



TYPE APPROVAL CERTIFICATE



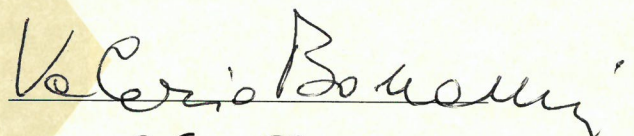
N. ELE196018CS

This is to certify that the product below is found to be in compliance with the applicable requirements of the RINA Type Approval system

Description	Monitoring module and data logger of electrical parameters
Type	EMS-96, EMA-90N
Applicant	Control Elettronica Srl Via San Fereolo, 9 26900 Lodi (LO) Italy
Manufacturer	Control Elettronica Srl Via San Fereolo, 9 26900 Lodi (LO) Italy
Testing Standards	Rules for the Classification of Ships, Part C , Machinery, Systems and Fire protection Ch. 3, Sect. 6, Table 1

Issued at Genoa on
August 01, 2018

This Certificate is valid until
August 01, 2023


Valerio Bonanni

RINA Services S.p.A.



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EMS-96 and EMA-90N Electrical Measurement Supervisor

Main features:

The EMS-96 and EMA-90N Electrical Measurement Supervisor has analysis functions that allow the measurement of the main electrical parameters: Voltage, Current, Frequency, Power Factor Active and Reactive power, Active and reactive Energy. The instrument allows the measurement and analysis in real time of electrical parameters, also verifying the quality of the Energy thanks to THD measurement. bidirectional metering of energy allows both production and consumption of energy to be monitored with a single device. All the information monitored by the analyzer can be transmitted to remote locations through communication interfaces RS485 , Ethernet with the support of numerous protocols including Modbus RTU, Modbus TCP/IP and Profibus DP.

Interaction with the supervision systems is possible using inputs and outputs, all programmable.

EMS reads and displays the energy values measured in other energy meters connected to the network. This is achieved thanks to digital inputs, which are able to acquire the impulses generated by the counters. In this case, EMS acts as a data concentrator. It not only collects information from the electricity meters but also from the water, gas meters or other. EMS allows a complete, in-depth analysis of the network quality, including the measurement of the harmonic distortion (20th order) of the Voltage and Current signals

Tested Accuracy:

EMS-96 and EMA-90N modules accuracy during EMC conducted and radiated immunity test:
 $\pm 10\%$ F.S. of the actual value

EMS-96 and EMA-90N modules accuracy in Standard Atmosphere Condition:
according to the manufacturing specification: $\pm 0,1\%$ F.S. for (V) and (I); $\pm 0,2\%$ F.S. for Active Energy

Remarks:

EMS-96 and EMA-90N are not approved for controls and electrical protection purposes.

Wi-Fi communication (EMS-96) in general is not allowed.
(on a case by case bases, special acceptance may be considered)

Reference document:

Instruction Manual n. IM1200-I v2.0 _ General description

Instruction Manual n. IM166-U v1.2 _ Modbus RTU communication protocol for EMS-96 Series

Instruction Manual n. IM128-I v0.3 _ General description

Instruction Manual n. IM128-U v0.3 _ Electrical Measurement Analyzer

Test Reports:

TesLab Report n. 17C327F rev. 01 (2018/06/20)