



Confirmation of Product Type Approval

Please refer to the "Service Restrictions" shown below to determine if Unit Certification is required for this product. This certificate reflects the information on the product in the ABS Records as of the date and time the certificate is printed.

Pursuant to the Rules of the American Bureau of Shipping (ABS), the manufacturer of the below listed product held a valid Manufacturing Assessment (MA) with expiration date of 17/JAN/2017. The continued validity of the Manufacturing Assessment is dependent on completion of satisfactory audits as required by the ABS Rules.

And; a Product Design Assessment (PDA) valid until 04/MAY/2020 subject to continued compliance with the Rules or standards used in the evaluation of the product.

The above entitle the product to be called Product Type Approved.

The Product Design Assessment is valid for products intended for use on ABS classed vessels, MODUs or facilities which are in existence or under contract for construction on the date of the ABS Rules used to evaluate the Product.

ABS makes no representations regarding Type Approval of the Product for use on vessels, MODUs or facilities built after the date of the ABS Rules used for this evaluation.

Due to wide variety of specifications used in the products ABS has evaluated for Type Approval, it is part of our contract that; whether the standard is an ABS Rule or a non-ABS Rule, the Client has full responsibility for continued compliance with the standard.

Product Name: Engine Controller
Model Name(s): M2000 and M0500

Presented to:
LITTELFUSE SELCO A/S
BETONVEJ 10
Denmark

Intended Service: ABS Classed Vessels and Offshore Facilities in accordance with the listed ABS Rules and International Standards.

Description: M2000: Diesel engine generator control capable of monitoring and protection, MODBUS RTU communication protocol and PC extension configuration is possible. Programmable unit with 16 input channels and with 9 shutdown channels plus 7 alarm channels on the output. Other features in accordance with manufacturer's specifications. M0500: Tacho Voltage Detector capable of amplifying, converting and filtering the very low voltage on the self excited synchronous generator present at 33% of nominal frequency, and at the same time take care of the signal when the generator is on nominal voltage and To measure the generator's voltage and to give a signal when the voltage is higher than 90% of the nominal voltage.

Tier: 5

Ratings: Supply Voltage 12 to 24 VDC. Frequency range: 50 Hz to 10 KHz. Outputs max. 0.15A per channel continuous, with relay contacts rated 220 VAC/2A 30VDC/2A/30W. Ambient Temperature -20 °C to +70 °C. IP 32 or 54 M0500: Supply Voltage 12 to 24 VDC. Frequency range: 0 - 100Hz. Ambient Temperature -20 °C to +70 °C.

Service Restrictions: Unit Certification as detailed in 4-9-8/13.3 and 4-9-3/Table 2 of the ABS Rules for Building and Classing Steel Vessels 2015 is required for this product if it is incorporated in a Category II or Category III system as detailed in 4-9-3/7.1 and

Comments: 4-9-3/Table 1 of the ABS Rules for Building and Classing Steel Vessels 2015. Unit Certification is to be carried out during Factory Acceptance Testing at the plant of manufacture or during Factory Acceptance Testing of the overall system.

Notes / Documentation: Approval is for hardware only. Each configuration and external connection arrangement is to be specifically approved. When incorporated in a system of Category I, II or III in accordance with 4-9-3/7.1 and 4-9-3/Table 1 of the ABS Rules for Building and Classing Steel Vessels 2015 the documentation detailed in 4-9-3/Table 2 is to be submitted to ABS or to be available for review by ABS as applicable. The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.

Term of Validity: Drawing No. 024, Supplementary Type Approval Testing, Revision: -, Pages: 1 Drawing No. 008, M2000 Firmware Version History Drawing No. 010, M2000_Datasheet Drawing No. 011, M2000_Manual Drawing No. 028, Danak-197586

ABS Rules: This Product Design Assessment (PDA) Certificate 15-LD1360740-PDA, dated 05/May/2015 remains valid until 04/May/2020 or until the Rules or specifications used in the assessment are revised (whichever occurs first). This PDA is intended for a product to be installed on an ABS classed vessel, MODU or facility which is in existence or under contract for construction on the date of the ABS Rules or specifications used to evaluate the Product. Use of the Product on an ABS classed vessel, MODU or facility which is contracted after the validity date of the ABS Rules and specifications used to evaluate the Product, will require re-evaluation of the PDA. Use of the Product for non ABS classed vessels, MODUs or facilities is to be to an agreement between the manufacturer and intended client.

National Standards: The Rules applicable to this assessment are: - Steel Vessel Rules (2015)1-1-4/7.7, 1-1-A 3 and 4; 4-9-3/5.1.1; 4-9-3/5.1.4; 4-9-3/5.1.5; 4-9-3/5.1.6; 4-9-8/13. - Steel Vessels Under 90 Meters (295 Feet) in Length (2015) 1-14/7.7, 1-1-A 3 and 4 - Facilities on Offshore Installations (2015) 1-1-4/9.7, 1-1-A 2 and 3 - Offshore Support Vessels (2015) 1-1-4/7.7, 1-1-A3 and 4; 4-9-3/5.1.1; 4-9-3/5.1.4; 4-9-3/5.1.5; 4-9-3/5.1.6; 4-9-8/13. - Mobile Offshore Drilling Units Rules (2015) 1-1-4/9.7, 1-1-A 2 and 3 - Steel Vessels for Service on Rivers and Intracoastal Waterways (2015) 1-1-4/7.7, 1-1-A 3 and 4


International Standards: IACS E10: Rev. 5: 2006

Government Authority:

EUMED:

Others:

Model Certificate	Model Certificate No	Issue Date	Expiry Date
PDA	15-LD1360740-PDA	05/MAY/2015	04/MAY/2020



ABS Programs

ABS has used due diligence in the preparation of this certificate and it represents the information on the product in the ABS Records as of the date and time the certificate was printed. Type Approval requires Drawing Assessment, Prototype Testing and assessment of the manufacturer's quality assurance and quality control arrangements. Limited circumstances may allow only Prototype Testing to satisfy Type Approval. The approvals of Drawings and Products remain valid as long as the ABS Rule, to which they were assessed, remains valid. ABS cautions manufacturers to review and maintain compliance with all other specifications to which the product may have been assessed. Further, unless it is specifically indicated in the description of the product; Type Approval does not necessarily waive witnessed inspection or survey procedures (where otherwise required) for products to be used in a vessel, MODU or facility intended to be ABS classed or that is presently in class with ABS. Questions regarding the validity of ABS Rules or the need for supplemental testing or inspection of such products should, in all cases, be addressed to ABS.