



TYPE APPROVAL CERTIFICATE
No. ELE171014CS/02

This is to certify that the product below is found to be in compliance with the applicable requirement of the RINA type approval system.

<i>Description</i>	Marine Emission Monitoring System
<i>Type</i>	Gas Analyzer ZPA + ZFK7
<i>Applicant</i>	TECNOVA HT SRL VIA CASTELLAZZO, 29 20010 PREGNANA MILANESE (MI) ITALY
<i>Manufacturer</i>	FUJI ELECTRIC Co., Ltd.
<i>Place of manufacture</i>	1, FUJI-MACHI, HINO-CITY 191-8502 TOKYO JAPAN
<i>Reference standards</i>	Rules for the Classification of Ships - Part C - Machinery, Systems and fire protection - Ch.3, Sect.6, Tab.1.

Issued in **Genoa** on **January 22, 2016**. This Certificate is valid until **January 22, 2021**


RINA Services S.p.A.
Valerio Bonanni

This certificate consists of this page and 1 enclosure

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Gas Analyzer ZPA + ZFK7

Product description

The gas analyzer (ZPA) is capable of measuring the concentration of NO, SO₂, CO₂, CO, CH₄ and O₂ components in sample gas. NO, SO₂, CO₂, CO and CH₄ are measured by non-dispersion infrared method (NDIR) while O₂ is measured by fuel cell or paramagnetic and zirconia method.

Principle of measurement:

NO, SO₂, CO₂, CO, CH₄ ;
Non-dispersion infrared-ray absorption method
Single light source and single beams (single beam system)
O₂
Fuel cell O₂ analyzer (build-in) or paramagnetic
O₂ analyzer (build-in) or zirconia
O₂ analyzer (externally installed TYPE: ZFK7)

Analog output signals:

4 to 20mA DC or 0 to 1 V isolated Internally from circuit and ground.
Output Lines are non-isolated each other.; 12 outputs max.
Allowable Load 550Ω for 4 to 20mA DC
Allowable Load 100Ω for 0 to 1V DC

Analog input signal:

For signal input from externally installed O₂ analyzer.
Signal requirement;
(1) Signal from Fuji's Zirconia O₂ analyzer (TYPE: ZFK7)
(2) 0 to 1V DC from an O₂ analyzer
Input section is not isolated. This feature is effective when an O₂ analyzer is not built in.

Digital output: (Option)

1c contact (24V DC/1A, resistive load) max.15 outputs
Instrument error, calibration error, range identification, auto calibration status,
solenoid valve drive for auto calibration,
High/Low limit alarm contact output.

Digital input: (Option)

Voltage contact (supply 12-24VDC (15mA Max.)) Max. 9 inputs
Remote range change over, auto calibration remote start, remote hold, average value reset, Isolated from the internal circuit with photocoupler.

Power supply:

Voltage Rating :100V to 240VAC
Allowable range: 85V to 264V AC
Frequency : 50Hz/60Hz
Power Consumption: 100VA max

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Reference Documents

- Infrared Gas Analyzer ZPA - Data Sheet EDS3-143a dated December 18, 2012
- Infrared Gas Analyzer ZPA - Instruction Manual - INZ-TN1ZPAa-E - Rev.1st edition September 2012
- Fuji Electric Manufacturer's Declaration - November 20 - 2015

Test Carried Out

- TesLab 145094F Environmental Test Report - EMC / Vibration Test dated 06/05/2015
- TesLab 153050F Electromagnetic Compatibility Test Report - dated 06/05/2015
- CSI 0017\ME\CMP\15 Marine Emission Compatibility Test Report - dated 16/09/2015
- Marine Emission System S-Keeper7 - Equivalence Test - Ref. Tecnova HT: SK-1
- Tecnova HT S.r.l. verification, in accordance with ISO 8178-1:2006 - May 2015 - rev. 03 - prot. 205a/15/FG_rev03 by Eco Chimica Romana Accredia LAB N° 0286.

Note

For each specific installation on board, the system configuration drawings are to be always sent for approval. The test of the system will be carried out with simulation of functionality in normal, emergency and single failure condition. Final acceptance of the system is subject to the good result of functional test to be carried out on board.

Genoa 22/01/2016