

Ship approvals and installation instructions

VEGATOR 111, 112

VEGATOR 121, 122

VEGATOR 141, 142

DNV - TAA00001T5

LR2004366TA

BV - 47590/B0

ABS - 23-2350260-PDA

RINA - ELE053523XG

RMROS - 18.40031.250

CCS - HB23PTB00010_06

ClassNK - TA25059M



Document ID: 49624



VEGA



TYPE APPROVAL CERTIFICATE

Certificate No:
TAA00001T5
Revision No:
1

This is to certify:

That the Peripheral Equipment

with type designation(s)

TOR 111..., TOR 112..., TOR 121..., TOR 122..., TOR 141..., TOR 142...

Issued to

VEGA Grieshaber KG
Schiltach, Germany

is found to comply with

DNV 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.

Location classes:

Temperature	B
Humidity	B
Vibration	A
EMC	B
Enclosure	A

Issued at **Hamburg** on **2023-03-15**

This Certificate is valid until **2028-03-14**.

DNV local unit: **Augsburg**

Approval Engineer: **Dariusz Lesniewski**

for DNV



Digitally Signed By: Papanuskas, Joannis
Location: DNV GL SE Hamburg, Germany

Joannis Papanuskas
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 AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") 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.



Form code: TA 251

Revision: 2022-12

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Page 1 of 3



Job Id: 262.1-028582-2
 Certificate No: TAA00001T5
 Revision No: 1

Product description

Signal conditioning instrument for level detection, VEGATOR Series 100

VEGATOR 100 variants:

Device name	VEGATOR 111	VEGATOR 112	VEGATOR 121	VEGATOR 122	VEGATOR 141	VEGATOR 142
Sensor Input	1x NAMUR	2x NAMUR	1 x 8/16 mA step – signal	2x 8/16 mA step – signal	1 x 4-20 mA – signal	2 x 4-20 mA – signal
Sensor Output	1 x operating relay (SPDT)	2 x operating relay (SPDT)	1 x operating relay (SPDT) 1 x failure indication relay for use as well as 2nd operating relay	2 x operating relay (SPDT)	1 x operating relay (SPDT)	2 x operating relay (SPDT)
Operation	2 x DIL switch 1 x Test key	5 x DIL switch 2 x Test key	7 x DIL switch 1 x Test key	8 x DIL switch 2 x Test key	5 x DIL switch 1 x Pot.	7 x DIL switch 2 x Pot.

Type Code VEGATOR 100 Series TOR1****a-b-c-d-e-f-g-h**

a	Scope
*	Not relevant for ship approval
b	Approval
*	Not relevant for ship approval
c	Version
X	Single channel according to NAMUR (IEC60947-5-6)
S	Single channel according to NAMUR (IEC60947-5-6), with fail safe relay
d	SIL qualification
X	without
S	With
e	Housing / Protection
K	Plastic / IP20
f	Terminal blocks / Connection
B	detachable 2.5mm ² / Ex sensor: 1 x blue; output and operating voltage: 2 x black
X	detachable 2.5mm ² / Sensor: 1 x black; output and operating voltage: 2 x black
g	Certificates
M	Not relevant for ship approval

Approval conditions

The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNV, documentation for the actual application is to be submitted for approval by the manufacturer of the application system in each case. Reference is made to DNV rules for classification of ships Pt.4 Ch.9 Control and monitoring systems.

Application/Limitation

Ex-certification is not covered by this certificate. Application in hazardous area to be approved in each case according to DNV Rules and Ex-Certification / Special Condition for Safe Use listed in valid Ex-certificate issued by a notified/recognized Certification Body.

Type Approval documentation

Technical Description: VEGAZW-6-84755, Rev. 00, dated 2023-02-23

Referenced documents in VEGAZW-6-84755, Rev. 00, 2023-02-23

Type approval renewal assessment report issued at Augsburg on 2023-02-22

Tests carried out

Applicable tests according to class guideline DNV-CG-0339, August 2021.

Marking of product

The products to be marked with:

- manufacturer name
- model name
- serial number
- power supply ratings



Job Id: 262.1-028582-2
 Certificate No: TAA00001T5
 Revision No: 1

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the type are complied with, and that no alterations are made to the product design or choice of systems, software versions, components and/or materials.

The main elements of the assessment are:

- Ensure that type approved documentation is available
- Inspection of factory samples, selected at random from the production line (where practicable)
- Review of production and inspection routines, including test records from product sample tests and control routines
- Ensuring that systems, software versions, components and/or materials used comply with type approved documents and/or referenced system, software, component and material specifications
- Review of possible changes in design of systems, software versions, components, materials and/or performance, and make sure that such changes do not affect the type approval given
- Ensuring traceability between manufacturer's product type marking and the 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



Page 1 of 2
 Certificate No: LR2004366TA
 Issue Date: 25/06/2020
 Expiry Date: 05/04/2025

Type Approval Certificate

This is to certify that the undernoted product(s) has/have been tested with satisfactory results in accordance with the relevant requirements of the Lloyd's Register Type Approval System.

Manufacturer	Vega Grieshaber KG
Address	Am Hohenstein 113, Schiltach, 77761, Germany
Type	Transmitters/Transducers
Description	Signal conditioning instrument for level detection refer to the Appendix for details
Trade Name	VEGATOR 111, 112, 121, 122, 141, 142
Application	Marine applications for use in environmental categories ENV1, ENV2 and ENV3 as defined in Lloyd's Register's Type Approval System, Test Specification Number 1 – 2013.
Specified Standard	Manufacturer's specification
Ratings	Power supply: 24 VDC or 230 VAC/50Hz
Other Conditions	Equipment has to comply with IACS E10 Rev.7 when intended to be installed on ships contracted for construction on or after 1 January 2022.

This certificate is not valid for equipment, the design, ratings or operating parameters of which have been varied from the specimen tested. The manufacturer should notify Lloyd's Register EMEA of any modification or changes to the equipment in order to obtain a valid Certificate.

Thorsten Wolff
 Senior Specialist to Lloyd's Register EMEA
 A member of the Lloyd's Register Group

71 Fenchurch Street, London, EC3M 4BS, United Kingdom

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TA01 1.0.0

49624-EN-250304



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Certificate No: LR2004366TA
Issue Date: 25/06/2020
Expiry Date: 05/04/2025

Type Approval Certificate

The Design Appraisal Document No. HTS/ETS 40117-20 /TW and its supplementary Type Approval Terms and Conditions form part of this Certificate.



