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GOVERNMENT APPROVED TEST LABORATORY

IN TERMS OF ARP 0108: "REGULATORY REQUIREMENTS FOR EXPLOSION PROTECTED APPARATUS"

IA CERTIFICATE

Date Issued: **02 May 2023**

*Expiry date: **02 May 2026**

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Issue: 3

Ex – Type Examination Certificate

Certificate Number: **MS-XPL/16.0324 X**
 Equipment: **Signal conditioning instruments**
 Model / Type: **VEGATOR 141 type TOR141.**S/X****; VEGATOR 142 type TOR142.*******

Applicant: **VEGA Grieshaber KG**
Am Hohenstein 113, 77761 Schiltach
Germany

Manufacturer: **VEGA Grieshaber KG**

Serial No: All serial numbers imported between issued- and expire date and all serial numbers covered by a valid report or acceptable product certification mark.

Supplied by
VEGA Grieshaber KG
 Identified by Inspection Authority number
MS-XPL/16.0324 X

And as described in the Explolabs file number **XPL/17322/16.0324 Issue 3** is hereby certified "Explosion Protected (Refer to clause 1, for Ex Rating)", having been examined and inspected in accordance with the relevant requirements of South African Standards.

SANS 60079-0: 2019 Ed 6 Explosive atmospheres Part 0: Equipment — General requirements
IEC 60079-0: 2017 Ed 7

SANS 60079-7: 2019 Ed 4 Explosive atmospheres Part 7: Equipment protection by increased safety
IEC 60079-7:2015 Ed 5 "e"

SANS 60079-11: 2012 Ed 4 Explosive atmospheres Part 11: Equipment protection by intrinsic safety "i"
IEC 60079-11: 2011 Ed 6

SANS 60079-15: 2022 Ed 5 Explosive atmospheres Part 15: Equipment protection by type of protection
IEC 60079-15: 2017 Ed 5 "n"

Risk of ignition provided:

Protection afforded	Equipment Protection Level (EPL)	Performance of protection	Conditions of operation	T class or Max Surface Temp (°C)
	Group			
Very high	[Ma] Group I	Two independent means of protection or safe even when two faults occur independently of each other	Equipment remains functioning when explosive atmosphere present	Not applicable
Very high	[Ga] Group II		Equipment remains functioning in zones 0, 1 and 2	
Very high	[Da] Group III		Equipment remains functioning in zones 20, 21 and 22	
Enhanced	Gc Group II	Suitable for normal operation	Equipment remains functioning in zone 2	T4 (135°C)

This certificate supersedes all previous documents bearing the reference no XPL/17322/16.0324 Issue 2.

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1. GENERAL

The marking of the Signal conditioning instruments shall include the following:

Ex ec nC [ia Ga] IIC T4 Gc
 Ex ec nC [ia IIIC Da] IIC T4 Gc
 VEGATOR 141 type TOR141.**S/X****
 VEGATOR 142 type TOR142.*****
 Ex ec nC [ia I Ma] IIC T4 Gc
 [Ex ia Ma] I
 [Ex ia Ga] IIC
 [Ex ia Da] IIIC

Description of product

The signal conditioning instruments VEGATOR 141 type TOR141.**S/X**** and VEGATOR 142 type TOR142.***** are used for the supply of passive, intrinsically safe 4...20 mA two wire measuring sensors, the safe galvanic separation of the intrinsically safe circuits from all non-intrinsically safe circuits and the evaluation of the analogue transmitted measuring data.

Electrical data

Supply (Terminals 16/17) For connection to non-intrinsically safe circuits with the following maximum values:
 $U_n = 24...230$ V a.c. (-15 ... +10%)
 $U_n = 24... 65$ V d.c. (-15 ... +10%)
 $U_m = 253$ V a.c.

Relay outputs (Terminals Relay 1: 10/11/12 Relay 2: 13/14/15) For connection to non-intrinsically safe circuits with the following maximum values:
 $U_n = 253$ V a.c; $I_n = 3$ A
 $U_n = 60$ V d.c; $I_n = 1$ A

Signal circuits (Terminals 1/2, 4/5) In type of protection intrinsic safety Ex ia I/IIC/II B(IIIC)
 With following maximum values per circuit:
 $U_o = 22.4$ V
 $I_o = 113.5$ mA
 $P_o = 636$ mW
 Characteristic line: linear

Effective internal capacitance C_i Negligibly small
 Effective internal inductance L_i Negligibly small

The maximum permissible values for the external inductance L_o and the external capacitance C_o can be taken from the following tables:

Ex ia I	L_o [mH]	58	20	0.5	0.2	0.1
	C_o [μ F]	2	3.1	3.8	4.8	5.5

Ex ia IIC	L_o [mH]	1.9	1	0.5	0.2	0.1
	C_o [μ F]	0.058	0.076	0.097	0.13	0.156

Ex ia II B (IIIC)	L_o [mH]	16	10	1	0.5	0.2
	C_o [μ F]	0.6	0.69	0.74	0.86	1.09

The intrinsically safe signal circuit is safe galvanically separated from the non-intrinsically safe circuits up to a peak value of the voltage of 375 V.

