



EU-TYPE EXAMINATION CERTIFICATE



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

- [1] [2] [3] EU-Type Examination Certificate Number: **DEMKO 19 ATEX 2170X Rev. 2**
- [4] Product: **Controllers, VEGAMET 841(*), VEGAMET 842(*), VEGAMET 861(*), VEGAMET 862(*)**
- [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. **5197334.1243459**
- [9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with:
- EN IEC 60079-0:2018 EN 60079-7:2015 EN 60079-11:2012
EN 60079-15:2019**
- [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 3 (1) G **Ex ic ec nC [Ex ia Ga] IIC T4 Gc**
 II 3 G (1) D **Ex ic ec nC [Ex ia IIIC Da] IIC T4 Gc**

Certification Manager
Jan-Erik Storgaard

This is to certify that the sample(s) of the Product described herein ("Certified Product") has been investigated and found in compliance with the Standard(s) indicated on this Certificate, in accordance with the ATEX Product Certification Program Requirements. This certificate and test results obtained apply only to the product sample(s) submitted by the Manufacturer. UL did not select the sample(s) or determine whether the sample(s) provided were representative of other manufactured product. UL has not established Follow-Up Service or other surveillance of the product. The Manufacturer is solely and fully responsible for conformity of all product to all applicable Standards, specifications, requirements or Directives. The test results may not be used, in whole or in part, in any other document without UL's prior written approval.

Date of issue: 2019-05-24

Re-issued: 2019-11-29



Notified Body

UL International Demko A/S, Borupvang 5A, 2750 Ballerup, Denmark
Tel. +45 44 85 65 65, info.dk@ul.com, www.ul.com



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Schedule

EU-TYPE EXAMINATION CERTIFICATE No.

DEMKO 19 ATEX 2170X Rev. 2

[15]

Description of Product:

The controller VEGAMET 84(*)/ 86(*) series are industrial controllers designed for use as associated apparatus permitted for the installation in the potentially explosive atmosphere for category 3 equipment.. They are able to supply up to two sensors with a intrinsically safe circuit (Ex ia) and can process and display their measurement values trough a 4...20 mA input or HART communication (VEGAMET 86(*) only).

Up to three current outputs can be used for data transmission to other control equipment or external indicating instruments and up to 6 relay outputs provided from internal relays that can be used to operate in the potentially explosive atmosphere for category 3 equipment..

In addition to those features, the controllers VEGAMET 86(*) have up to four digital inputs to implement more complex controller tasks and a memory card slot which can be used to log data. Every process controller is equipped with limited energy Bluetooth communication which allows for an easy setup over mobile devices.

The controller VEGAMET 84(*)/ 86(*) are associated apparatuses and can be adjusted via pushbutton permitted for the installation in the potentially explosive atmosphere for category 3 equipment, providing intrinsic safe (Ex ic) pushbutton and intrinsic safe [Ex ia] connections for equipment installed in zone classified hazardous locations for category 1G or 1D equipment.

The measured value is shown on a display. An internal, non-replaceable battery is used to store the real time for the data logger function of VEGAMET 86(*)..

An pluggable internal memory card is used to store data for the data logger function of VEGAMET 86(*)..

Individual adaptations to demanding applications through adjustment, control and data logger functions are possible.

The VEGAMET 84(*)/ 86(*) series is suitable for wall or pipe mounting and is suitable for level, pressure and flow measurement in all industries.

Safety relevant model coding of VEGAMET 800 series:

VEGAMET	a	b	c	(*)
	8	Housing for outdoor use		
	4	Basic functions, for simple control tasks		
	6	Extended functions, for complex control tasks		
	1	Single channel version, for use with one sensor		
	2	Dual channel version, for use with one or two sensors		

The placeholder within brackets VEGAMET 84x(*) is reserved and considered as not safety relevant.

Safety relevant features	VEGAMET 841	VEGAMET 842	VEGAMET 861	VEGAMET 862
Number of 4...20 mA sensor inputs Ex ia	1	2	1	2
HART communication	-	-	Yes	Yes
Number of 0/4...20 mA outputs	1	2	1	3
Number of relay outputs	3	3	4	6
Number of digital inputs	-	-	2	4
Bluetooth communication	Yes	Yes	Yes	Yes
Memory card slot (pluggable)	-	-	Yes	Yes
Battery for data logging (non-replaceable)	-	-	Yes	Yes

Temperature range:

The ambient temperature range is -40 °C to +50°C.

