**APPLICATION**

The TraceNet ECM is an electronic control module specifically designed for controlling electric heat trace circuits used in freeze protection and temperature maintenance applications. The ECM serves both the temperature control as well as the sensor and power connection for a heat trace circuit.

The ECM is housed in a glass reinforced nonmetallic enclosure with an environmental protection rating of IP66. Depending on options selected, the ECM 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 communicates on a physical network of RS485 by using a Modbus RTU communication protocol.

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

The ECM-OS is available in a stainless steel junction box for use in offshore applications. (Refer to Form TEP0138)

**RATINGS**

Operating/control voltage ............................... 120/208/240 Vac
Operating ambient range ..................-60°C to 55°C (-76°F to 131°F)
Minimum ambient storage range ..........-74°C (-100°F)
Control switch type options ...................... SPST and DPST
Switching current ratings  

<table>
<thead>
<tr>
<th>Type</th>
<th>Current (amps)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPST</td>
<td>30/30/20</td>
</tr>
<tr>
<td>DPST</td>
<td>28/23/17</td>
</tr>
</tbody>
</table>

Alarm output current rating ................................................... 2 A
Electrical connection .................................................. terminal blocks
Adjustable temp. control range ..............0°C to 500°C (32°F to 932°F)
Measurement range .....................-60°C to 500°C (-76°F to 932°F)
Measurement accuracy (ambient) 

<table>
<thead>
<tr>
<th>Condition</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>0°C to +55°C</td>
<td>± 1°C (0.3°F)</td>
</tr>
<tr>
<td>0°C to -60°C</td>
<td>± 2°C (1.3°F)</td>
</tr>
<tr>
<td>76°F to 131°F</td>
<td>± 1.8°F (3.2°F)</td>
</tr>
</tbody>
</table>

Temperature sensor(s) ..........100 Ohm three wire Platinum RTD
High temp. alarm/trip ......................... programmable
(automatic or manual reset)
RTD input circuitry .......................... intrinsically safe (Ex i)
Life expectancy .................................. 250,000 cycles

**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 (WP mount only)
- Refer to Form TEP0010, System Accessories - Heat Tracing Cables for additional accessories.

**CONSTRUCTION**

1. Pipe-mount expediter, glass-reinforced polymer
2. Three-wire RTD sensor (order separately)
3. Junction box, glass-reinforced polymer
4. 316 Stainless Steel mounting bracket

**CERTIFICATIONS/APPROVALS**

- Class I Division 2, Groups A, B, C, D
- Class II Division 2, Groups F, G; Class III; T4
- 14.270-0489X Ex eb mb (lb) IIC T4
- Ex tb IIC T135°C
- Class 1, Zone 1, AEx eb mb (lb) IIC T4
- Zone 21, AEx tb IIC T135°C

Notes
1. When located outdoors and subject to solar gain, some current de-rating will be required. Contact Thermon for additional information.
2. The pipe mount expediter has a maximum pipe exposure temperature of 482°F (250°C).
3. 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.
PRODUCT SPECIFICATIONS

TraceNet™ ECM™
ELECTRONIC CONTROL MODULE

PRODUCT REFERENCE LEGEND

Control Type
C = Controller (with low temp alarm)
CH = Controller (with high temp alarm)
CL = Controller and Limiter

Comm. Network
1 = RS485

Switch Configuration
SP = Single Pole (120 Vac)
DP = Double Pole (208 or 240 Vac)

Mounting Options
XP = Pipe-Mount Expediter
WP = Wall Mount Bracket with Expediter

Cable Profile
P = RSX, VSX-HT, BSX, KSX, HTSX, FP, HPT, USX

Nominal Voltage
Range
1 = 120 Vac
2 = 240 Vac
3 = 208 Vac

TYPICAL WIREFING DIAGRAM (for controller with limiter)

Single Pole

Main supply
Heater output

Comm. Port
C 1 2

L N  N L

NO C NC

Alarm Relay

C-NC = alarm condition or power off

RTD Limiter Sensor

RTD Controller Sensor

Double Pole

Main supply
Heater output

Comm. Port
C 1 2

L L  L L

NO C NC

Alarm Relay

C-NC = alarm condition or power off

RTD Limiter Sensor

RTD Controller Sensor