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CML 24JPN2270X

Issue: 0

Type Examination Certificate

for Electrical Equipment used in Potentially Explosive Atmosphere

Issued by Eurofins E&E CML Limited, Newport Business Park, New Port Road, Ellesmere Port CH65 4LZ, UK		
Applicant	WIKI Japan LTD. MG Shibaura Bldg.6F 1-8-4, Shibaura Minato-ku Tokyo 105-0023, Japan	
Manufacturer name	VEGA Grieshaber KG Am Hohenstein 113 77761 Schiltach Germany	
Product name	Process Transmitter	
Type/model code	IPT-2*-*/2*-*****-A/H/S/P/F/R/T*-*****_***S*Z**-***_** CPT-2*-*/2*-*****-A/H/S/P/F/R/T*-*****_*****_***_**	
Type of protection	Intrinsic Safety	
Group, Temperature Class and EPL	IIC, T6...T1, Ga	
The equipment shall be marked with the following	Ex ia IIC T6...T1 Ga, Ga/Gb, Gb	
Ratings	See attachment 1	
Special condition for safe use	See attachment 2	
Certificate number	CML 24JPN2270X	
Term of validity	From 16-12-2024 to 15-12-2027	

This is to certify that the equipment specified above complies with the requirements stipulated in Ordinance on Examination of Machines and Other Equipment of the Ministry of Health, Labour and Welfare, Japan.

Issue date: 16-12-2024

Signature of chief examiner:



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Indicating and adjustment circuit:
(terminals 5, 6, 7, 8) 1) 2) 3)

In ignition protection type intrinsic safety Ex ia IIC

For connection to the intrinsically safe circuit of the corresponding external display and adjustment unit DI-PT-E* or for connection of a IPT-2* or CPT-2* with selected output signal CPT-2* or IPT-2* -***-*****- R/T* -*****-*****-***-**, R or T for differential pressure measurement.

The rules for the interconnection of intrinsically safe circuits between IPT-2* -*/2*, CPT-2* -*/2* and the external display and adjustment unit DI-PT-E* or IPT-2* or CPT-2* with selected output signal IPT-2* or CPT-2* -***-*****- R/T* -*****-*****-***-**, R or T are fulfilled, provided that the total inductance and total capacitance of the connection cable between IPT-2* -*/2*, CPT-2* -*/2* and the external display and adjustment unit DI-PT-E* or IPT-2* or CPT-2* with selected output signal CPT-2* or IPT-2* -***-*****- R/T* -*****-*****-***-**, R or T $L_{cable} = 330 \mu H$ and $C_{cable} = 1.98 \mu F$ are not exceeded.

When using the delivered connection cable between IPT-2* -*/2*, CPT-2* -*/2* and the external display and adjustment unit DI-PT-E* or IPT-2* or CPT-2* with selected output signal CPT-2* or IPT-2* -***-*****- R/T* -*****-*****-***-**, R or T, the following listed cable inductances L_i and cable capacitances C_i must be taken into account.

$L_i = 0.62 \mu H/m$

Ci wire/wire = 150 pF/m

Ci wire/screen = 270 pF/m

- 1) In the "Ex-i" electronics compartment with IPT-2* or CPT-2* -***-A/ K/V/8****-** -*****-*****-***-** in version with single chamber housing A, K, V or 8.
- 2) In the "Ex-i" connection compartment with IPT-2* or CPT-2* -***-D/ W/R****-** -*****-*****-***-** in version with double chamber housing D, W or R.
- 3) Additional plug connection with IPT-2* or CPT-2* -***-D/ W/R****-** -*****-*****-***-** in version with double chamber housing D, W, R and housing version/protection P, IPT-2* or CPT-2* -***-D/W/RP****-** -*****-*****-***-** (with M12 x 1 for DI-PT-E*).

**Intrinsically safe circuit for the display and adjustment module Version with single chamber housing A, K, V or 8,
IPT-2*-*/2*, CPT-2*-*/2* with selected output signal IPT-2* or IPT-2*-*-A/K/V/8****-A/H/S*-*****-*****-
***-**, A (4 ... 20 mA), H (4 ... 20 mA/HART) or S (4 ... 20 mA/HART with SIL qualification)**

Circuit for the display and adjustment module: (spring

In ignition protection type intrinsic safety Ex ia IIC
Only for connection to the display and adjustment module DI-PT-A.