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Schedule EU-TYPE EXAMINATION CERTIFICATE No. DEMKO 19 ATEX 2170X Rev. 2

Electrical data

VEGAMET 841(*), VEGAMET 842(*)

Power supply (terminals 91, 92): 24 V ... 65 V DC (-15 % ... +10 %)
100 V ... 230 V AC (-15 % ... +10 %) 50/60 Hz.
Um = 253V AC for [Ex ia] only

Relay (terminals 61 to 69): 1A AC (cos phi > 0.9), 250VAC, 250 VA.
1A DC, 60V DC, 40 W.
Um = 253V AC for [Ex ia] only

Current output:
(terminals 41, 42 [VEGAMET 841]) 0/4...20 mA
U ≤ 16 V
(terminals 41 to 44 [VEGAMET 842]) Load = max. 500 Ω
Um = 253V AC for [Ex ia] only

Communication interface: Bluetooth

Sensor input circuit: 4...20 mA
(terminals 1, 2 [VEGAMET 841]) in type of protection intrinsically safety Ex ia
(terminals 1, 2, 4, 5 [VEGAMET 842]) Maximum values of the intrinsically safe signal circuit:
U₀ ≤ 23.3V
I₀ ≤ 109.8 mA
P₀ ≤ 639.6 mW
characteristic: linear
C_i is negligibly small
L_i is negligibly small

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

Ex ia	IIC	IIB, IIIC		IIA	
permissible external inductance L ₀	0.2 mH	0.5 mH	0.5 mH	2 mH	10 mH
permissible external capacitance C ₀	120 nF	88 nF	580 nF	470 nF	770 nF

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 253V rms in the event of a fault.
VEGAMET 841(*), VEGAMET 842(*) have intrinsically safe circuits and non-intrinsically safe circuits.

Electrical data

VEGAMET 861(*), VEGAMET 862(*)

Power supply (terminals 91, 92): 24 V ... 65 V DC (-15 % ... +10 %)
100 V ... 230 V AC (-15 % ... +10 %) 50/60 Hz.
Um = 253V AC for [Ex ia] only

Relay output maximum values:
(terminals 61 to 72 [VEGAMET 861]) 1A AC (cos phi > 0.9), 250VAC, 250 VA
(terminals 61 to 78 [VEGAMET 862]) 1A DC, 60VDC, 40 W
Um = 253V AC for [Ex ia] only

Digital input:
(terminals 21 to 26 [VEGAMET 861]) max. 30 V DC
(terminals 21 to 32 [VEGAMET 862]) max. 30 mA

Current output:
(terminals 41, 42 [VEGAMET 861]) 0/4...20 mA
(terminals 41 to 46 [VEGAMET 862]) U ≤ 16 V
Load = max. 500 Ω
Um = 253V AC for [Ex ia] only

Communication interface: Bluetooth

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Schedule EU-TYPE EXAMINATION CERTIFICATE No. DEMKO 19 ATEX 2170X Rev. 2

Sensor input circuit:
(terminals 1, 2 [VEGAMET 861])
(terminals 1, 2, 4, 5 [VEGAMET 862])

4...20 mA, HART
in type of protection intrinsic safety Ex ia.
Maximum values of the intrinsically safe signal circuit:
 $U_o \leq 23.3V$
 $I_o \leq 111.3 mA$
 $P_o \leq 648.4 mW$
characteristic: linear
Ci is negligibly small
Li is negligibly small

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

Ex ia	IIC		IIB, IIC		IIA
permissible external inductance L_o	0.2 mH	0.5 mH	0.5 mH	2 mH	10 mH
permissible external capacitance C_o	120 nF	88 nF	580 nF	470 nF	760 nF

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 253V rms in the event of a fault.

VEGAMET 861(*), VEGAMET 862(*) have intrinsically safe circuits and non-intrinsically safe circuits.

Routine tests:

Transformer TR101, and TR201 shall be subjected to a voltage of 2500 V rms between primary and secondary windings, for at least 60 seconds, in accordance with the requirements of Clause 11.2 of EN 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.

Dielectric strength routine test in accordance with clause 7.1 of EN 60079-7, shall be applied:

- a) With a Test voltage derived from the applicable industrial standard or with 500 V ac +5% or 700 V dc + 5% for 1 minute or with 1.2 times of the test voltage for ≥ 100 millisecond between the Digital Input- and Sensor Input terminals.
- b) Between the power supply terminals with Relay terminals all suitable for 230 V ac/ 250 V working voltage and the terminals from a suitable for less than 90 V ac, with a test voltage derived from the applicable industrial standard or with 1500 V ac +5% or 2100 V dc +5 % for 1 minute or with 1.2 times of the test voltage for ≥ 100 millisecond.

Because the creepage and clearance dimensions are rigidly controlled by tooling in the manufacturing process, the routine tests in a) and b) will be performed on a statistical basis in accordance with ISO 2859-1 with an acceptance quality limit (AQL) of 0.04

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Descriptive Documents

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

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Special Conditions of Use:

Installation of the device in a protective housing or control cabinet IP54 in accordance with EN 60079-0 is required.
The module shall only be used in an area of minimum pollution degree 2 or better, as defined in EN 60664-1

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Essential Health and Safety Requirements

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



Accredited by DANAK under registration number 7011 to certification of products.

EU-TYPE EXAMINATION CERTIFICATE



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

- [3] EU-Type Examination Certificate Number: **DEMKO 19 ATEX 2170X Rev. 1**
- [4] Product: **Controllers, VEGAMET 841(*), VEGAMET 842(*), VEGAMET 861(*), VEGAMET 862(*)**
- [5] Manufacturer: **VEGA Grieshaber KG**
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Certification Manager
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Date of issue: 2019-05-24

Re-issued: 2019-10-18

Notified Body

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Tel. +45 44 85 65 65, info.dk@ul.com, www.ul.com



[13]

[14]

Schedule

EU-TYPE EXAMINATION CERTIFICATE No.

