[1] # EU-TYPE EXAMINATION CERTIFICATE

[2] **Equipment or Protective System intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU**

[3] EU-Type Examination Certificate Number: **UL 20 ATEX 2405X Rev. 0**

[4] Product: **Ex Separators VEGATRENN 141(*) and VEGATRENN 142(*)**

[5] Manufacturer: **VEGA Grieshaber KG**

[6] Address: **Am Hohenstein 113, 77761 Schiltach, Germany**

[7] This product and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

[8] UL International Demko A/S, notified body number 0539 in accordance with Article 17 of the Council Directive 2014/34/EU of 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.
The examination and test results are recorded in confidential report no. **DK/ULD/ExTR20.0019/00**

[9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN IEC 60079-0:2018 **EN 60079-11:2012**

[10] If the sign "**X**" is placed after the certificate number, it indicates that the product is subject to special conditions for safe use specified in the schedule to this certificate.

[11] This EU-Type Examination Certificate relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by the certificate.

[12] The marking of the product shall include the following:

II (1) G [Ex ia Ga] IIC

II (1) D [Ex ia Da] IIIC

I (M1) [Ex ia Ma] I

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Schedule
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[15] 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: (terminals 16, 17)	VEGATRENN 141(*): 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: (terminals 16, 17)	VEGATRENN 142(*): 24 V ... 31 V DC; 5 W Um = 253V AC for [Ex ia] only
Current output: (terminals 10 to 12 [TRENN 141(*)]) (terminals 10 to 15 [TRENN 142(*)])	4…20 mA/HART active U ≤ 16.5 V Load = max. 600 Ω (without internal HART resistor) Um = 253V AC for [Ex ia] only

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Schedule
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Sensor input circuit:
(terminals 1,2 [TRENN 141(*)])
(terminals 1,2, 4,5 [TRENN 142(*)])

4…20 mA/HART
Maximum values of the intrinsically safe signal circuit:
Uo ≦ 26.3 V
Io ≦ 100 mA
Po ≦ 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, IIIC		IIA	I
permissible external inductance Lo	0.2 mH	1 mH	0.2 mH	2 mH	10 mH	5 mH
permissible external capacitance Co	95.8 nF	54.8 nF	618.8 nF	328.8 nF	508.8 nF	708.8 nF
Permissible Lo/Ro 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.

[16] Descriptive Documents
The scheduled drawings are listed in the report no. provided under item no. [8] on page 1 of this EU-Type Examination Certificate.

[17] Specific conditions of use:
- 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.

[18] Essential Health and Safety Requirements
The Essential Health and Safety Requirements (EHSRs) covered by the standards listed at item 9.

The trademark VEGA will be used as the company identifier on the marking label.

The manufacturer shall inform the notified body concerning all modifications to the technical documentation as described in Annex III to Directive 2014/34/EU of the European Parliament and the Council of 26 February 2014.