



IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: **IECEx TUN 13.0018X** Page 1 of 4 Certificate history:
Status: **Current** Issue No: 2 [Issue 1 \(2016-05-10\)](#)
[Issue 0 \(2014-03-21\)](#)
Date of Issue: 2016-06-08
Applicant: **LABOM Mess- und Regeltechnik GmbH**
Im Gewerbepark 13
27798 Hude
Germany
Equipment: **Pressure Transmitter type PASCAL Ci4**
Optional accessory:
Type of Protection: **Intrinsic Safety**
Marking: Ex ia IIC TX Ga/Gb resp. Ex ia IIC TX Gb resp.
Ex ia III C Txx°C Da/Db resp. Ex ia III C Txx°C Db
(See Annexe)

Approved for issue on behalf of the IECEx
Certification Body:

Andreas Meyer

Position:

Head of IECEx CB

Signature:
(for printed version)

Date:
(for printed version)

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Hanover Office
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30519 Hannover
Germany





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Manufacturer: **LABOM Mess- und Regeltechnik GmbH**
Im Gewerbepark 13
27795 Hude
Germany

Manufacturing
locations:

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended

STANDARDS :

The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

[IEC 60079-0:2011](#) Explosive atmospheres - Part 0: General requirements
Edition:6.0

[IEC 60079-11:2011](#) Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition:6.0

[IEC 60079-26:2014](#) Explosive atmospheres – Part 26: Equipment with Equipment Protection Level (EPL) Ga
Edition:3.0

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

Test Report:

[DE/TUN/ExTR13.0021/02](#)

Quality Assessment Report:

[DE/TUN/QAR06.0014/04](#)



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EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

See Annexe

SPECIFIC CONDITIONS OF USE: YES as shown below:

1. Since the intrinsically safe circuit is connected with the earth potential for safety reasons, potential equalization has to exist in the complete course of the erection of the intrinsically safe circuit.

2. For EPL Ga/Gb applications the medium tangent materials have to be resistant to the media. Observe manual of the manufacturer.



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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

A correction of a fault in the temperature tables was done:

The lowest temperature of the medium for EPL Gb and EPL Da/Db or EPL Db applications is not restricted to -20 °C; the correct lowest temperature -40 °C.

The lowest temperature -40 °C was also mentioned in the corresponding tables in issue 0 of this CoC.

See Annexe.

Annex:

[_Annexe_issue 2 COC_PASCAL Ci4_TUN13.0018X.pdf](#)

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The pressure transmitter type PASCAL Ci4 is used for the pressure measurement of gases, vapours and liquids in explosive gas atmospheres or for pressure measurement in explosive dust atmospheres.

The measuring signal is transmitted via a 4 ... 20 mA current loop with HART protocol.

Changes:

- New mechanical executions
- New execution with a separated pressure sensor
- Optional temperature sensor Pt100 in the pressure mediator, optionally connected to a M12 plug connector
- Optional separately installed temperature sensor Pt100 connected to a M12 plug connector for internal use
- New execution with a piezoresistive pressure sensor
- Cable length for separated display enlarged
- Changes of internal electrical components
- New electrical data
- New thermal data

Electrical data

Supply and signal circuit
 (Terminals resp. plug connector;
 +Loop, -Loop, GND)

in type of protection „Intrinsic Safety“ Ex ia IIC/IIIC
 Only for connection to a certified intrinsically safe circuit
 Maximum values:

$$U_i = 30 \quad \text{V}$$

$$I_i = 150 \quad \text{mA}$$

$$P_i = 1 \quad \text{W}$$

Type	CI4xx0	CI4xx3
Effective internal capacitance	9.6 nF	16 nF
Effective internal inductance	32 µH	32 µH

Test circuit, galvanically connected to the supply and signal circuit
 (Terminals resp. plug connector;
 +Test, -Test)

in type of protection „Intrinsic Safety“ Ex ia IIC/IIIC
 Only for connection to a passive or a suitably certified test device

The values mentioned above for U_i , I_i and P_i must not be exceeded, if the values of the supply and signal circuit and of the test circuit are added up.