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TA01 1.0.0

49624-EN-250304



Appendix

TYPES

TOR 1ab.cdefghi

a = 1 for Namur Electronics, Hysteresis fix,
 2 for two-wire 8/16mA, Hysteresis fix,
 4 for continuously measuring 4 to 20mA sensors, Hysteresis adjustable.

b = 1 for Single-Channel Conditioning Instrument
 2 for Double-Channel Conditioning Instrument.

c = Approval directive / Scope:
 A - ATEX / Europe,
 I - IEC / World-wide,
 R - Russia,
 C - CSA / Canada,
 U - Ukraine, K - Kazakhstan B - Belarus, D India

d = M for Ex - free area,
 O for Ex - area (hazardous location).

e = Version X or S

f = digit alphanumeric code for SIL-Qualification:
 X without,
 S with.

g = digit alphanumeric code for Housing / Protection:
 K Plastic / IP20.

h = digit alphanumeric code for Terminal blocks/ Connections:
 X detachable 2.5mm² / Sensor: 1 x black,
 B detachable 2.5mm² / Ex-Sensor: 1 x blue.

i = digit alphanumeric code for additional Certificates:
 M Yes,
 X No.

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 Certificate No: LR2004366TA
 Issue Date: 25.06.2020
 Expiry Date: 05.04.2025
 Reference: HTS/ETS 40117-20 /TW

LLOYD'S REGISTER TYPE APPROVAL – DESIGN APPRAISAL DOCUMENT
ISSUED BY: HAMBURG TECHNICAL SUPPORT OFFICE (HPC1462125)
ISSUED TO: VEGA GRIESHABER KG
FOR: SIGNAL CONDITIONING INSTRUMENT FOR LEVEL DETECTION
TYPES: VEGATOR 111, 112, 121, 122, 141, 142

The undernoted documents have been reviewed for compliance with the requirements of the Lloyd's Register Type Approval System Procedure TA14 Version 03 (July 2017) and this Design Appraisal Document forms part of the Certificate.

APPROVAL DOCUMENTATION

Unnumbered	Type Approval Application Checklist	30.04.2020
HPC1462124/40008-20/ TW/KW	Request for Marine Services – Type Approval	28.05.2020
HTS/ETS 31343-15 15/20025	Marine Design Appraisal Document for Certificate No. 15/20025	07.04.2015
HPC1862096	LR Type Approval Certificate	07.04.2015
2.43177-1-01-0	Production Quality Assessment Form	11.03.2019
GE3179-01	Notification of change no. 27606	undated
Unnumbered	Layout VEGATOR 111/112	18.08.2014
	Update No.1 of DNV GL-Maritime Type Approval for Signal Conditioning Instruments VEGATOR 1**	20.04.2018

TEST REPORTS

4-3_TOR112_N1_1	VEGA test report	26.11.2019
4-3_TOR142_N1_1	VEGA test report	26.11.2019
5-1_TOR121S_N1_1	VEGA test report	01.03.2017
GL-Prüfung_05-04-2018_1-	VEGA test report	05.04.2018
4-4_TOR121S_N1_2	VEGA test report	06.03.2017
4-3_TOR121S_N1_1	VEGA test report	01.03.2017
4-6_TOR121S_N1_1	VEGA test report	01.03.2017


 Thorsten Wolff
 Hamburg Technical Support Office
 Lloyd's Register EMEA

LR0331.1.2016.001

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 Certificate No: LR2004366TA
 Issue Date: 25.06.2020
 Expiry Date: 05.04.2025
 Reference: HTS/ETS 40117-20 /TW

Supplementary Type Approval Terms and Conditions

Type Approval certifies that a representative sample of the product(s) referred to herein has/have been found to meet the applicable design criteria for the use specified herein. It does not mean or imply approval for any other use, nor approval of any product(s) designed or manufactured otherwise than in strict conformity with the said representative sample.

Type Approval is based on the understanding that the manufacturer's recommendations and instructions and any relevant requirements of the Rules and Regulations are complied with.

Type Approval does not eliminate the need for normal inspection and survey procedures required by the Rules and Regulations. Lloyd's Register EMEA reserves the right to cancel or withdraw this Type Approval Certificate in accordance with the Lloyd's Register Type Approval System Procedure.



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Marine & Offshore

Certificate number: 47590/B0 BV
File number: AP4721
Product code: 2643H

This certificate is not valid when presented without the full attached schedule composed of 7 sections

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TYPE APPROVAL CERTIFICATE

This certificate is issued to
VEGA Grieshaber KG
 Schiltach - GERMANY

for the type of product
CONTROL AUXILIARIES
 Signal Conditioning Unit
 VEGATOR Series 100

Requirements:
 Bureau Veritas Rules for the Classification of Steel Ships
 EC Code: 31

This certificate is issued to attest that Bureau Veritas Marine & Offshore did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements mentioned above.

This certificate will expire on: 27 Oct 2026

For Bureau Veritas Marine & Offshore,
 At BV HAMBURG, on 27 Oct 2021,
 Dirk Hoepfner



This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with Bureau Veritas Marine & Offshore. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. This certificate is issued within the scope of the General Conditions of Bureau Veritas Marine & Offshore available on the internet site www.veristar.com. Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against Bureau Veritas Marine & Offshore for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

The electronic version is available at: <http://www.veristamb.com/veristamb/jsp/viewPublicPdfTypepec.jsp?id=kizml9yll>
 BV Mod. Ad.E 530 June 2017

This certificate consists of 3 page(s)

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION :

VEGATOR Series 111, 112, 121, 122, 141, 142 are signal conditioning units for level detection.