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contacts in the "Ex-i" electronics compartment)	
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**Version with double chamber housing D, W or R, IPT-2*-*/2*, CPT-2*-*/2* with selected output signal IPT-2* or
IPT-2*-***-D/W/R****-A/H/S*_*****_*****_***-**, A (4 ... 20 mA), H (4 ... 20 mA/HART) or S (4 ... 20
mA/HART with SIL qualification)**

Circuit for the display and adjustment module: (spring contacts in the "Ex-i" connection compartment) or Circuit for the display and adjustment module: (spring contacts in the "Ex-i" electronics compartment)	In ignition protection type intrinsic safety Ex ia IIC Only for connection to the display and adjustment module DI-PT-A. In ignition protection type intrinsic safety Ex ia IIC Only for connection to the display and adjustment module DI-PT-A. In the double chamber version, the display and adjustment module DI-PT-A must only be equipped in the connection compartment, if there is no external display and adjustment unit DI-PT- E* or IPT-E* or CPT-E* with selected output signal IPT-2* or CPT-2* - ***_*****_ R/T*_*****_*****_ ***_**, R, T connected.
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Version with double chamber housing D, W or R with housing version/protection P (with M12 x 1 for DI-PT-E), IPT-2*-*1/2*, CPT-2*-*1/2* with selected output signal CPT-2* or IPT-2*- *-D/W/R****- A/H/S*_******- ***-*_, A (4 ... 20 mA), H (4 ... 20 mA/HART) or S (4 ... 20 mA/ HART with SIL qualification)**

Circuit for the display and adjustment module: (spring contacts in the "Ex-i" connection compartment)	In ignition protection type intrinsic safety Ex ia IIC Only for connection to the display and adjustment module DI-PT-A. In the double chamber version, the display and adjustment module DI-PT-A must only be equipped in the connection compartment, if there is no external display and adjustment unit DI-PT-E* or IPT-E* or CPT-E* with selected output signal IPT-2* or CPT-2*_**_*****_ R/T*_*****_*****_* **_**, R, T connected.
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**Version with single chamber housing A, K, V or 8, IPT-2*-*/1/2*, CPT-2*-*/1/2* with selected output signal IPT-2*
or CPT-2*-***-A/K/V/8****-P/F*-*****-*****-***-**, P (Profibus PA), F (Foundation Fieldbus)**

Supply and signal circuit: (terminals 1[+], 2[-] in the "Ex-i" electronics compartment or plug connection)	In ignition protection type intrinsic safety Ex ia IIC/IIB Only for connection to a certified, intrinsically safe circuit. Maximum values: $U_i = 17.5 \text{ V}$ $I_i = 500 \text{ mA}$ $P_i = 5.5 \text{ W}$ or
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	The instrument is suitable for connection to a Fieldbus system according to the FISCO model e.g. Profibus PA. $U_i = 24\text{ V}$ $I_i = 250\text{ mA}$ $P_i = 1.2\text{ W}$ The effective internal capacitance C_i is negligibly small. In the version with permanently mounted connection cable, C_i wire/wire = 150 pF/m and C_i wire/screen = 270 pF/m must be taken into account. The effective internal inductance L_i is negligibly small. In the version with fix mounted connection cable, $L_i = 0.62\text{ }\mu\text{H/m}$ must be taken into consideration.
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Version with double chamber housing D, W or R, IPT-2*-*I/2*, CPT-2*-*I/2* with selected output signal CPT-2* or IPT-2*.*.*.*.*-P/F*.*.*.*.*-*-**, P (Profibus PA), F (Foundation Fieldbus)**

Power supply and signal circuit: (terminal 1[+], 2[-] in the "Ex-i" connection compartment)	In ignition protection type intrinsic safety Ex ia IIC/IIB for instruments of category 1G or 1/2G and Ex ia IIC/IIB resp. Ex ib IIC/IIB for instruments of category 2G. Only for connection to a certified, intrinsically safe circuit. Maximum values: $U_i = 17.5\text{ V}$ $I_i = 500\text{ mA}$ $P_i = 5.5\text{ W}$ The instrument is suitable for connection to a Fieldbus system according to the FISCO model (IEC 60079-11), e.g. Profibus PA. or $U_i = 24\text{ V}$ $I_i = 250\text{ mA}$ $P_i = 1.2\text{ W}$ The effective internal capacitance C_i is negligibly small. In the version with permanently mounted connection cable, C_i wire/wire = 150 pF/m and C_i wire/screen = 270 pF/m must be taken into account. The effective internal inductance is $L_i \leq 5\text{ }\mu\text{H}$. In the version with fix mounted connection cable, also $L_i = 0.62\text{ }\mu\text{H/m}$ must be taken into consideration.
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IPT-2*-*I/2*, CPT-2*-*I/2* with selected output signal IPT-2* or CPT-2*.*.*.*.*-P/F*.*.*.*.*-*-**, P (Profibus PA), F (Foundation Fieldbus)**



