

**GOVERNMENT APPROVED TEST LABORATORY**  
IN TERMS OF ARP 0108: "REGULATORY REQUIREMENTS FOR EXPLOSION PROTECTED APPARATUS"

**IA CERTIFICATE**

Date Issued: **30 Jun 2022**  
\*Expiry date: **30 Jun 2025**  
**Page 1 of 4**  
**Issue: 0**

**Ex – Type Examination Certificate**

Certificate Number: **S-XPL/22.0837 X**  
Equipment: **Ex Separators**  
Model / Type: **VEGATRENN 141(\*) and VEGATRENN 142(\*)**  
Applicant: **VEGA Controls SA (Pty) Ltd**  
**PO Box 691**  
**Wilgeheuwels**  
**1736**

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 Controls SA (Pty) Ltd**  
Identified by Inspection Authority number  
**S-XPL/22.0837 X**

And as described in the Explolabs file number **XPL/22836/22.0837** 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**

Risk of ignition provided:

Protection afforded	Equipment Protection Level (EPL)	Performance of protection	Conditions of operation	T class or Max Surface Temp (°C)
	Group			
Enhanced	Gc Group II	Suitable for normal operation	Equipment remains functioning in zone 2	T4 (135°C)

*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:*

- i) SANS 10086 and IEC/SANS 61241-14 requirements as applicable;
- ii) Any conditions mentioned in the above report;
- iii) Any relevant requirements and codes of practice enforced in terms of the Mine Health and Safety Act or Occupational Health and Safety Act; and
- iv) Any restrictions and conditions enforced by the Chief Inspector of Mines or the Principal Inspector or the Chief Inspector: Occupational Health and Safety.
- v) A revision certificate replaces all previous version of the certificate.
- vi) \* - Only covers equipment imported between the "Issued" and "Expire" dates.
- vii) 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



1.

**GENERAL**

The marking of the Ex Separators shall include the following:

**Ex ec [ia Ga] IIC T4 Gc**

**Ex ec [ia IIIC Da] IIC T4 Gc**

**Ex ec [ia I Ma] IIC T4 Gc**

**Description of Product**

The VEGATRENN 140(\*) series are Ex Separators for one or two intrinsically safe 4 ... 20 mA/HART sensors.

They are used for galvanic separation, intrinsically safe power supply as well as the signal transmission of Ex approved 4... 20 mA/HART sensors in hazardous areas.

The single channel Ex separator VEGATRENN 141(\*) is used for one intrinsically safe 4 ... 20 mA/HART sensor and the double channel Ex separator VEGATRENN 142(\*) for two intrinsically safe 4 ... 20 mA/HART sensors.

They are able to supply up to two sensors with an intrinsically safe circuit (Ex ia) and can convert their measurement values through a 4...20 mA output.

Up to 2 current outputs can be used for data transmission to other control equipment or external indicating instruments can be used to operate equipment.

The VEGATRENN 140(\*) series are suitable for bidirectional transmission of HART signals. The HART signal can be tapped via the front-mounted HART communication sockets or the terminals.

VEGATRENN 140(\*) series can be mounted in control cabinet / carrier rail. The VEGATRENN 140 series supplies the sensor with 4...20mA interface.

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

The maximum voltage at the non-intrinsically safe circuits must not exceed 253Vrms in the event of a fault.

**Nomenclature:**

VEGATRENN	a	b	c
	1	Housing for the installation in the control cabinet (indoor)	
	4	Active, separate power supply	
		1	Single channel version, for use with one sensor
		2	Dual channel version, for use with one or two sensors
		(*)	Reserved for OEM partners with same device

The placeholder within brackets (VEGATRENN 14x(\*)) is reserved for internal production control without effect on the product construction.