Main Characteristics :

Power Supply: 24 VDC or 230 VAC
 Input: 1 or 2 analogue (NAMUR, 8/16 mA, 4 ... 20 mA)
 Output: 1 or 2 operating relay (TOR 121: failure relay)
 Degree of Protection: IP20

2. DOCUMENTS AND DRAWINGS :

- GE3084 dated 05.12.2013; GE3180 dated 21.11.2013; GE3263 dated 13.02.2014
 For B0 version:
 - Operating Instructions: 46105; 46106; 57662; 46108; 46838; 46839 all dated 2021-07-14
 - Specifications: 46109; 46110; 46111; 46112; 46842; 46843 all dated 2016-06-15
 - SB1406-1-04-0 dated 11.08.2021; SB1413-1-06-0 dated 12.08.2021; SB1413-1-05-0 dated 12.08.2021;
 SB1430-1-04-0 dated 11.08.2021
 - GE3178-01 dated 18.08.2014
 - IECEx TUN 14.0004X Issue No: 1 dated 2018-09-25; IECEx TUN 14.0005X Issue No: 2 dated 2018-09-25;
 IECEx TUN 14.0031X Issue No: 1 dated 2018-09-25

3. TEST REPORTS :

- Hansecontrol: 1401-0160301R01 dated 14.08.2014; 1401-0160401R01 dated 14.08.2014;
 1401-0160501R01 dated 14.08.2014
 - Paconsult: 14-6126 dated 16th of July, 2014.
 - VEGA: 1-9_TOR122_F1_1 dated 11.10.13
 For B0 version:
 - Hansecontrol: 2101-0137301R03A; 2101-0137301R04A; 2101-0137301R05A all dated 10.08.2021

4. APPLICATION / LIMITATION :

4.1 - Bureau Veritas Rules and Regulation for the Classification of Steel Ships
 4.2 - Approval valid for ships intended to be granted with the following additional class notations: **AUT-UMS, AUT-CCS, AUT-PORT and AUT-IMS.**
 4.3 - Bureau Veritas Environmental Category, **EC Code: 31**
 4.4 - Equipment covered by this Type Approval certificate has been tested according to requirements of IACS UR E10 rev7.
 4.5 - Ex-certification is not covered by this certificate. Applications in hazardous areas are to be approved in each case according to the Rules and Conditions for Safe Use specified in a valid Ex-Certificate issued by a Notified or Recognised Certification Body.

5. PRODUCTION SURVEY REQUIREMENTS :

5.1 - The **VEGATOR 100 Series Signal Conditioning Unit** are to be supplied by **VEGA Grieshaber KG** in compliance with the type described in this certificate.
 5.2 - This type of product is within the category HBV of Bureau Veritas Rule Note NR320 and as such does not require a BV product certificate.
 5.3 - **VEGA Grieshaber KG** has to make the necessary arrangements to have its works recognised by Bureau Veritas in compliance with the requirements of NR320 for HBV products :

VEGA Grieshaber KG
Am Hohenstien 113
D-77761 Schiltach
GERMANY

6. MARKING OF PRODUCT :

- Maker's name or trademark
 - Date of manufacture and/or serial number
 - Equipment type or model identification under which it was type tested.
 - Ex marking, as relevant.

7. OTHERS :

7.1 - It is the responsibility of **VEGA Grieshaber KG** to inform shipbuilders or their sub-contractors of the proper methods of fitting, use and general maintenance of the approved equipment and the conditions of this approval.

7.2 - This certificate supersedes the Type Approval Certificate N° 47590/A0 BV issued on 28 Nov 2016 by the Society.

*** END OF CERTIFICATE ***



Confirmation of Product Type Approval

Company Name: VEGA GRIESHABER KG

Address: PRODUCT COMPLIANCE & QMAM HOHENSTEIN 113 Germany

Product: Electronic Level Limit Switch

Model(s): VEGATOR111, VEGATOR112, VEGATOR121, VEGATOR122, VEGATOR141, VEGATOR142

Endorsements:

Certificate Type	Certificate Number	Issue Date	Expiry Date
Product Design Assessment (PDA)	23-2350260-PDA	06-FEB-2023	05-FEB-2028
Manufacturing Assessment (MA)	20-4249376	21-APR-2020	20-APR-2025
Product Quality Assurance (PQA)	NA	NA	NA

Tier

3 - Type Approved, unit certification not required

Intended Service

Power supply and point level detection for level sensors on AMS, ACC, ACCU and ABCU classed vessels.

Description

Signal conditioning instruments with level sensor input (NAMUR, 8/16 mA, 4 ... 20 mA) and relay output that are used for the supply of passive intrinsically safe measuring sensors, the safe galvanic separation of the intrinsically safe circuits form not intrinsically safe circuits and the evaluation of the analogue transmitted measuring data.

- VEGATOR 111 /112 - Single/double channel signal conditioning instrument for level detection for NAMUR sensors

- VEGATOR 121 /122 - Single/double channel signal conditioning instrument for level detection for 8/16 mA sensors

- VEGATOR 141 /142 - Single/double channel signal conditioning instrument for level detection for 4...20 mA sensors

Self monitoring of sensor/ cable input circuit.

19" rack units (5XX models).

DIN-rail mounting (6XX models).

Ratings

Power Supply: 24 V DC or 24V ... 250V AC,

Outputs: c/o-relay-contacts, 3A, 250V AC, 500 VA,

Ambient Operating Temperature: -20°C ... +60 °C,

Degree of protection: IP 20.

Certified Safe: Intrinsic Safety and type of protection "n"

Ex nA nC ic [ia Ga] [ia IIIC Da] [ia I Ma] IIC T4 Gc or [EX ia Ga] IIC [Ex ia Da] IIIC [Ex ia Ma] I

(ref. IECEx TUN 14.0004X, IECEx TUN 14.0005X, IECEx TUN 14.0031X)

Service Restrictions

Unit Certification is not required for this product. If the manufacturer or purchaser request an ABS Certificate for compliance with a specification or standard, the specification or standard, including inspection standards and tolerances, must be clearly defined.

Comments

1. The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.

2. Each particular application in hazardous locations is to be specifically approved in conjunction with the relevant installation.