Thermal data

Permissible ambient temperature range: -20 °C $\leq T_a \leq +60$ °C.

Drawings and documents are listed in the ATEX Assessment Report No. 21 203 296774

Based on the following documentation: TÜV 14 ATEX 145373 X Issue: 00

2. INSTALLATION INSTRUCTIONS

It is the manufacturer's responsibility to supply installation instructions with each unit offered for sale as required by IEC/SANS 60079-0 Clause 30.

This certificate supersedes all previous documents bearing the reference no XPL/17322/16.0324 Issue 2

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3. **SPECIAL CONDITIONS FOR SAFE USE** (denoted by "X" after certificate number)
- For EPL Gc applications the signal conditioning instruments VEGATOR 141 type TOR141.**S/X**** and VEGATOR 142 type TOR142.***** have to be installed in a suitable enclosure according to EN 60079-7 resp. EN 60079-15 in such a way that a degree of protection of at least IP54 is achieved.
 - For EPL Gc applications the signal conditioning instruments VEGATOR 141 type TOR141.**S/X**** and VEGATOR 142 type TOR142.***** have to be erected in such a way that a pollution degree 2 or less, according to EN 60664-1, is achieved.
 - For EPL Gc applications measures have to be taken, external to the signal conditioning instruments VEGATOR 141 type TOR141.**S/X**** and VEGATOR 142 type TOR142.*****, to provide a transient protection that ensures that the rated voltage, connected to the power supply terminals, is not exceeded by more than 40 %.
 - For EPL Gc applications the connecting and disconnecting of non-intrinsically safe circuits is only permitted in the absence of a potentially explosive atmosphere.
4. **SCHEDULE OF LIMITATIONS** (denoted by "U" after certificate number)
Not applicable.
5. **CONDITIONS OF CERTIFICATION**
All production units must be covered by a QAN (Quality Assurance Notification), Product Mark Scheme or batch evaluation.
6. **MARKING**
The following (or similar) information have to be clearly and permanently marked on all units:
- Supplier : VEGA Grieshaber KG
 Manufacturer : VEGA Grieshaber KG
 Equipment : Signal conditioning instruments
 Model/Type : VEGATOR 141 type TOR141.**S/X****; VEGATOR 142 type TOR142.*****
 Serial No. : ---
 Ex Rating : See General, clause 1 for detail.
 IA Certificate No : MS-XPL/16.0324 X

This certification indicates compliance with R10.1 of the Mines Health and Safety Act and/or EMR 9(2) of the Occupational Health and Safety Act, provided that the apparatus is used as relevant in accordance with:

- SANS 10086 and IEC/SANS 61241-14 requirements as applicable;
- Any conditions mentioned in the above report;
- Any relevant requirements and codes of practice enforced in terms of the Mine Health and Safety Act or Occupational Health and Safety Act; and
- Any restrictions and conditions enforced by the Chief Inspector of Mines or the Principal Inspector or the Chief Inspector: Occupational Health and Safety.
- A revision certificate replaces all previous version of the certificate.
- * - Only covers equipment imported between the "Issued" and "Expire" dates.
- If and when your QAN (Quality Assurance Notification) Certificate for your equipment manufacturer expires during the valid period of the IA Certification (issued for your equipment) and a new certificate is not submitted the existing IA Certification will then be cancelled. It is thus the client's responsibility to always submit the updated and valid QAN certificate(s) to Explolabs (Pty) Ltd

Responsible Testing Officer:



D Maree
Technical Specialist
EXPLOLABS EXPLOSION PREVENTION SERVICES

This report/certificate shall not be reproduced except in full without the written approval of the company Explolabs (Pty) Ltd shall not be liable for any losses or damages sustained on account of any failure or omission to properly perform our duties in terms of any contract undertaken by us. This disclaimer is immutable and automatically incorporated in any contract undertaken by us; notwithstanding anything to the contrary, save for the express written waiver of our managing director. By marking the equipment in accordance with the documentation/standard, the manufacturer attests on his own responsibility that the equipment has been constructed in accordance with the applicable requirements of the relevant standards and that the routine verifications and tests have been successfully completed and that the product complies with the documentation and standard(s). The contents of electronic reports/certificates cannot be guaranteed. Original certification documents will be kept on file at Explolabs (Pty) Ltd

This certificate supersedes all previous documents bearing the reference no XPL/17322/16.0324 Issue 2

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