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Indicating and adjustment circuit: (terminals 5, 6, 7, 8)4)5)6)	In ignition protection type intrinsic safety Ex ia IIC For connection to the intrinsically safe circuit of the corresponding external display and adjustment unit DI-PT-E* or for connection of a IPT-2* or CPT-2* with selected output signal CPT-2* or IPT-2*_***_*****_ R/T*_*****_*****_***_**, R or T for differential pressure measurement. The rules for the interconnection of intrinsically safe circuits between IPT-2*_*I/2*, CPT-2*_*I/2* and the external display and adjustment unit DI-PT-E* or IPT-2* or CPT-2* with selected output signal IPT-2* or CPT-2*_***_*****_ R/T*_*****_*****_***_**, R or T are fulfilled, provided that the total inductance and total capacitance of the connection cable between IPT-2*_*I/2*, CPT-2*_*I/2* and the external display and adjustment unit DI-PT-E* or IPT-2* or CPT-2* with selected output signal IPT-2* or CPT-2* with selected output signal IPT-2* or CPT-2*_***_*****_ R/T*_*****_*****_***_** R or T $L_{cable} = 330 \mu H$ and $C_{cable} = 1.98 \mu F$ are not exceeded. When using the delivered connection cable between IPT-2*_*I/2*, CPT-2*_*I/2* and the external display and adjustment unit DI-PT-E* or IPT-2* or CPT-2* with selected output signal IPT-2* or CPT-2* or IPT-2*_***_*****_ R/T*_*****_*****_***_**, R or T, the following listed cable inductances L_i and cable capacitances C_i must be taken into account. $L_i = 0.62 \mu H/m$ $C_i \text{ wire/wire} = 150 \text{ pF/m}$ $C_i \text{ wire/screen} = 270 \text{ pF/m}$ 4) In the "Ex-i" electronics compartment with IPT-2* or CPT-2*_***-A/K/V/8_***_**_*****_*****_***_** in version with single chamber housing A, K, V or 8. 5) In the "Ex-i" connection compartment with IPT-2* or CPT-2*_***-D/W/R_****_**_*****_*****_***_** in version with double chamber housing D, W or R. 6) Additional plug connection with IPT-2* or CPT-2*_***-D/W/R_****_**-*****_*****_***_** in version with double chamber housing D, W, R and housing version/protection P CPT-2* or IPT-2*_***-D/W/RP_****_**-*****_*****_***_**. (with M12 x 1 for DI-PT-E*).
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Intrinsically safe circuit for the display and adjustment module Version with single chamber housing A, K, V or 8, IPT-2*-1/2*, CPT-2*-1/2* with selected output signal IPT-2* or CPT-2*-*- A/K/V/8****-P/F*-*****-*****_***_**, P (Profibus PA), F (Foundation Fieldbus)**

Circuit for the display and adjustment module: (spring contacts in the "Ex-i" electronics compartment)	In ignition protection type intrinsic safety Ex ia IIC Only for connection to the display and adjustment module DI-PT-A.
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Version with double chamber housing D, W or R, IPT-2*-*/2*, CPT-2*-*/2* with selected output signal CPT-2* or IPT-2*-*-D/W/R****-P/F*-*****-*****-***-*, P (Profibus PA), F (Foundation Fieldbus)**



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Circuit for the display and adjustment module: (spring contacts in the "Ex-i" connection compartment) or Circuit for the display and adjustment module: (spring contacts in the "Ex-i" electronics compartment)	In ignition protection type intrinsic safety Ex ia IIC Only for connection to the display and adjustment module DI-PT-A. In ignition protection type intrinsic safety Ex ia IIC Only for connection to the display and adjustment module DI- PT-A. In the double chamber version, the display and adjustment module DI-PT-A must only be equipped in the connection compartment, if there is no external display and adjustment unit DI-PT-E* or IPT-E* or CPT-E* with selected output signal CPT-2* or IPT-2* - ***_*****_ R/T* - *****_*****_ - ***_** , R,T connected.
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Version with double chamber housing D, W or R with housing version/protection P (with M12 x 1 for DI-PT-E*), IPT-2*-1/2*, CPT-2*-1/2* with selected output signal CPT-2* or IPT-2*-*-D/W/R****-P/F*-*****-*****-***-**, P (Profibus PA), F (Foundation Fieldbus)**