Notes, Drawings and Documentation

Drawing No. VEGAZW-6-83492, VEGAZW-6-83492_Application_VEGATOR 1, Technical Description

Drawing No. 46109-EN, VEGATOR 111, Specification Sheet

Drawing No. 46110-EN, VEGATOR 112, Specification Sheet

Drawing No. 46111-EN, VEGATOR 121, Specification Sheet

Drawing No. 46112-EN, VEGATOR 122, Specification Sheet

Drawing No. 46842-EN, VEGATOR 141, Specification Sheet

Drawing No. 46843-EN, VEGATOR 142, Specification Sheet

Drawing No. 46105-EN, VEGATOR 111, Operating Instructions

Drawing No. 46106-EN, VEGATOR 112, Operating Instructions

Drawing No. 46108-EN, VEGATOR 122, Operating Instructions

Drawing No. 46838-EN, VEGATOR 141, Operating Instructions

Drawing No. 46839-EN, VEGATOR 142, Operating Instructions

Drawing No. 57662-EN, VEGATOR 121, Operating Instructions

Drawing No. SB1406-1-03-0, VEGATOR 111/112, Circuit Diagram

Drawing No. SB1406-1-04-0, VEGATOR 111/112, Circuit Diagram

Drawing No. SB1413-1-03-0, VEGATOR 121/122 (TOR121X, TOR122X), Circuit Diagram

Drawing No. SB1413-1-04-0, VEGATOR 121 (TOR121S), Circuit Diagram
 Drawing No. SB1413-1-05-0, VEGATOR 121/122 (TOR121X, TOR122X), Circuit Diagram
 Drawing No. SB1413-1-06-0, VEGATOR 121 (TOR121S), Circuit Diagram
 Drawing No. SB1430-1-03-0, VEGATOR 141/142, Circuit Diagram
 Drawing No. SB1430-1-04-0, VEGATOR 141/142, Circuit Diagram
 Drawing No. BV1712-00, TOR 11*: DC-DC-isolation transformer
 Drawing No. BV1714-00, TOR 12*, 14*: DC-DC-isolation transformer
 Drawing No. GE 851 Vers. 02, Isolation Transformer
 Drawing No. GE3084, Housing VEGATOR 11*, 12*
 Drawing No. GE3085, Type plate VEGATOR 11* for Namur
 Drawing No. GE3178-01, Component layout VEGATOR 111/112
 Drawing No. GE3179-01, Trace Layout VEGATOR 111/112
 Drawing No. GE3180-01, Component Layout VEGATOR 12*
 Drawing No. GE3181-01, Trace Layout VEGATOR 12*
 Drawing No. GE3182, Type Plate VEGATOR 12*
 Drawing No. GE3263, Component Layout PCB VEGATOR 14*
 Drawing No. GE3264, Trace Layout VEGATOR 12*
 Drawing No. GE3325, VEGATOR 141/142
 Drawing No. GE3326, Type plate VEGATOR 14*
 Drawing No. IECEx TUN 14.0004X, IECEx TUN 14.0004X
 Drawing No. IECEx TUN 14.0005X, IECEx TUN 14.0005X
 Drawing No. IECEx TUN 14.0031X, VEGATOR 141/142

Test Reports

 Drawing No. Hansecontrol Test Report No. 1401-0160301R01 (for TOR11*), VEGATOR 112 EMC-tests, 14.08.2014
 Drawing No. Hansecontrol Test Report No. 1401-0160401R01 (for TOR12*), VEGATOR 122 EMC-tests, 14.08.2014
 Drawing No. Hansecontrol Test Report No. 1401-0160501R01 (for TOR14*), VEGATOR 142 EMC-tests, 14.08.2014
 Drawing No. Hansecontrol Test Report No. 2101-0137301R03_A_EMC (6GHz), VEGATOR 112, 10.08.2021
 Drawing No. Hansecontrol Test Report No. 2101-0137301R04_A_EMC(6GHz), VEGATOR 122, 10.08.2021

Drawing No. Hansecontrol Test Report No. 2101-0137301R05_A EMC (6GHz), VEGATOR 142, 10.08.2021

Drawing No. PAConsult Test Report No. 14-6126, VEGATOR 112/122/142 Vibration, Climatic and Temperature Tests, 16.07.2014

Drawing No. PAConsult Test Report, No. 2013294C, Flammability test, 04.06.2020

Drawing No. 1-9_TOR122_F1_1_Flammability Test, VEGATOR flammability test (internal)

Drawing No. 2-3_TOR112_F1_1, VEGATOR 112 protection against electric shock (internal)

Drawing No. 2-3_TOR122_F1_1, VEGATOR 122 protection against electric shock (internal)

Drawing No. 2-3_TOR142_F1_1, VEGATOR 142 protection against electric shock (internal)

Drawing No. 3-5_TOR112_F1_1, VEGATOR 112 moisture test (internal)

Drawing No. 4-3_TOR121S_N1_1, VEGATOR 121S - Resistance against high-frequency electromagnetic fields (internal)

Drawing No. 4-4_TOR121S_N1_2, VEGATOR 121S – resistance against conducted fast transients (Burst) (internal)

Drawing No. 4-6_TOR121S_N1_1, VEGATOR 121S – resistance against conducted high frequency interference (internal)

Term of Validity

This Product Design Assessment (PDA) Certificate remains valid until 05/Feb/2028 or until the Rules and/or Standards used in the assessment are revised or until there is a design modification warranting design reassessment (whichever occurs first).

Acceptance of product is limited to the "Intended Service" details prescribed in the certificate and as per applicable Rules and Standards.

This Certificate is valid for installation of the listed product on ABS units which exist or are under contract for construction on or previous to the effective date of the ABS Rules and standards applied at the time of PDA issuance. Use of the Product for non-ABS units is subject to agreement between the manufacturer and intended client.

ABS Rules

2023 Marine Vessel Rules 1-1-4/7.7, 1-1-A3, 1-1-A4, 4-8-3/1.7, 4-8-3/1.11.1, 4-8-3/1.17, 4-8-3/13.3.1, 4-9-9/13.1, 4-9-9/Table1

2023 Mobile Offshore Units Rules: 1-1-4/9.7, 1-1-A3, 1-1-A4, 4-3-1/11, 4-3-1/15, 4-3-1/17

International Standards

NA

EU-MED Standards

NA

National Standards

NA

Government Standards

NA

Other Standards

NA

Certificate Number: 23-2350260-PDA



[Handwritten Signature]

Corporate ABS Programs
American Bureau of Shipping
Print Date and Time: 07-Feb-2023 12:43

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 is printed.

If the Rules and/or standards used in the PDA evaluation are revised or if there is a design modification (whichever occurs first), a PDA revalidation may be necessary.

The continued validity of the MA is dependent on completion of satisfactory audits as required by the ABS Rules. The validity of both PDA and MA entitles the product to receive a **Confirmation of Product Type Approval**.

Acceptance of product is limited to the "Intended Service" details prescribed in the certificate and as per applicable Rules and Standards.

