DANISH TECHNOLOGICAL INSTITUTE
Certification & Inspection

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:	**DTI 17ATEX0079X**
4	Product:	**Ex Opacity Transceiver Type: G16/G26 with accessories**
5	Manufacturer:	**Green Instruments A/S**
6	Address:	**Erhvervsparken 29, DK-9700 Broenderslev, Denmark**

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

8 Danish Technological Institute, Notified Body number 0396, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the 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. DTI 17ATEX 0079X

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

EN 60079-0:2018, EN 60079-11:2012 and EN 60079-28:2015

except in respect of those requirements listed at item 18 of the Schedule.

10 If the sign “X” is placed after the certificate number, it indicates that the product is subject to the Specific Conditions of 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 this certificate.

12 The marking of the product shall include the following:

Ex II 2G	**Ex ib op is IIB T4 Gb**
Ex II 2D	**Ex ib op is IIIB T135ºC Db**

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Date: 2021-02-05

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DANAK
INSP Reg. No. 9047

13

Schedule

14

Certificate Number DTI 17ATEX0079X

15 **Description of Product**

The G16/G26 Opacity Transceiver is designed for monitoring of the clarity of air or gaseous media.

The Opacity Transceiver type G16/G26 consists of enclosure and internal circuits and optical components. The enclosure consists of the transceiver house and the end lid. The transceiver housing is made of AISI 316 stainless steel. There is an optical window glued in front of the transceiver house. The optical window is made of N-BK7 tempered glass. The end lid is made of AISI 316 stainless steel and includes the keypad HMI interface. The Opacity Transceiver is powered by an external power supply. External electrical connections are made through two ports: The Power Supply port and the Bus-Interface port.

The opacity monitor uses a green light beam based on the principle of light transmission. It is a double pass system from which a light beam with specific spectral characteristics is projected across the media to be monitored. The amount of light reflected to the instrument from the reflector after passing through the media is compared with the maximum possible return when light absorbing and scattering media are not present in the area.

By calculating the difference between the emitted light and the received light, conditions related to the light absorbing or scattering media can be obtained.

Type, key:
Electrical part: Opacity Transceiver, Type: G16/G26, part no. 03456

Non-Electrical accessories for use with / mounting of the Opacity Transceiver

Product	Type	Part #
Connection cable	The 5P shield connection comes in 2 meter and a 15-meter version complete with M12 straight socket.	03453 (2m) 03457 (15 m)
Reflector Module G16	The reflector module G16 is arranged as complete unit with reflector and housing.	03454
Reflector Module G26	The reflector module G26 is arranged as complete unit with reflector, housing and bracket.	03455
Air Module G16/G26	The Air module G16/G26 is arranged as complete unit with, housing, ring nut and air connection.	03458
Transceiver Mounting Module	The transceiver mounting module G26 is arranged as a complete unit with housing and bracket.	03472

Specifications

Intrinsically safe entity parameters G16/G26 unit:

Port Name	Ui [V]	Ii [mA]	Pi [mW]	Ci [µF]	Li [µH]
Power Supply	24.0	180	1100	0.011	71
Bus-Interface	4.0	100	90	200	71

Range of ambient temperature:
$-25^{o}C \leq ta \leq +55^{o}C$

16 Report Number

DTI 17ATEX 0079X

17 Specific Conditions of Use

1. The ambient temperature range is limited to -25°C ... +55°C.
2. When installing and using the equipment, ensure overvoltage category I/II according to IEC60664-1 is fulfilled.
3. When installing and using in combustible dust environment, measures should be taken to prevent dust accumulation on the surface of the enclosure.
4. When installing and using the equipment, measures should be taken to protected from UV light.
5. Static Electricity Hazard – clean only with damp cloth.
6. Warning: “WARNING: Laser Radiation, Do not stare into beam”.

18 Essential Health and Safety Requirements

In addition to the Essential Health and Safety Requirements (EHSRs) covered by the standards listed at item 9, the following are considered relevant to this product, and conformity is demonstrated in the report:

None

19 Drawings and Documents

Scheduled Drawings

Title:	Drawing No.:	Rev. Level:	Date:
Opacity Sensor-Schematic Diagram 4 pages	14240SCH002	Version 13	2020-05-26
BOM with Ex components		Version 2	2020-12-22
G16/G26 Components Overview	06772	Rev E	2018-04-03
End Lid ATEX, 2 pages	16-10252-03		2021-01-04
Window Ø30x3	16-10053-03		2020-12-23
Lens House Assembly exploded	08291	RevA	2020-12-23
ATEX Reflector Module G16	07025	Rev B	2020-12-23
EX Lens House Assembly	07014	Rev B	2020-12-23
ATEX laser assembly new	07792		2020-12-23
G26 Reflector Assembly	26-10616-03	Rev A	2020-12-23
ATEX Air Module G16/G26	07027	Rev B	2020-12-23
Reflector Mounting Module	07026	Rev C	2020-12-23
Transceiver Mounting Module	07319	Rev B	2020-12-23
Marking plate		Vers. 2.3	2021-01-28

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