Circuit for the display and adjustment module: (spring contacts in the "Ex-i" connection compartment)	In ignition protection type intrinsic safety Ex ia IIC Only for connection to the display and adjustment module DI- PT-A. In the double chamber version, the display and adjustment module DI-PT-A must only be equipped in the connection compartment, if there is no external display and adjustment unit DI-PT-E* or IPT-E* or CPT-E* with selected output signal CPT-2* or IPT-2*-***_*****_ R/T*_*****_*****_***_**_. R, T connected.
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Only version single chamber housing, IPT-2*-*1/2*, CPT-2*-*1/2* with selected output signal CPT-2* or IPT-2*-*-*-A/K/V/8****-R/T*-*-*-*-*-*-*-*-*-*-*-*-*-*-* R or T

Power supply and signal circuit: (terminals 5, 6, 7, 8 in the electronics compartment)	In ignition protection type intrinsic safety Ex ia IIC For connection to the intrinsically safe circuit of a IPT-2*-*/2*, CPT-2*-*/2* with selected output signal CPT-2* or IPT-2*-***-*****-H/S/P/F*-*****-*****-***_**, H, S, P, F for differential pressure measurement. The rules for the interconnection of intrinsically safe circuits between IPT-2* or CPT-2* with selected output signal CPT-2* or IPT-2*-***-*****-R/T*-*****-*****-***_**, R or T and the IPT-2*-*/2*, CPT-2*-*/2* with electronics H, S, P or F are fulfilled, provided that the total inductance and total capacitance of the connection cable between IPT-2*-*/2*, CPT-2*-*/2* and IPT-2* or CPT-2* with selected output signal CPT-2* or IPT-2*-***-*****-R/T*-*****-*****-***_**, R or T $L_{cable} = 330 \mu H$ and $C_{cable} = 2.00 \mu F$ are not exceeded. When using the delivered connection cable between IPT-2*-*/2*, CPT-2*-*/2* and the external display and adjustment unit DI-PT-E* or IPT-2* or
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	CPT-2* with electronics R or T, the following listed cable inductances L_i and cable capacitances C_i must be taken into account. $L_i = 0.62 \mu\text{H/m}$ $C_i \text{ wire/wire} = 150 \text{ pF/m}$ $C_i \text{ wire/screen} = 270 \text{ pF/m}$
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IPT-2*-*1/2*, CPT-2*-*1/2*selected output signal CPT-2* or IPT-2*-*-****B-H/S*-*****-*****-***-**, H (4 ... 20 mA/HART) or S (4 ... 20 mA/HART with SIL qualification) and with supplementary electronics (B)**

Supply and signal circuit I: (terminals 1[+], 2[-] in the "Ex-i" terminal compartment or plug connection)	In ignition protection type intrinsic safety Ex ia IIC/IIB Only for connection to a certified, intrinsically safe circuit. Maximum values: $U_i = 30\text{ V}$ $I_i = 131\text{ mA}$ $P_i = 983\text{ mW}$ The effective internal capacitance C_i is negligibly small. In the version with permanently mounted connection cable, C_i wire/wire = 150 pF/m and C_i wire/screen = 270 pF/m must be taken into account. The effective inner inductance L_i is $L_i \leq 5\text{ }\mu\text{H}$. In the version with permanently mounted connection cable, $L_i = 0.62\text{ }\mu\text{H/m}$ must also be taken into account.
Power supply and signal circuit II: (terminal 7[+], 8[-] in the "Ex-i" terminal compartment)	In ignition protection type intrinsic safety Ex ia IIC/IIB Only for connection to a certified, intrinsically safe circuit. Maximum values: $U_i = 30\text{ V}$ $I_i = 131\text{ mA}$ $P_i = 983\text{ mW}$ The effective internal capacitance C_i is negligibly small. In the version with permanently mounted connection cable, C_i wire/wire = 150 pF/m and C_i wire/screen = 270 pF/m must be taken into account. The effective inner inductance L_i is $L_i \leq 5\text{ }\mu\text{H}$. In the version with permanently mounted connection cable, $L_i = 0.62\text{ }\mu\text{H/m}$ must also be taken into account.
Circuit for the display and adjustment module: (spring	In ignition protection type intrinsic safety Ex ia IIC Only for connection to the display and adjustment module DI-PT-A.

contacts in the "Ex-i" electronics compartment)

IPT-2*-*I/2*, CPT-2*-*I/2* Version with separate cable outlet (all electronics)

Circuit between sensor unit and external electronics (terminal 1 - yellow, terminal 2 - white, terminal 3 - red, terminal 4 - black)

In ignition protection type intrinsic safety Ex ia IIC
With IPT-2*-*I/2*, CPT-2*-*I/2* in the version with fix mounted cable on the sensor unit and external electronics, the supplied cable between the external housing and the sensor unit must not exceed a length of 180 m.