**Model overview:**

Feature	VEGATRENN 141(*)	VEGATRENN 142(*)
Number of 4...20 mA/HART sensor inputs Ex ia	1	2
Number of 4...20 mA/HART current outputs	1	2
Type of current outputs	active	active
Supply voltage	24 ... 230 V AC, 24 ... 65 V DC	24 ... 31 V DC

The optical radiation output of the product with respect to explosion protection, according to Annex II clause 1.3.1 of the Directive 2014/34/EU is covered in this certificate based on Exception 1) to the scope of EN 60079-28:2015.

**Temperature range**

The ambient temperature range is -20°C to +60°C.

**Electrical data**

Intrinsically safe specifications:

Power supply: Nominal range: VEGATRENN 141(\*):  
 (terminals 16, 17) 24 V ... 230 V AC 50/60 Hz; 15 VA  
 24 V ... 65 V DC; 3 W  
 Um = 253V AC for [Ex ia] only

Power supply: Nominal range: VEGATRENN 142(\*):  
 (terminals 16, 17) 24 V ... 31 V DC; 5 W  
 Um = 253V AC for [Ex ia] only

Current output: 4...20 mA/HART active  
 (terminals 10 to 12 [TRENN 141(\*)]) U ≤ 16.5 V  
 (terminals 10 to 15 [TRENN 142(\*)]) Load = max. 600 Ω (without internal HART resistor)  
 Um = 253V AC for [Ex ia] only

Sensor input circuit: 4...20 mA/HART  
 (terminals 1,2 [TRENN 141(\*)]) Maximum values of the intrinsically safe signal circuit:  
 (terminals 1,2, 4,5 [TRENN 142(\*)]) U<sub>o</sub> ≤ 26.3 V  
 I<sub>o</sub> ≤ 100 mA  
 P<sub>o</sub> ≤ 658 mW  
 characteristic: linear

Ci = 1.2 nF  
 Li = negligibly small

The maximum values in the following table may be used as concentrated capacitances and concentrated inductances.

The values for IIC and IIB are also permissible for explosive dust atmospheres.

Ex ia	IIC		IIB, IIC		IIA	I
Permissible external inductance L <sub>o</sub>	0.2 mH	1 mH	0.2 mH	2 mH	10 mH	5 mH
Permissible external capacitance C <sub>o</sub>	95.8 nF	54.8 nF	618.8 nF	328.8 nF	508.8 nF	708.8 nF
Permissible L <sub>o</sub> /R <sub>o</sub> ratio	-		216 μH/Ω	216 μH/Ω	433 μH/Ω	710 μH/Ω

**Routine tests**

Transformer TR101 and TR201 (VEGATRENN 142(\*) only) shall be subjected to a voltage of 1500 V rms between primary and secondary windings, for at least 60 seconds, in accordance with the requirements of Clause 11.2 of EN/IEC 60079-11.

Alternatively, the test may be carried out at 1.2 times the test voltage, but with a reduced duration of at least 1 second.

Based on the following documentation: UL 20 ATEX 2404X Rev. 0

**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.

**3. SPECIAL CONDITIONS FOR SAFE USE** (denoted by "X" after certificate number)

- The equipment must be mounted in a housing that has been tested according to EN 60079-0 and meets the requirements of protection class IP54.
- The device may only be used in an area with a pollution degree of 2 or better.
- The installer must ensure that the rated ambient temperature range of the equipment is not exceeded when installed in an enclosure with other equipment and that sufficient separation is provided around the device
- The installation orientation of the device must be in accordance with the instructions.

**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 Controls SA (Pty) Ltd  
Manufacturer : VEGA Grieshaber KG  
Equipment : Ex Separators  
Model/Type : VEGATRENN 141(\*) and VEGATRENN 142(\*)  
Serial No. : ---  
Ex Rating : Ex ec [ja Ga] IIC T4 Gc  
Ex ec [ja IIIC Da] IIC T4 Gc  
Ex ec [ja I Ma] IIC T4 Gc  
IA Certificate No : S-XPL/22.0837 X

**Responsible Testing Officer:****L Odendaal****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*