temperature alarm, or a temperature limiter. Rotary switches are provided for adjusting temperature control and limiter set points. The standard version of the ECM-OS communicates on a physical network of RS485 by using a Modbus RTU communication protocol. Additionally, two alternate communication network options are available: CAN Bus or 4-20 mA output.

The ECM-OS is approved for use in both ordinary (non-classified) and hazardous (classified) areas.

RATINGS
Operating/control voltage ...................... 120/208/240 Vac
Operating ambient range......................-76°F to 131°F (-60°C to 55°C)
Minimum ambient storage range...............-100°F (-74°C)
Control switch type options...............SPST and DPST
Switching current ratings
  SPST ..30/30/20 amps 77°F, 104°F, 131°F (25°C, 40°C, 55°C)
  DPST..28/23/17 amps 77°F, 104°F, 131°F (25°C, 40°C, 55°C)
Alarm output current rating ..................2 A
Electrical connection..............................terminal blocks
Adjustable temp. control range..32°F to 932°F (0°C to 500°C)
Measurement range .........................-76°F to 932°F (-60°C to 500°C)
Measurement accuracy (ambient)
  ± 1.8°F (32°F to +131°F) ± 1°C (0°C to +55°C)
  ± 3.6°F (32°F to +131°F) ± 2°C (0°C to -60°C)
Temperature sensor(s) .. 100 Ohm three wire Platinum RTD
High temp. alarm/trip ..............................................programmable (auto or manual reset)
RTD input circuitry..................intrinsically safe (Ex i)
Life expectancy..............................100,000 cycles

CERTIFICATIONS/APPROVALS
Class I Division 2, Groups A, B, C, D
Class II Division 2, Groups F, G; Class III; T4
14.2703489X Ex eb mb [ib] IIC T4
Ex tb IIIC T135°C
Class 1, Zone 1, AEx eb mb [ib] IIC T4
Zone 21, AEx tb IIIC T135°C

CONSTRUCTION
1 Stainless steel box
2 Enclosure cover with captive stainless steel combo head screws and optional window
3 Available with metal and non-metallic glands

PRODUCT FEATURES
• Encapsulated electronics and control
• One temperature control module for wide range of temperature control and limiter applications
• Energy saving accurate electronic temperature control action
• Data highway communication capability
• Selectable automatic or manual reset limiter action
• Control/limiter setting in degrees Centigrade or degrees Fahrenheit
• Combines power junction box and control module in one unit
• Also available as ambient thermostat

Notes
1. When located outdoors and subject to solar gain, some current de-rating will be required. Contact Thermon for additional information.
2. The terminal blocks consist of:
   (6) 8 AWG line/load/PE terminals
   (3) 12 AWG comm. port terminals
   (3) 12 AWG alarm relay terminals
   (2 x 3) 14 AWG sensor terminals
See installation instructions for maximum wire size.
ECM-OS™
ELECTRONIC CONTROL MODULE

PRODUCT REFERENCE LEGEND

<table>
<thead>
<tr>
<th>Control Type</th>
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<tbody>
<tr>
<td>C = Controller (with low temp alarm)</td>
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<tr>
<td>CH = Controller (with high temp alarm)</td>
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<tr>
<td>L = Limiter</td>
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<tr>
<td>CL = Controller and Limiter</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Comm. Network</th>
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</thead>
<tbody>
<tr>
<td>0 = None</td>
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<tr>
<td>1 = RS485</td>
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<tr>
<td>2 = CAN-Bus</td>
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<table>
<thead>
<tr>
<th>Nominal Voltage Range</th>
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<tbody>
<tr>
<td>1 = 120 Vac</td>
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<td>2 = 240 Vac</td>
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<tr>
<td>3 = 208 Vac</td>
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<table>
<thead>
<tr>
<th>Switch Configuration</th>
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<tbody>
<tr>
<td>SP = Single Pole</td>
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<tr>
<td>DP = Double Pole</td>
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<table>
<thead>
<tr>
<th>Mounting Options</th>
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</thead>
<tbody>
<tr>
<td>WP = Wall Mount</td>
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<thead>
<tr>
<th>Cable Profile</th>
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</thead>
<tbody>
<tr>
<td>P = RSX, VSX, BSX, KSX, HTSX, FP, HPT</td>
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<tr>
<td>MI = MIS, MIQ</td>
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</tbody>
</table>

NOTE: * = OPTIONAL

TYPICAL WIRING DIAGRAM (for controller with limiter)

- W* = Cover Window
- Comm. Port
- Alarm Relay
- Main supply
- Heater output
- Limiter Sensor
- Controller Sensor