



1 UNITED KINGDOM CONFORMITY ASSESSMENT
UK TYPE EXAMINATION CERTIFICATE
2 **Product or Protective System Intended for use in Potentially Explosive Atmospheres**

UKSI 2016:1107 (as amended) – Schedule 3A, Part 1

3 Type Examination Certificate No.: **TÜV 21 UKEX 7054** Issue: 00
4 Product: **Frequency Measurement Module DF20Ex
Digital I/O Module DM80Ex**
5 Manufacturer: **Hans Turck GmbH & Co KG**
6 Address: **Witzlebenstraße 7
45472 Mülheim an der Ruhr, Germany**

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

8 TÜV Rheinland UK Ltd, Approved Body number 2571, in accordance with Regulation 42 of the Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016, UKSI 2016:1107 (as amended), 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 Schedule 1 of the Regulations.

The examination and test results are recorded in the confidential report 557 / UKEx 7054.00 / 21.

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

EN IEC 60079-0:2018

EN 60079-11:2012

Except in respect of those requirements listed at section 18 of the schedule to this certificate.

10 If the sign "X" is placed after the certificate number, it indicates that the product is subject to specific conditions of use specified in the schedule to this certificate.

11 This TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified product. Further requirements of the Regulations apply to the manufacturing process and supply of this product. These are not covered by this certificate.

12 The marking of this product shall include the following:

 **II 2 (1) G Ex ib [ia Ga] IIC T4 Gb**

 **II (1) D [Ex ia Da] IIIC**

This certificate and its schedules may only be reproduced in its entirety and without change.

TÜV Rheinland UK Ltd

Solihull, 2022-04-14


Dipl.-Ing. Klauspeter Graff

This Type Examination Certificate without signature shall not be valid. Alterations are subject to approval by
TÜV Rheinland UK Ltd, 1011 Stratford Road, Shirley, Solihull, B90 4BN, Tel. +44 (0) 121 7969400
A UKAS accredited certification body, No. 8400

13 SCHEDULE TO UK TYPE EXAMINATION CERTIFICATE**14 CERTIFICATE NUMBER TÜV 21 UKEX 7054****15 Description of Product**

The input module DF20EX is equipped with 8 channels according to NAMUR which are split into two blocks.

The I/O module DM80Ex is used for the connection of NAMUR sensors and actuators.

General product information

The excom module, type DM80EX and DF20EX serves to input and output digital intrinsically safe signals from the field bus system into intrinsically safe field circuits. It is designed in type of protection Intrinsic Safety "I" and is intended to be used within the 1/0 Fieldbus system, type excom® with the module subrack, type MT.

The excom module, type DM80EX and DF20EX, ensure the electrical isolation for various circuits. These isolate the external field circuits from the internal data buses and the internal supply voltage.

The operation of the excom module, type DM80EX and DF20EX inside of an enclosure with a degree of protection of at least IP54 is ensured by the application within the 1/0 Fieldbus system type excom® in potentially explosive atmospheres.

The permissible ambient temperature range is: -20°C up to + 70°C.

Technical Data**I.) AC-supply circuit**

type of protection Intrinsic Safety Ex ib IIC;
only for connection to the module subrack,
type MT.

P = 1 W (power consumption)

The intrinsically safe AC-supply circuit is safely electrically isolated from ground and up to a peak value of the nominal voltage of 60 V from all other intrinsically safe circuits.

II.) Signal circuit (CAN-BUS)

type of protection Intrinsic Safety Ex ib IIC;
only for connection to the module subrack, type MT

III.) Address encoding

type of protection Intrinsic Safety Ex ib IIC;
only for connection to the module subrack, type MT

IV.) Field circuits

Terminals on the module rack,

type MT:

Channel 1: 11 + , 12-

Channel 2: 13+, 14-

Channel 3: 21 + , 22-

Channel 4: 23+ , 24-

Channel 5: 31 + , 32-

Channel 6: 33+ , 34-

Channel 7: 41+, 42-

Channel 8: 43+ , 44-

type of protection Intrinsic Safety

[Ex ia Ga] IIC/IIIB or [Ex ia Da] IIIC

maximum values per channel:

$U_o = 9.6 \text{ V}$

$I_o = 44 \text{ mA}$

$P_o = 106 \text{ mW}$

characteristic: linear

C_i negligibly low

L_i negligibly low

maximum values for commonly existing external

reactances:

(the values below correspond to the ISpark program)

Lo (mH)	IIC	IIIB
	Co (μF)	Co (μF)
2	0.9	5.1
1	1.1	6.1
0.5	1.3	7.3
0.2	1.7	9.6
0.1	2	12

The intrinsically safe field circuits are safely electrically isolated from ground and up to a peak value of the nominal voltage of 60 V from all other intrinsically safe circuits. The intrinsically safe field circuits are interconnected.

Modifications

The modifications concern the adaptation to the standards. The internal structure has been adapted. The changes concern the use of alternative components in the electronic circuitry

16 Test report No. (associated with this certificate issue): 557 / UKEx 7054.00 / 21

17 Specific Conditions of Use

None

18 Essential Health and Safety Requirements (Regulations Schedule 1)

In addition to the Essential Health and Safety Requirements covered by the standards listed at item 9, all other requirements are demonstrated in the relevant reports.

19 Drawings and Documents

Reg. no.	Document title:	Document no.:	Rev.:	Date:
	Approval documentation DM80Ex and DF20Ex (125 p.)	Approval documentation DM80Ex and DF20Ex.pdf	01	04.01.2021