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Type Ci4xxx
 Pt100 sensor circuit
 in the pressure mediator for external use
 (Plug connector M12)

in type of protection „Intrinsic Safety“ Ex ia IIC/IIIC
 Only for connection to a certified intrinsically safe circuit
 Maximum values:
 $U_i = 30 \text{ V}$
 $P_i = 77 \text{ mW}$
 Effective internal capacitance: 4 nF
 Effective internal inductance: 20 μH

Type Ci4xxx
 Pt100 sensor circuit
 external mounting for internal use
 (Plug connector M12)

in type of protection „Intrinsic Safety“ Ex ia IIC/IIIC
 Only for connection by the pressure transmitter Ci4
 Maximum values:
 $U_o = 5 \text{ V}$
 $I_o = 104 \text{ mA}$
 $P_o = 77 \text{ mW (long-term)}$
 Characteristic line: linear

$C_o = 1.5 \mu\text{F}$
 $L_o = 4.9 \text{ mH}$

The connection of the separately mounted display of the manufacturer via a belonging cable of 20 m length is permissible.

If the pressure transmitter is 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 tables:

CI4xxx – Options S66 and S76

Temperature class	Ambient temperature range (electronics, zone 1)	Medium temperature range (measuring sensor, zone 0)
T1	-40 °C ... +85 °C	-20 °C ... +60 °C
T2	-40 °C ... +85 °C	-20 °C ... +60 °C
T3	-40 °C ... +85 °C	-20 °C ... +60 °C
T4	-40 °C ... +85 °C	-20 °C ... +60 °C
T5	-40 °C ... +61 °C	-20 °C ... +60 °C
T6	-40 °C ... +46 °C	-20 °C ... +55 °C

CI4xxx– Options S66 and S76
 with internal Pt100 in the pressure mediator

Temperature class	Ambient temperature range (electronics, zone 1)	Medium temperature range (measuring sensor, zone 0)
T1	-40 °C ... +85 °C	-20 °C ... +60 °C
T2	-40 °C ... +85 °C	-20 °C ... +60 °C
T3	-40 °C ... +85 °C	-20 °C ... +60 °C
T4	-40 °C ... +85 °C	-20 °C ... +60 °C
T5	-40 °C ... +61 °C	-20 °C ... +55 °C
T6	-40 °C ... +46 °C	-20 °C ... +43 °C

CI4xxx – Options S62 and S77

Temperature class	Ambient temperature range (electronics, zone 1)	Medium temperature range (measuring sensor, zone 0)
T1	-40 °C ... +85 °C	-20 °C ... +60 °C
T2	-40 °C ... +85 °C	-20 °C ... +60 °C
T3	-40 °C ... +85 °C	-20 °C ... +60 °C
T4	-40 °C ... +85 °C	-20 °C ... +60 °C
T5	-40 °C ... +61 °C	-20 °C ... +49 °C
T6	-40 °C ... +46 °C	-20 °C ... +37 °C

CI4xxx – Options S62 and S77
 with internal Pt100 in the pressure mediator

Temperature class	Ambient temperature range (electronics, zone 1)	Medium temperature range (measuring sensor, zone 0)
T1	-40 °C ... +85 °C	-20 °C ... +60 °C
T2	-40 °C ... +85 °C	-20 °C ... +60 °C
T3	-40 °C ... +85 °C	-20 °C ... +60 °C
T4	-40 °C ... +85 °C	-20 °C ... +60 °C
T5	-40 °C ... +61 °C	-20 °C ... +49 °C
T6	-40 °C ... +46 °C	-20 °C ... +37 °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).