DEMKO 19 ATEX 2170X Rev. 1

[15]

Description of Product:

The controller VEGAMET 84(*)/ 86(*) series are industrial controllers designed for use as associated apparatus permitted for the installation in the potentially explosive atmosphere for category 3 equipment.. They are able to supply up to two sensors with a intrinsically safe circuit (Ex ia) and can process and display their measurement values trough a 4...20 mA input or HART communication (VEGAMET 86(*) only).

Up to three current outputs can be used for data transmission to other control equipment or external indicating instruments and up to 6 relay outputs provided from internal relays that can be used to operate in the potentially explosive atmosphere for category 3 equipment..

In addition to those features, the controllers VEGAMET 86(*) have up to four digital inputs to implement more complex controller tasks and a memory card slot which can be used to log data. Every process controller is equipped with limited energy Bluetooth communication which allows for an easy setup over mobile devices.

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The measured value is shown on a display. An internal, non-replaceable battery is used to store the real time for the data logger function of VEGAMET 86(*).

An pluggable internal memory card is used to store data for the data logger function of VEGAMET 86(*).

Individual adaptations to demanding applications through adjustment, control and data logger functions are possible.

The VEGAMET 84(*)/ 86(*) series is suitable for wall or pipe mounting and is suitable for level, pressure and flow measurement in all industries.

Safety relevant model coding of VEGAMET 800 series:

VEGAMET	a	b	c	(*)
	8	Housing for outdoor use		
	4	Basic functions, for simple control tasks		
	6	Extended functions, for complex control tasks		
	1	Single channel version, for use with one sensor		
	2	Dual channel version, for use with one or two sensors		

The placeholder within brackets VEGAMET 84x(*) is reserved and considered as not safety relevant.

Safety relevant features	VEGAMET 841	VEGAMET 842	VEGAMET 861	VEGAMET 862
Number of 4...20 mA sensor inputs Ex ia	1	2	1	2
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Bluetooth communication	Yes	Yes	Yes	Yes
Memory card slot (pluggable)	-	-	Yes	Yes
Battery for data logging (non-replaceable)	-	-	Yes	Yes

Temperature range:

The ambient temperature range is -40 °C to +50° C.

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[14]

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EU-TYPE EXAMINATION CERTIFICATE No.

DEMKO 19 ATEX 2170X Rev. 1

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Communication interface: Bluetooth

Sensor input circuit: 4...20 mA
 (terminals 1, 2 [VEGAMET 841]) in type of protection intrinsic safety Ex ia
 (terminals 1, 2, 4, 5 [VEGAMET 842]) Maximum values of the intrinsically safe signal circuit:
 Uo ≤ 23.3V
 Io ≤ 109.8 mA
 Po ≤ 639.6 mW
 characteristic: linear
 Ci is negligibly small
 Li is negligibly small

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

Ex ia	IIC		IIB, IIIC		IIA
permissible external inductance Lo	0.2 mH	0.5 mH	0.5 mH	2 mH	10 mH
permissible external capacitance Co	120 nF	88 nF	580 nF	470 nF	770 nF

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 253V rms in the event of a fault. VEGAMET 841(*), VEGAMET 842(*) have intrinsically safe circuits and non-intrinsically safe circuits.

Electrical data

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EU-TYPE EXAMINATION CERTIFICATE No.

DEMKO 19 ATEX 2170X Rev. 1

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permissible external capacitance C_o					

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VEGAMET 861(*), VEGAMET 862(*) have intrinsically safe circuits and non-intrinsically safe circuits.

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Dielectric strength routine test in accordance with clause 7.1 of EN 60079-7, shall be applied:

- a) With a Test voltage derived from the applicable industrial standard or with 500 V ac +5% or 700 V dc + 5% for 1 minute or with 1.2 times of the test voltage for ≥ 100 millisecond between the Digital Input- and Sensor Input terminals.
- b) Between the power supply terminals with Relay terminals all suitable for 230 V ac/ 250 V working voltage and the terminals from a suitable for less than 90 V ac, with a test voltage derived from the applicable industrial standard or with 1500 V ac +5% or 2100 V dc +5 % for 1 minute or with 1.2 times of the test voltage for ≥ 100 millisecond.

Because the creepage and clearance dimensions are rigidly controlled by tooling in the manufacturing process, the routine tests in a) and b) will be performed on a statistical basis in accordance with ISO 2859-1 with an acceptance quality limit (AQL) of 0.04

[16]

Descriptive Documents

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

[17]

Special Conditions of Use:

Installation of the device in a protective housing or control cabinet IP54 in accordance with EN 60079-0 is required. The module shall only be used in an area of minimum pollution degree 2 or better, as defined in EN 60664-1

[18]

Essential Health and Safety Requirements

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