

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Control and Monitoring System**with type designation(s)
TraceNet ECM-OS Series

Issued to

Thermon, Inc.
San Marcos, TX, USA

is found to comply with

DNV GL rules for classification – Ships, offshore units, and high speed and light craft**Application :****Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.****Rated voltage (V)** 120/208/240**Temp. class (°C)** T4 ***Power [W/m] @ref. temp.** Trace heaters not to exceed 65.6W/m inside enclosure**Suitable for Hazardous areas** eb, mb, [ib], tb *Issued at **Hamburg** on **2020-07-24**This Certificate is valid until **2025-07-23**.for **DNV GL**DNV GL local station: **Certification & Inspection**
Services HoustonApproval Engineer: **Maik Gagern**

Arne Schaarmann
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV GL AS, its parent companies and subsidiaries as well as their officers, directors and employees ("DNV GL") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Product description *

The TraceNet Electronic Control Module (ECM) is an electronic temperature control and monitoring module specifically designed to control electric heat trace circuits used in freeze protection and temperature maintenance applications. The TraceNet ECM serves as temperature control, data transmitter, sensor and power connection for a heat trace circuit. The TraceNet ECM can be housed in different stainless steel enclosures (OS series) and bolted to a wall (Wall Mounted).

Nomenclature	ECM-xx-yy-zz-kk-OS-W e x: ECM-C-12-P-SP-OS-W
Control type (x or xx)	C : controller; L : Limiter; CL : Controller and Limiter; A: Ambient
Communication Networks (y)	0 : None; 1 : RS485 (Standard ver.) 2 : CAN-Bus (Alt. version)
Nominal voltage range (z)	1 : 120 Vac; 2 : 230Vac; 3 : 208Vac
Cable profile (ww)	P : RSX, VSX, BSX, KSX, HTSX, FP, HPT; MI : MIS, MIQ; M : TEK
Switch configuration (kk)	SP : Single Pole; DP : Double Pole.
Stainless Steel Enclosure (OS)	OS, OSEP, OSNOR1, OSNOR2, OSNOR3, OSNOR4
Cover window	W

Application/Limitation

*Note: All details about electrical explosion protection and the respective tests mentioned in this certificate are for information only. For relevant binding information the corresponding Certificate of Conformity with regard to electrical explosion protection and respective reports, issued by a recognised Authority, shall be observed.

This Certificate is issued based on DNV GL Class Programme DNVGL-CP-0338, Edition 2018-09.
This Type Approval is valid for installation on ships contracted for construction before 1st of January 2022.

For use as an adjustable electronic control module with Thermon heating cable systems. The manufacturer's Operating Guide, Installation Procedures and Product Specifications to be followed.

Type Approval documentation

Tests carried out *

DNV GL Standard	Release	General description
DNV GL Class Guideline DNVGL-CG-0339	Nov. 2016	Environmental Test Specification for Electrical, electronic and programmable equipment and systems
Further Standards		See Application / Limitation above: *Note
IEC 60079-0	2011	Explosive atmospheres - Part 0: General requirements
IEC 60079-7	2006-07	Explosive atmospheres - Part 7: Equipment protection by increased safety "e"
IEC 60079-11	2011	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
IEC 60079-18	2009	Explosive atmospheres - Part 18: Equipment protection by encapsulation "m"
IEC 60079-31	2008	Explosive atmospheres - Part 31: Equipment protection by enclosure "t"
IEC 60529	2013	Degrees of protection provided by enclosures (IP Code)
NEMA 250	2008	Enclosures for Electrical Equipment (1000 Volts Maximum)
ANSI/ISA 12.12.01-01	2012	Nonincendive Electrical Equipment for Use in Class I and II, Div. 2, and Class III, Div. 1 and 2 Hazardous (Classified) Locations
ANSI/UL 50	12 th ed.	Enclosures for Electrical Equipment, Non-Environmental Considerations

ANSI/UL 50E	1 st ed.	Enclosures for Electrical Equipment, Environmental Considerations
ANSI/UL 60079-0	6 th ed.	Explosive atmospheres - Part 0: Equipment - General Requirements
ANSI/UL 60079-7	4 th ed.	Explosive atmospheres - Part 7: Equipment protection by increased safety "e"
ANSI/UL 60079-11	6 th ed.	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
ANSI/UL 60079-18	3 rd ed.	Explosive atmospheres - Part 18: Equipment protection by encapsulation
ANSI/UL 60079-31	2009	Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
ANSI/UL 61010	3 rd ed.	Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use - Part 1: General Requirements
CAN/CSA C22.2 No. 0-10	2010	General requirements - Canadian electrical code, part II
CAN/CSA C22.2 No. 0.4-04	2013	Bonding of Electrical Equipment
CSA C22.2 No.25-1966	2009	Enclosures for Use in Class II Groups E, F, and G Hazardous Locations
CSA C22.2 No.94.1-07	2012	Enclosures for Electrical Equipment, Non Environmental Considerations
CSA C22.2 No.94.2-07	2012	Enclosures for Electrical Equipment, Environmental Considerations
CAN/CSA C22.2 No.130-03	2013	Requirements for Resistance Heating Cables and Sets
CSA C22.2 No.213-M1987	2013	Non-Incendive Electrical Equipment for Use in Class I, Division 2 Hazardous Locations
CSA/CSA C22.2 No.60079-0	2011	Explosive atmospheres - Part 0: Equipment - General requirements
CAN/CSA C22.2 No.60079-7	2012	Explosive atmospheres - Part 7: Equipment protection by increased safety "e"
CAN/CSA C22.2 No.E60079-11	2002	Electrical apparatus for explosive gas atmospheres - Part 11: Intrinsic safety "i"
CAN/CSA C22.2 No.60079-18	2012	Explosive atmospheres - Part 18: Equipment protection by encapsulation "m"
CAN/CSA C22.2 No.60079-31	2012	Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
CAN/CSA C22.2 No.60529-05	2010	Degrees of Protection Provided by Enclosures (IP Code)
CAN/CSA C22.2 No.61010-1	2012	Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use, Part 1: General Requirements

Marking of product *

Thermon, Address, TraceNet™ ECM, Type designation, Date/date code/Ser. No, Amb. Temp, IP66/67, Voltage, 50/60Hz, Amp,Cert. No,Warning,

Ⓔ II 2 (2) GD, Ex eb mb [ib] IIC T4, Ex tb IIIC T135°C

IECEx Ex eb mb [ib] IIC T4, Ex tb IIIC T135°C

Class I Division 2, Groups A,B,C,D ; Class II Division 2 Groups F, G ; Class III ; T4

Class I Zone 1 AEx eb mb [ib] IIC T4; Zone 21 Aex tb IIIC T135°C

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the Type Approval are complied with and that no alterations are made to the product design or choice of materials.



Job Id: **262.1-018115-2**
Certificate No: **TAE0000413**

The main elements of the assessment are:

- Inspection on factory samples, selected at random from the production line (where practicable)
- Results from Routine Tests (RT) checked (if not available tests according to RT to be carried out)
- Review of type approval documentation
- Review of possible change in design, materials and performance
- Ensuring traceability between manufacturer's product type marking and Type Approval Certificate.

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE