

EU-TYPE EXAMINATION CERTIFICATE



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

EU-Type Examination Certificate Number: **DEMKO 14 ATEX 1287U Rev. 1**

Component: **Mark VleS Gas Detection I/O**

Manufacturer: **GE Drives & Controls Inc.**

Address: **1501 Roanoke Blvd., Salem, VA 24153 USA**

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

UL International Demko A/S, notified body number 0539 in accordance with Article 17 of the Council Directive 2014/34/EU of the European Parliament and the Council, dated 26 February 2014, certifies that this component has been found to comply with the Essential Health and Safety Requirements relating to design and construction of components 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. **4789952713.1.1.**

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

EN IEC 60079-0:2018

EN 60079-29-1:2016

The sign "U" is placed after the certificate number. It indicates that this certificate must not be mistaken for a certificate intended for an equipment or protective system. This partial certification may be used as a basis for certification of an equipment or protective system.

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

The marking of the component shall include the following:

EN 60079-29-1

Certification Manager
Jan-Erik Storgaard

This is to certify that the sample(s) of the Component described herein ("Certified Component") 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 component 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 component. UL has not established Follow-Up Service or other surveillance of the product. The Manufacturer is solely and fully responsible for conformity of all products 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: 2014-10-17

Re-issued: 2021-11-30

Notified Body

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



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Schedule

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[15] Description of Component:
The Mark VIeS Gas Detection I/O is a collection of I/O modules and accessory terminal boards. Analog inputs and discrete input interface to a gas detector. Relay outputs and trip relays provide gas detector status to other Mark VIeS hardware. A Mark VIeS controller connected to the gas detection I/O will process inputs, control outputs and provide I/O status to the UDH. Application code to define operation is created by the end user.

The I/O Pack and their associated terminal boards used in hazardous locations in this Gas Detector system have been evaluated to EN 60079-0, EN 60079-11 and EN 60079-15 in certificates DEMKO 12 ATEX 1114875X, DEMKO 13 ATEX1214780X, DEMKO 16 ATEX 1738X, DEMKO 18 ATEX 2032X, and DEMKO 20 ATEX 2359X.

Performance testing

The measuring function of the component for explosion protection, according to Annex II clause 1.5.5, 1.5.6 and 1.5.7 of the Directive 2014/34/EU is covered in this certificate.

Temperature range

Operating: -30°C to +65°C
Storage: -40°C to +85°C

Electrical data

Gas detection range: 4-22.4 mA (0-115% LFL)
Alarm threshold range: Programmable 0-115% LFL
Over-Range threshold range: Programmable 0-115% LFL
Under-Range threshold range: Programmable 0-4 mA
Operating Voltage: 28 Vdc ± 5%
Contact Wetting Voltage: 24 Vdc

Routine tests

None.

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Descriptive Documents

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

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Schedule of limitations:

1. The model Mark VIeS Gas Detection I/O shall consist of any combination of the following modules:

Description of Device	Manufacturer, Model Number	Firmware Version(s)
Module, Analog I/O	GE Drives and Controls, ISx2yYAICS1B	V05.01.xxC
Terminal Board, Analog I/O, Simplex	GE Drives and Controls, ISx0ySTAIS2A	Not Applicable
Terminal Board, Analog I/O, Triple Mode Redundant	GE Drives and Controls, ISx0yTBAIS1C	Not Applicable
Module, Discrete Input	GE Drives and Controls, ISx2yYDIAS1B	V05.01.xxC
Terminal Board, Contact Input with Group Isolation	GE Drives and Controls, ISx0yTBCIS2C	Not Applicable
Module, Discrete Output	GE Drives and Controls, ISx2yYDOAS1B	V05.07.xxC
Terminal Board, Relay Output with Coil Sensing	GE Drives and Controls, ISx0yTRLYS1B	Not Applicable
Terminal Board, Relay Output, Triple Mode Redundant Contact Voting	GE Drives and Controls, ISx0yTRLYS1F	Not Applicable
Module, Emergency Trip Protection	GE Drives and Controls, IS220PPRAS1B	V05.00.xxC
Terminal Board, Turbine Emergency Trip	GE Drives and Controls, IS200TREAS1A	Not Applicable
Terminal Board (Daughter), Turbine Emergency Trip	GE Drives and Controls, IS200WREAS1A	Not Applicable
Module, Turbine Specific Primary Trip	GE Drives and Controls, IS220YTURS1A	V03.02.xxC V04.06.xxC
Terminal Board, Primary Turbine Protection Input	GE Drives and Controls, IS200TTURS1C	Not Applicable
Terminal Board, Turbine Primary Trip	GE Drives and Controls, IS200TRPGS1B	Not Applicable



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Description of Device	Manufacturer, Model Number	Firmware Version(s)
Module, Backup Turbine Protection	GE Drives and Controls, IS220YPROS1A	V03.02.xx V04.06.xx V04.07.xx
Terminal Board, Emergency Protection, Triple Mode Redundant	GE Drives and Controls, IS200TPROS1C	Not Applicable
Terminal Board, Emergency Protection, Simplex	GE Drives and Controls, IS200SPROS1A	Not Applicable
Terminal Board, Turbine Emergency Trip	GE Drives and Controls, IS200TREGS2B	Not Applicable
Module, Universal Analog	GE Drives and Controls, IS42yYUAAS1A	V05.05.xx
Terminal Board, Universal Analog I/O Pack	GE Drives and Controls, IS40ySUAAS1A, IS41ySUAAS1A	Not Applicable

* - Indicated maximum quantity represents the maximum number of each device that was evaluated during certification testing according to EN 60079-29-1.

In model numbers, "x" may be 2 or 4 and "y" may be 0 or 1.

2. The controllers employed in the end-product shall be evaluated. The model Mark VIeS Gas Detection I/O was evaluated during certification testing according to EN 60079-29-1 with the following controller(s):

Description of Device	Manufacturer, Model Number	Firmware Version(s)
Module, Controller	GE Drives and Controls, IS420UCSBS1A	V04.07.xx
Module, Controller	GE Drives and Controls, IS420UCSBH1A	V04.07.xx
Module, Controller	GE Drives and Controls, IS420UCSCS2A	V06.02.xx
Module, Controller	GE Drives and Controls, IS420UCSCH2A	V06.11.xx
Module, Controller	GE Drives and Controls, IS420UCSCH1B	V06.11.xx

3. The model Mark VIeS Gas Detection I/O shall be powered from a power supply with an output voltage of 28 Vdc \pm 5% and a power rating rated to support the model Mark VIeS Gas Detection I/O when installed into the overall end-product system. Certification of the power supply for hazardous locations, electrical performance, and EMC compliance shall be considered on the end-product.
4. The following tests from EN 60079-29-1:2016 shall be considered on model Mark VIeS Gas Detection I/O while configured with the end-product for the maximum system configuration, maximum communication transaction rate, and maximum activity level permitted by the manufacturer:
 - 5.4.3.2 – Calibration Curve (at 0, 25, 50, 75, and 100 % LFL)
 - 5.4.6 – Temperature (at -30°C, +20°C, and +65°C)
 - 5.4.15 – Time of Response (detector 4-20mA input and detector Alarm relay contact input)
 - 5.4.18 – Power Supply Variations (at 26.6 Vdc, 28.0 Vdc, and 29.4 Vdc)
5. Gas detectors connected to the model Mark VIeS Gas Detection I/O shall be ATEX certified for gas performance according to EN 60079-29-1.
6. The end-product shall provide an indication to show that the model Mark VIeS Gas Detection I/O is energized.
7. The end-product shall provide an indication to identify a gas under-range condition, a gas over-range condition, and a trouble condition for each gas detector connected to the model Mark VIeS Gas Detection I/O.
8. The end-product shall provide indicating lights for signaling alarms, faults and other indications of the model Mark VIeS Gas Detection I/O. If only one indicating light is provided it shall be colored red. If separate indicating lights are used or if a multi-colored indicating light is provided, the colors shall be used in the following order of priority ((a) being highest priority):
 - a) Alarms indicating the presence of a gas concentration beyond an alarm set point shall be colored red.
 - b) Equipment fault indicators shall be colored yellow.
 - c) Power supply indicators shall be green.

Each of these indicating lights shall be labeled to its function. Each of these lights may be a physical light that is clearly viewable by the monitoring personnel or exist on the screen of the monitoring computer through the manufacturer's User Application Code ToolboxST (version 07.02) or later.

9. The end-product shall be programmed to operate and monitor the model Mark VIeS Gas Detection I/O for its gas measuring characteristics:
 - a) Gas measuring range: 0-115% LFL (4-22.5 mA) programmable.
 - b) Alarm threshold range: 0-115% LFL (4-22.5 mA) programmable.
 - c) Over-range threshold range: 0-115% LFL (4-22.5 mA) programmable.
 - d) Under-range threshold range: 0-4 mA programmable.



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10. The Alarm output relay contacts of the model Mark VIeS Gas Detection I/O shall be latching type.
11. The end-product shall monitor the model Mark VIeS Gas Detection I/O for open-circuit and short-circuit fault conditions for the wiring connecting each gas detector to the model Mark VIeS Gas Detection I/O and provide an indication when the fault condition occurs. This shall prohibit the connection of gas detectors employing only Alarm output relay terminals (no 4-20 mA output) to the Alarm relay input terminals of model Mark VIeS Gas Detection I/O (device ISx0yYDIAS1B or IS42yYUAS1A).
12. The end-product shall monitor the model Mark VIeS Gas Detection I/O for loss of power to the model Mark VIeS Gas Detection I/O and provide an indication when this condition occurs.
13. The model Mark VIeS Gas Detection I/O shall monitor each connected gas detector for loss of power. An indication shall be provided by the end-product for loss of power from any connected gas detector.
14. All adjustments to the model Mark VIeS Gas Detection I/O shall be made only through the manufacturer's User Application Code ToolboxST (version 07.02 or later) which is ran on a monitoring computer located in a remote, non-hazardous location, as support equipment to the model Mark VIeS Gas Detection I/O and end-product. Access to the adjustments shall be password locked for use only by authorized personnel.

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Essential Health and Safety Requirements

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

Additional information



The trademark or 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.