The intrinsically safe circuits are electrically separated from parts which can be grounded.

The metallic parts of IPT-2*-*I/2*, CPT-2*-*I/2* are electrically connected with the earth terminals.

For applications requiring equipment of type EPL Ga or EPL Ga/Gb, the intrinsically safe power supply and signal circuit must correspond to protection class ia.

Thermal data:

If the process transmitters are used in explosion hazardous areas for EPL Ga applications, the permissible temperature range in the area of the electronics/at the measuring sensor dependent on the temperature class has to be taken from the following table:

Temperature class	Ambient temperature range (electronics) and medium temperature range (measuring)
T6	-20 °C ... +23 °C
T5	-20 °C ... +60 °C
T4	-20 °C ... +60 °C
T3	-20 °C ... +60 °C
T2	-20 °C ... +60 °C
T1	-20 °C ... +60 °C

The measuring sensors and the electronics are allowed to be operated in an explosion hazardous area for EPL Ga applications, only if atmospheric conditions exist (pressure from 0.8 bar to 1.1 bar).

If no explosion hazardous atmospheres exist, the permissible operating temperatures and pressures have to be taken from the manufacturer's data (manual).

If the process transmitters are used in explosion hazardous areas for EPL Ga/Gb applications, the permissible temperature range in the area of the electronics/at the measuring sensor dependent on the temperature class has to be taken from the following table:

Temperature class	Ambient temperature range (electronics, zone 1)	Medium temperature range (measuring sensor, zone 0)
T6	-50 °C ... +39 °C	-20 °C ... +23 °C
T5	-50 °C ... +70 °C	-20 °C ... +60 °C
T4	-50 °C ... +70 °C	-20 °C ... +60 °C
T3	-50 °C ... +70 °C	-20 °C ... +60 °C

T2	-50 °C ... +70 °C	-20°C ... +60 °C
T1	-50 °C ... +70 °C	-20°C ... +60 °C

The measuring sensors are allowed to be operated in an explosion hazardous area for EPL Ga applications, only if atmospheric conditions exist (pressure from 0.8 bar to 1.1 bar).

If no explosion hazardous atmospheres exist, the permissible operating temperatures and pressures have to be taken from the manufacturer's data (manual).

If the measuring sensors are operated at higher medium temperatures as listed in the a.m. table, measures have to be taken, that the danger of ignition caused by hot surfaces is excluded. The max. permissible temperature at the electronics/housing must not exceed the values as mentioned in the a.m. table.

If the process transmitters are used in explosion hazardous areas for EPL Gb applications, the permissible temperature range in the area of the electronics/at the measuring sensor dependent on the temperature class has to be taken from the following table:

Temperature class	Ambient temperature range (electronics) and medium temperature range (measuring
T6	-50 °C ... +39 °C
T5	-50 °C ... +70 °C
T4	-50 °C ... +70 °C
T3	-50 °C ... +70 °C
T2	-50 °C ... +70 °C
T1	-50 °C ... +70 °C

If the measuring sensors are operated at higher medium temperatures as listed in the a.m. table, measures have to be taken, that the danger of ignition caused by hot surfaces is excluded. The max. permissible temperature at the electronics/housing must not exceed the values as mentioned in the a.m. table.

If no explosion hazardous atmospheres exist, the permissible operating temperatures and pressures have to be taken from the manufacturer's data (manual).

The ambient temperature derating at process temperatures up to +150 °C and up to +200 °C has to be taken from the manual of the manufacturer.



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Attachment 2: Special conditions

- i. At the plastic parts of the process transmitter type IPT-2*-*I/2* and CPT-2*-*I/2* there is a danger of ignition by electrostatic discharge.

Observe manual of the manufacturer and warning label.

- ii. For EPL Ga resp. EPL Ga/Gb applications, at the metallic parts of the process transmitter type IPT-2*-*I/2* and CPT-2*-*I/2* made of light metal there is a danger of ignition by impact or friction. Observe manual of the manufacturer.
- iii. For EPL Ga resp. EPL Ga/Gb applications and at risks by pendulum or vibration the respective parts of the process transmitter type IPT-2*-*I/2* and CPT-2*-*I/2* have to be secured effectively against these dangers. Observe manual of the manufacturer.
- iv. For EPL Ga/Gb applications, the medium tangent materials of the process transmitter type IPT-2*-*I/2* and CPT-2*-*I/2* have to be resistant to the media. Observe manual of the manufacturer.
- v. For the execution with separate housing of the process transmitter type IPT-2*-*I/2* and CPT-2*-*I/2*, potential equalization has to exist in the complete course of the erection of the connecting cable between the electronics housing and the measuring sensor housing.