This Certificate is valid for installation of the listed product on ABS units which exist or are under contract for construction on or prior to the effective date of the ABS Rules and standards applied at the time of PDA issuance. 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.

Type Approval requires Drawing Assessment, Prototype Testing and assessment of the manufacturer's quality assurance and quality control arrangements. The manufacturer is responsible to maintain compliance with all specifications applicable to the product design assessment. Unless specifically indicated in the description of the product, certification under type approval does not waive requirements for witnessed inspection or additional survey for product use on a vessel, MODU or facility intended to be ABS classed or that is presently in class with ABS.

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.

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.



TYPE APPROVAL CERTIFICATE
No. **ELE053523XG**

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>	Automation terminals
<i>Type</i>	VEGATOR 1xx series
<i>Applicant</i>	VEGA GRIESHABER KG AM HOHENSTEIN 113 77761 Schiltach GERMANY
<i>Manufacturer</i>	VEGA GRIESHABER KG
<i>Place of manufacture</i>	AM HOHENSTEIN 113 77761 Schiltach GERMANY
<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 **Hamburg** on **March 10, 2023**. This Certificate is valid until **March 9, 2028**

RINA Services S.p.A.
Giuseppe Russo

This certificate consists of this page and 1 enclosure

TYPE APPROVAL CERTIFICATE

No. **ELE053523XG**

Enclosure - Page 1 of 1

VEGATOR 1xx series

Product description:

The VEGATOR 1xx series are signal conditioning instruments for level detection for sensors with analogue measured data transmission mounted on a DIN rail. Simple monitoring and control functions can be realized.

Order code:

VEGATOR 1 a b . c d e f g h i

a = Type:

- 1 - Namur Electronics,
- 2 - two-wire 8/16mA,
- 4 - continuously measuring 4...20mA sensors

b = Number of input channels:

- 1 - Single-Channel,
- 2 - Double-Channel

c = Scope: A, B, C, F, G, I, R

d = Approval:

- M - Ex - free area ,
- O - Ex - area (hazardous location)

e = Version: X or S

f = SIL-Qualification:

- X - without,
- S - with SIL Qualification

g = Housing / Protection:

- K - Plastic / IP20

h = Terminal blocks/ Connections:

- X - detachable 2.5mm² / Sensor: 1 x black, ...
- B - detachable 2.5mm² / Ex-Sensor: 1 x blue, ...

i = Additional Certificates:

- M - Yes,
- X - No

Main data:

Ambient temperature: -20 to 60°C

Documents:

Operating instructions: - 46105-EN-170907; 46106-EN-170907; 46107-EN-140625; 46108-EN-140625; 46838-EN-140625;
 - 46839-EN-140625; 57662-DE-180315;
 Drawings & Circuit diagrams: - GE851 Rev. 02; GE3178-01; GE3179-01; GE3180-01; GE3181-01; GE3084;
 - GE3085; GE3325; GE3326; GE3182;
 - GE3263; GE3264; BV1712-00; BV1714-00; SB1406-1-04-0; SB1413-1-06-0; SB1430-1-04-0

Test reports:

Hermes Hanscontrol: - 1401-0160301R01 dated 11 September 2014; 1401-0160401R01 dated 11 September 2014;
 - 1401-0160501R01 dated 11 September 2014; 2101-0137301R03A/R04A/R05A dated 10 August 2021;
 Paconsult GmbH: - 14-6126 dated 21 August 2014;
 VEGA Grieshaber KG: - 1-9_TOR122_F1_1 dated 11.10.13; 4-4_TOR121S_N1_1; 4-4_TOR121S_N1_2;
 - 4-6_TOR121S_N1_1; 4-6_TOR121S_N1_2; VEGATOR 1__Series_Test_Supplement dated 02 Oct 2014;

Remarks:

- The products fulfill EC-Code: 3a1.
- The EMC requirements for installation on the Bridge and Deck Zones will be fulfilled by the equipment.

Hamburg March 10, 2023

RINA Services S.p.A.
 Via Corsica, 12 - 16128 Genova
 Tel +39 010 53851
 Fax +39 010 5351000



РОССИЙСКИЙ МОРСКОЙ РЕГИСТР СУДОХОДСТВА
RUSSIAN MARITIME REGISTER OF SHIPPING

Стр. 1 / 2
Page.

6.8.3



СВИДЕТЕЛЬСТВО О ТИПОВОМ ОДОБРЕНИИ
TYPE APPROVAL CERTIFICATE

Изготовитель
Manufacturer

VEGA Grieshaber KG
(DE143 030 199)

Адрес
Address

Am Hohenstein 113, 77761 Schiltach, Germany.

Изделие*
Product*

Устройство формирования сигнала типа VEGATOR:
TOR 111..., TOR 112..., TOR 121..., TOR 122..., TOR 141..., TOR 142...

Signal conditioning instrument of type: VEGATOR:
TOR 111..., TOR 112..., TOR 121..., TOR 122..., TOR 141..., TOR 142...

Код номенклатуры 15110101
Code of nomenclature

На основании освидетельствования и проведенных испытаний удостоверяется, что вышеупомянутое(ые) изделие(я) удовлетворяет(ют) требованиям Российского морского регистра судоходства.
This is to certify that on the basis of the survey and tests carried out the above mentioned item(s) complies(ly) with the requirements of Russian Maritime Register of Shipping.

Часть XV Автоматизация "Правил классификации и постройки морских судов" (2018); Раздел 12 Части IV "Правил технического наблюдения за постройкой судов и изготовлением материалов и изделий для судов" (2018)

Part XV Automation of "Rules for the Classification and construction of Sea-Going Ships" (2018); Section 12 of part IV of the "Rules for technical supervision during construction of ships and manufacture of materials and products for ships" (2018)

Настоящее Свидетельство о типовом одобрении действительно до 08.10.2023
This Type Approval Certificate is valid until

Настоящее Свидетельство о типовом одобрении теряет силу в случаях, установленных в Правилах технического наблюдения за постройкой судов и изготовлением материалов и изделий для судов.

This Type Approval Certificate becomes invalid in cases stipulated in Rules for the Technical Supervision during Construction of Ships and Manufacture of Materials and Products.

