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GOVERNMENT APPROVED TEST LABORATORY

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

IA CERTIFICATE

Date Issued: **08 Apr 2022**

*Expiry date: **08 Apr 2025**

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Issue: 6

Ex – Type Examination Certificate

Certificate Number: **MS-XPL/10.0679**
Equipment: **Signal conditioning instrument VEGAMET**
Model / Type: **MET391.C******
Applicant: **Vega Instruments (Pty) Ltd**

**PO Box 692
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 Instruments (Pty) Ltd
Identified by Inspection Authority number
MS-XPL/10.0679

And as described in the Explolabs file number **XPL/11380/10.0679 Issue 6** is hereby certified "Explosion Protected [Ex ia] IIC, [Ex iaD] [Ex ia] I", having been examined and inspected in accordance with the relevant requirements of South African Standards.

- IEC /SANS 60079-0: 2005** "Electrical apparatus for explosive gas atmospheres, Part 0: General requirements"
- IEC /SANS 60079-11: 2007** "Electrical apparatus for explosive gas atmospheres, Part 11: Equipment protection by Intrinsic safety "i"
- IEC/ SANS 60079-26: 2007** Explosive atmospheres – Part 26: Equipment with equipment protection level (EPL) Ga
- IEC /SANS 61241-11: 2007** "Electrical apparatus for use in the presence of combustible dust, Part 11: Protection by Intrinsic safety "iD"

| | | |
|----------------|-----------------------|--|
| Locations | Zone (0) Zone (20) | Gas and Dust: Underground Gas: Surface Dust |
| Frequency | | Continuous as could occur under normal operation |
| Environment | Group I/IIc | Methane plus Coal dust, Propane to Hydrogen plus Acetylene |
| Limiting Temp. | | |

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

DOCUMENT No: XPL0213 | RELEASE DATE: 29/05/2018 | REV: 7

This report supersedes all previous documents bearing the reference no XPL/11380/10.0679 Issue 5.



1. GENERAL

The marking of the Signal conditioning instrument VEGAMET shall include the following:
[Ex ia] IIC, [Ex iaD] [Ex ia] I

The signal conditioning instrument VEGAMET type MET391.C**** is an associated electrical apparatus and is used for the safe galvanic separation of the intrinsically safe circuit from all non-intrinsically safe circuits.

The apparatus supplies passive, intrinsically safe 0/4-20mA two wire measuring value transducers and transforms the signals of the transducers into a normalized 0/4-20mA output signal. The output signal, the relay outputs and the communication via the digital interfaces are used for the control and monitoring of filling levels.

The maximum permissible ambient temperature is 60°C.

SAFETY PARAMETERS

Supply voltage
 (Connections K13 [25, 26])

U = 20...72V dc
 U = 20...253V ac
 Um = 253V ac

Supply and signal circuit
 (Connections K11 [1, 2])

in type of protection "Intrinsic Safety" Ex ia IIC/IIB/
 max values:
 Uo = 24.2V
 Io = 110mA
 Po = 662mW
 Characteristic line: linear

| Ex ia | IIC | | IIB | | I | |
|---------------------------------|-------|-------|-------|-------|--------|-------|
| Max permissible ext inductance | 0.2mH | 0.5mH | 0.5mH | 1.0mH | 0.5mH | 10mH |
| Max permissible ext capacitance | 110nF | 82nF | 540nF | 460nF | 1000nF | 930nF |

With additionally connected VEGA interface converter VEGACONNECT type CONNECT.CX** via HART-connecting cable
 (Connection K11[3, 4])

Supply and signal circuit
 (Connections K11[1, 2])

in type of protection "Intrinsic Safety" Ex ia IIC/IIB
 max values:
 Uo = 24.2V
 Io = 113mA
 Po = 667mW
 Characteristic line: linear

| Ex ia | IIC | | IIB | | I | |
|---------------------------------|-------|-------|-------|-------|--------|-------|
| Max permissible ext inductance | 0.2mH | 0.5mH | 0.5mH | 1.0mH | 0.5mH | 10mH |
| Max permissible ext capacitance | 110nF | 81nF | 540nF | 460nF | 1000nF | 930nF |

The maximum values of the tables are also allowed to be used simultaneously as concentrated capacitances and as concentrated inductances.

The intrinsically safe supply and signal circuit is also allowed to be connected to apparatus in explosion hazardous areas caused by dust.

Then, the supply and signal circuit may be executed in type of protection Intrinsic Safety Ex ia IIC or Ex ia IIB.

Relay circuits
 (relay output 1:
 Connection K13[31, 32, 33]
 Relay output 2:
 Connection K13[34, 35, 36]
 Relay output 3:

maximum values per relay:
 a.c. current: 253V, 2A, 125VA
 d.c. current: 60V, 1A, 54W

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Connection K12[13, 14, 15]
 Relay output 4:
 Connection K12[16, 17, 18]
 Relay output 5:
 Connection K12[19, 20, 21]
 Relay output 6:
 Connection K1[22, 23, 24])

Current output 0/4...20mA
 (Connections K13[28, 29]) Um = 253V ac

Communication circuits:

RS232 connection for connection to a RS232 interface
 (Bushing at lower part of housing) Um = 50V
 Or

Ethernet connection for connection to an Ethernet interface
 Bushing at lower part of housing) Um = 50V

USB connection for connection to an USB interface
 (MINI USB bushing at lower part of housing) Um = 16V

Digital switch input circuits max values:
 (Digital input 1: low level: U = -3V...+5V dc
 Connections K11[8, 12] high level: U = +11V...+30V dc
 Digital input 2: Um = 36V
 Connections K11[9, 12]
 Digital input 3:
 Connections K11[10, 12]
 Digital input 4:
 Connections K11[11, 12])

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

Based on the following documentation: TUV 09 ATEX 555127.

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 OF USE (X)

None.

4. CONDITIONS OF CERTIFICATION

All production units must be covered by a QAN (Quality Assurance Notification), Product Mark Scheme or batch evaluation.

5. MARKING

The following (or similar) information have to be clearly and permanently marked on all units:

Supplier : Vega Instruments (Pty) Ltd
 Manufacturer : VEGA Grieshaber KG
 Equipment : Signal conditioning instrument VEGAMET
 Model/Type : MET391.C***
 Serial No. : ---
 Ex Rating : [Ex ia] IIC, [Ex iaD] [Ex ia] I
 IA Certificate No : MS-XPL/10.0679

Responsible Testing Officer:

L Odendaal**Technical Specialist****EXPLOLABS EXPLOSION PREVENTION SERVICES**

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