Дата выдачи 08.10.2018
Date of issue

№ 18.40031.250

Российский морской регистр судоходства
Russian Maritime Register of Shipping



Морозов В.В. / V.Morozov
(фамилия, инициалы)
name

*Дополнительную информацию см. на обороте.
Additional information see overleaf.

Технические данные
Technical data

Макс. потребляемая мощность, Вт:	2 (8 VA) TOR111/112/141/142, 3 (8 VA) TOR121/122;
Напряжение питания, В:	24...230 VAC (-15%,+10%) или 24...65 VDC (-15%,+10%);
Рабочая температура °C:	от минус 20 до плюс 60;
Выходной сигнал:	1 или 2 x рабочее реле SPDT, 253 VAC, 3 A, 500 VA / 50 VDC, 1 A, 54 W;
Входной сигнал:	1 или 2 x NAMUR (TOR111/112), 8/16 mA (TOR121/122), 4...20 mA (TOR141/142);
Маркировка взрывозащиты:	ATEX: II (1) G [Ex ia Ga] IIC, II (1) D [Ex ia Da] IIIC, I(M1) [Ex ia Ma] I; II 3G Ex nA nC ic IIC T4 Gc
Степень защиты:	IP20
Max. power consumption, W:	2 (8 VA) TOR111/112/141/142, 3 (8 VA) TOR121/122;
Supply voltage, V:	24...230 VAC (-15%,+10%) или 24...65 VDC (-15%,+10%);
Operating temperature, °C:	from -20 to +60;
Output signal:	1 or 2 x operating relay SPDT, 253 VAC, 3 A, 500 VA / 50 VDC, 1 A, 54 W;
Input signal:	1 or 2 x NAMUR (TOR111/112), 8/16 mA (TOR121/122), 4...20 mA (TOR141/142);
Explosion protection:	ATEX: II (1) G [Ex ia Ga] IIC, II (1) D [Ex ia Da] IIIC, I(M1) [Ex ia Ma] I; II 3G Ex nA nC ic IIC T4 Gc;
Degree of protection:	IP20

Техническая документация и дата ее одобрения Российским морским регистром судоходства
Technical documentation and the date of its approval by Russian Maritime Register of Shipping

Техническая документация одобрена письмом № 250-A-3085-274980 от 08.10.2018.

Technical documentation was approved by RS letter No. 250-A-3085-274980 of 08.10.2018.

Образец изделия испытан под техническим наблюдением Российского морского регистра судоходства.
Product's specimen has been tested under the technical supervision of Russian Maritime Register of Shipping.

Акт № 18.60063.250 от 08.10.2018
Report No. of

Область применения и ограничения
Application and limitations

Устройства формирования сигнала типа VEGATOR: TOR 111..., TOR 112..., TOR 121..., TOR 122..., TOR 141..., TOR 142...
предназначены для использования на морских судах, плавучих сооружениях, стационарных платформах.

Signal conditioning instrument of type: VEGATOR: TOR 111..., TOR 112..., TOR 121..., TOR 122..., TOR 141..., TOR 142...
are intended for using on sea-going ships, floating constructions and fixed offshore platforms.

Вид документа, выдаваемого на изделие
Type of document issued for product

Изделие должно поставляться с копией настоящего Свидетельства о типовом одобрении.

The product shall be delivered with a copy of this Type Approval Certificate.





中国船级社
CHINA CLASSIFICATION SOCIETY

证书编号/Certificate No.
HB23PTB00010_06

型式认可证书
CERTIFICATE OF TYPE APPROVAL

兹证明本证书所述制造厂具备按照下列标准的要求生产本证书所列产品的能力和条件。

This is to certify that the manufacturer stated in the certificate meets the requirements of the standards listed below and is available with the ability and conditions to produce the products described in the certificate.

制造厂/Manufacturer

VEGA Grieshaber KG

地址/Address

Am Hohenstein 113, D-77761 Schiltach, Germany

产品名称/Product

电工仪表
Electric Meter

附加标志/Notations

无/Nil.

认可标准/Approval Standard

1. 中国船级社《钢质海船入级规范》(2022)及其变更通告 第4篇第1章, 第7篇第2章
Part Four Chapter 1, Part Seven Chapter 2 of China Classification Society Rules for Classification of Sea-Going Steel Ships
2022 and its Change Notices

用于/Intended for

船舶与海上设施/Ships and Offshore Installations

产品明细/Product Description

电工仪表/Electric Meter(M0001)

名称/Name	属性(值)/Value	单位/Unit
产品名称/Product Name	Controller for level detection	
型号/Type	VEGATOR series 100	
规格/Specification	see additional pages	



证书有效期至/This Certificate is valid until 2027年04月01日/ Apr. 01,2027

发证/Issued by 中国船级社 汉堡分社
CCS Hamburg Branch

签发日期/Date 2023年03月22日
Mar. 22,2023

本证书根据中国船级社规范和相关规定签发。所有证书作为一个整体,必须同时使用。纸质证书每页均须由本社盖章方为有效。电子证书含数字签名方为有效。本证书复印件无效。任何单位和个人均不应摘录或节选本证书的部分内容。有关方对所持证书的真实性有疑问时,可以向本社检验机构咨询。This Certificate is issued pursuant to the Rules of the Society and related regulation. All pages of the certificate are taken as a whole and are used simultaneously. No paper certificate page is valid without bearing the stamp of the Society, no electronic certificates is valid without the digital signature, and no copied form of the certificate is regarded as valid. Any part of the certificate is not to be extracted or abridged by any unit or individual in any form. Related parties who are doubted about the authenticity of the certificate may inquire of the Society or its offices.

Form No: T01.

联系方式/Contact Us. 见本社官方网站/See official web site of the Society (<http://www.ccs.org.cn>)



UTN:P023-02268595

批准的图纸/Approved Drawings

图纸批准号/ Drawings Approval No.: NP15A00630

产品认可试验报告/ Approval Test Report试验报告编号/ Test Report No.: see additional pages
试验报告日期/ Test Report Date:**认可后的产品检验方式/ Method of Product Inspection after Approval**

按规范只认可不进行产品检验的产品/The product approved only in term of the rules:
认可后的产品检验由制造厂按本社批准的产品检验计划进行检验, 经检验合格后由制造厂签发合格证明, 并连同该产品的本社认可证书复印件一并交付用户, 制造厂对产品符合公约、法规、本社规范和本社认可的标准规定负责。
After approval, product inspection should be carried out by the Manufacturer in accordance with the product inspection scheme approved by the Society. Upon satisfactory inspection, and the Quality Certificate issued by the Manufacturer should be provided to the purchaser together with the copy of the approval certificate issued by the Society. The manufacturer should take responsibility for the product being in compliance with the convention, statutory regulation, the Society rules and the standard accepted by the Society.

认可保持条件/ Maintenance Requirements of Approval

1. 型式认可后, 如果产品及其重要零部件的设计、所用材料或制造方法有所改变, 且影响到产品的主要特性、特征; 或产品的性能指标有所更改, 且超过认可的范围, 则有关图纸和文件应经检验机构审批。并在检验机构认为必要时, 经本社检验人员见证有关试验和进行检查, 其结果应能证实仍符合认可条件。
After type approval, if there are changes to the design, materials used or manufacturing method of the product and important components and such changes affect major characteristics and properties of the product, or property indexes of the product are changed and exceed the scope of approval, related drawings and documents are to be examined and approved by the concerned survey office. Where deemed necessary by the survey office, the surveyor to the Society will go to witness relevant tests and conduct inspection and the results should be able to demonstrate compliance with the approval conditions.
2. 工厂的质量管理体系应保持有效运行, 并且与认可时一致。如果质量管理体系发生改变, 应经原体系认证机构审核并报本社批准。
The quality management system of the factory shall be ensure effective operation, and shall be the same as the situation of approval. If there are any changes to the quality management system, auditing of the original certification organization for quality management system and the society's approval shall be obtained.
3. 认可证书有效期内, 如果出现可能导致本社取消认可的情况, 工厂应及时采取有效的纠正措施。
Within the validity of the approval certificate, if cases occur that may cause the Society to withdraw the approval, the manufacturer should take corrective actions in a prompt and effective manner.
4. 在认可证书有效期内, 本社检验人员可在未经事先通知的情况下对工厂的产品制造过程进行审核, 以验证产品的生产是否符合业经本社批准的图纸和文件。工厂应予以配合。
Within the validity of the approval certificate, the surveyor to the Society may pay unannounced audit to the manufacturing process of the product in order to confirm whether it is in compliance with the drawings and documents approved by the Society. The factory should provide an active cooperation and necessary for the surveyor.
5. 如果属于获得型式认可B 模式证书, 且无需颁发船用产品证书/等效证明文件的情况, 证书获得者应接受本社每年一次的定期审核。定期审核日为认可证书期满之日对应的每一周年日, 检查工作应在周年日的前后三个月内进行。
If belong to the situation of the product has type approval mode B certificate, and marine product certificate/equivalent document is not necessary, those who have obtained the certificate should be subject to periodical audit every year. The date of periodical audit shall be each anniversary date which corresponds to the date of expiry of the relevant certificate and the periodical audit shall be done within a time span of three months before and after the annual surveillance date.

备注/Remarks

本证书由原型式认可证书 (No. HB18PTB00002_07) 换新并替代原证书。
This certificate is renewed from and supersedes the previous Type Approval Certificate No. HB18PTB00002_07.

本社已审核了产品厂无石棉声明, 但本社的审核不免除产品厂按照合同关系向订货方保证产品无石棉的责任。

The declaration of asbestos-free submitted by manufacturer has been reviewed by the Society.
However, liability of the manufacturer to guarantee the products are asbestos-free to purchaser under contract will not be exempted.

中国船级社汉堡分社
CCS Hamburg Branch

注：本证书含有附页，共1页
Note: The certificate is attached with additional 1 page(s)

1. Product Description:

Name	Controller for level detection
Type	VEGATOR 111 / 112 / 121 / 122 / 141 / 142
Power source	24...65 V DC 24...230 V AC, 50/60 Hz
Description	VEGATOR111/112: Transmission of NAMUR signals for level signalling VEGATOR121/122: Transmission of 8/16 mA signals for level signalling VEGATOR141/142: Controller for 4...20 mA signals for level signalling
Output signal	VEGATOR 1x1: 1x operating relay (SPDT), optional 1x fail safe relay output (SPDT) VEGATOR 1x2: 2x operating relay (SPDT)
Firmware	1.xx
Degree of protection	Up to IP20
Explosion-Proof marking	It has IECEx etc. certificate, such as follow: Ex ec nC [ia Ga] IIC T4 Gc Ex ec nC [ia IIIC Da] IIC T4 Gc Ex ec nC [ia I Ma] IIC T4 Gc [Ex ia Ma] I [Ex ia Ga] IIC [Ex ia Da] IIIC IECEX Certificate of Conformity No.: IECEX TUN 14.0004X Issuing Body: TUEV NORD CERT GmbH

2. Approval Test Report

No	Test Report No.	Test Report Date	Laboratory / Address
1	1-9_TOR122_F1_1	2013.10.11	VEGA Grieshaber KG / Am Hohenstein 113, 77761 Schiltach, Germany
2	2-3_TOR112_F1_1	2013.07.01	
3	2-3_TOR122_F1_1	2013.07.01	
4	2-3_TOR142_F1_1	2014.02.13	
5	3-5_TOR112_F1_1	2013.07.11	
6	4-3_TOR121S_N1_1	2017.03.01	
7	4-4_TOR121S_N1_2	2017.03.06	
8	4-6_TOR121S_N1_1	2017.03.01	
9	1401-0160301R01	2014.08.14	Hansecontrol Zertifizierungsgesellschaft mbH / Schleidenstrasse 1, 22083 Hamburg, Germany
10	1401-0160401R01	2014.08.14	
11	1401-0160501R01	2014.08.14	
12	2101-0137301R03A	2021.08.10	
13	2101-0137301R04A	2021.07.05	
14	2101-0137301R05A	2021.07.05	PAConsult GmbH / Birkenau 3, 22087 Hamburg, Germany
15	14-6126	2014.08.21	

3. Limitation/Application:

Please see production operating instructions.

The Ex-Proof parameters of the approved products originate from Ex- Certificate received from manufacturer, not approved by CCS.

The above mentioned devices can be installed with an Ex-approval as well as without Ex-approval according to the field of application.

If the device is used for explosive-proof purposes, the explosion-proof certificate is essential, and the Type Approval Certification will be invalid if the Ex-approved products do not hold valid Ex Certificate. For Ex-devices it is absolutely necessary to affix the above ignition protection label to the device.

Whereas an application in non-explosive area does not require an Ex-certificate.



NIPPON KAIJI KYOKAI

TYPE APPROVAL CERTIFICATE FOR AUTOMATIC DEVICES AND EQUIPMENT

Certificate No. TA25059M

This is to certify that the undernoted product(s) has/have been approved in accordance with the requirements specified in Chapter 1, Part 7 of "Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use" and the relevant Society's Rules.

This certificate is issued to

Manufacturer:	VEGA Grieshaber KG
Place of Manufacturing:	Am Hohenstein 113, D-77761 Schiltach, Germany
Product description:	Signal Conditioning Instrument for Level Detection
Model:	VEGATOR 111, 112, 121, 122, 141, 142
Approval No.:	25A004
Valid until:	6 February 2030

The details are described in the attached sheet(s)

Issued at Tokyo on 7 February 2025.

S. Oishi
General Manager
Machinery Department

Note: The manufacturer, if desired, is requested to apply to the Society for renewal prior to the expiration date.

NIPPON KAIJI KYOKAI

Attached sheet -1/3 to the Certificate No. TA25059M

Specification & documents:

1. Ratings:

Feature	VEGATOR					
	111	112	121	122	141	142
Input Signal	NAMUR		8/16mA		4-20 mA	
Quantity	1	2	1	2	1	2
Switching Threshold	On : 1.5mA Off : 1.7mA		On : 12.1mA Off : 11.9mA		Adjustable	
Output Signal	Operating Relay (Floating SPDT)					
Quantity	1	2	1	2	1	2
Supply Voltage	AC : 24-230 V 50/60 Hz, DC : 24-65 V					

VEGATOR Serie 100

TOR1**,a-b-c-d-e-f-g

a : Scope

* : Not relevant for ship approval

b : Approval

* : Not relevant for ship approval

c : Version

X : Signal channel to NAMUR (IEC60947-5-6)

S : Signal channel to NAMUR (IEC60947-5-6) with fail safe relay

d : SIL qualification

X : Without

S : With

e : Housing / Protection

K : Plastic / IP20

f : Terminal blocks /Connection

B : Detachable 2.5mm² / Ex sensor: 1 blue; output and operating voltage: 2 x black

X : Detachable 2.5mm² / Sensor: 1 blue; output and operating voltage: 2 x black

g : Certification

M : Not relevant for ship approval

To be continued -

NIPPON KAIJI KYOKAI

Attached sheet -2/3 to the Certificate No. TA25059M

2. Components and reference documents:

[Specification & Instructions]

- Specification Sheet for VEGATOR 111 (Doc No. 46109-EN-220412)
- Specification Sheet for VEGATOR 112 (Doc No. 46110-EN-220412)
- Specification Sheet for VEGATOR 121 (Doc No. 46111-EN-220412)
- Specification Sheet for VEGATOR 122 (Doc No. 46112-EN-220412)
- Specification Sheet for VEGATOR 141 (Doc No. 46842-EN-220412)
- Specification Sheet for VEGATOR 142 (Doc No. 46843-EN-220412)
- Operating Instructions for VEGATOR 111 (Doc No.46105-EN-240212)
- Operating Instructions for VEGATOR 112 (Doc No.46106-EN-240212)
- Operating Instructions for VEGATOR 121 (Doc No.57662-EN-240212)
- Operating Instructions for VEGATOR 122 (Doc No.46108-EN-240212)
- Operating Instructions for VEGATOR 141 (Doc No.46838-EN-240212)
- Operating Instructions for VEGATOR 142 (Doc No.46839-EN-240212)

[Component Drawings]

- Outline

GE3084, GE3325

- Layout

GE3178-01, GE3179-01, GE3180-01, GE3181-01, GE3263, GE3264

- Circuit Diagram

SB1406-1-04-0, SB1413-1-05-0, SB1430-1-04-0

- Other

GE851, BV1712-00, BV1714-00

[Quality Control]

- Inspection certificate 3.1 according to EN 10204 (Final inspection protocol)

3. Test report:

- Technical description for VEGATOR 111, 112, 121, 122,141,142 (Doc No. 1046202_000-00)
- PAConsult Test Report (Doc No. 14-6126, 2014-08-21)
- PAConsult Test Report (Doc No. 20-13294F, 2020-06-22)
- Hansecontrol Test Report (Doc No. 1401-0160301R01, 2014-09-11)
- Hansecontrol Test Report (Doc No. 1401-0160401R01, 2014-09-11)
- Hansecontrol Test Report (Doc No. 1401-0160501R01, 2014-09-11)
- Hansecontrol Test Report (Doc No. 2101-0137301R03A, 2021-08-10)
- Hansecontrol Test Report (Doc No. 2101-0137301R04A, 2021-08-10)
- Hansecontrol Test Report (Doc No. 2101-0137301R05A, 2021-08-10)
- TREO Test report (Doc No. 004-25, 2025-02-22)

To be continued -

NIPPON KAIJI KYOKAI

Attached sheet -3/3 to the Certificate No. TA25059M

Test items & approval conditions:

1. Test items: (Applied testing items are marked with X.)

ENVIRONMENTAL TESTS (IACS UR E10 Rev.9 basis)		Mark
External examination		X
Operation test and performance test		X
Electric power supply failure test		X
Power supply fluctuation test	Electric	X
	Pneumatic and Hydraulic	--
Insulation resistance test		X
High voltage test		X
Pressure test (Pneumatic and Hydraulic)		--
Dry heat test (Temperature 70°C × 16 hours)		X
Damp heat test		X
Vibration test (Acceleration $\pm 0.7g \times 1.5$ hours)		X
Inclination test		--
Cold test (Temperature -40°C × 16 hours)		X
Salt mist test		--
Electrostatic discharge immunity test		X
Radiated radio frequency immunity test		X
Conducted low frequency immunity test		X
Conducted high frequency immunity test		X
Burst / Fast transient immunity test		X
Surge immunity test		X
Radiated emission test		X
Conducted emission test		X
Flame retardant test		X

2. Approval condition:

The product is not allowed to be installed on open deck.

- The End -

Printing date:

VEGA

All statements concerning scope of delivery, application, practical use and operating conditions of the sensors and processing systems correspond to the information available at the time of printing.

Subject to change without prior notice

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