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If the pressure transmitter is 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 tables:

CI4xxx – Options S66 and S76

Temperature class	Ambient temperature range (electronics, zone 1)	Medium temperature range (measuring sensor, zone 1)
T1	-40 °C ... +85 °C	-40 °C ... +400 °C
T2	-40 °C ... +85 °C	-40 °C ... +286 °C
T3	-40 °C ... +85 °C	-40 °C ... +186 °C
T4	-40 °C ... +85 °C	-40 °C ... +121 °C
T5	-40 °C ... +61 °C	-40 °C ... +86 °C
T6	-40 °C ... +46 °C	-40 °C ... +71 °C

CI4xxx – Options S66 and S76
 with internal Pt100 in the pressure mediator

Temperature class	Ambient temperature range (electronics, zone 1)	Medium temperature range (measuring sensor, zone 1)
T1	-40 °C ... +85 °C	-40 °C ... +200 °C
T2	-40 °C ... +85 °C	-40 °C ... +200 °C
T3	-40 °C ... +85 °C	-40 °C ... +174 °C
T4	-40 °C ... +85 °C	-40 °C ... +109 °C
T5	-40 °C ... +61 °C	-40 °C ... +74 °C
T6	-40 °C ... +46 °C	-40 °C ... +59 °C

CI4xxx – Options S62 and S77

Temperature class	Ambient temperature range (electronics, zone 1)	Medium temperature range (measuring sensor, zone 1)
T1	-40 °C ... +85 °C	-40 °C ... +400 °C
T2	-40 °C ... +85 °C	-40 °C ... +268 °C
T3	-40 °C ... +85 °C	-40 °C ... +168 °C
T4	-40 °C ... +85 °C	-40 °C ... +103 °C
T5	-40 °C ... +61 °C	-40 °C ... +68 °C
T6	-40 °C ... +46 °C	-40 °C ... +53 °C

CI4xxx – Options S62 and S77
 with internal Pt100 in the pressure mediator

Temperature class	Ambient temperature range (electronics, zone 1)	Medium temperature range (measuring sensor, zone 1)
T1	-40 °C ... +85 °C	-40 °C ... +200 °C
T2	-40 °C ... +85 °C	-40 °C ... +200 °C
T3	-40 °C ... +85 °C	-40 °C ... +168 °C
T4	-40 °C ... +85 °C	-40 °C ... +103 °C
T5	-40 °C ... +61 °C	-40 °C ... +68 °C
T6	-40 °C ... +46 °C	-40 °C ... +53 °C

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If the pressure transmitter is used in explosion hazardous areas for EPL Da/Db or EPL Db applications, the permissible temperature range in the area of the electronics/at the measuring sensor dependent on the surface temperature has to be taken from the following tables:

CI4xxx – Options S66 and S76

Max. surface temperature without dust layer	Ambient temperature range (electronics, zone 21)	Medium temperature range (measuring sensor, zone 20 or zone 21)
450 °C	-40 °C ... +85 °C	-40 °C ... +400 °C
300 °C	-40 °C ... +85 °C	-40 °C ... +291 °C
200 °C	-40 °C ... +85 °C	-40 °C ... +191 °C
135 °C	-40 °C ... +85 °C	-40 °C ... +126 °C
100 °C	-40 °C ... +66 °C	-40 °C ... +91 °C
85 °C	-40 °C ... +51 °C	-40 °C ... +76 °C

CI4xxx – Options S66 and S76
 with internal Pt100 in the pressure mediator

Max. surface temperature without dust layer	Ambient temperature range (electronics, zone 21)	Medium temperature range (measuring sensor, zone 20 or zone 21)
450 °C	-40 °C ... +85 °C	-40 °C ... +200 °C
300 °C	-40 °C ... +85 °C	-40 °C ... +200 °C
200 °C	-40 °C ... +85 °C	-40 °C ... +179 °C
135 °C	-40 °C ... +85 °C	-40 °C ... +114 °C
100 °C	-40 °C ... +66 °C	-40 °C ... +79 °C
85 °C	-40 °C ... +51 °C	-40 °C ... +64 °C

CI4xxx – Options S62 and S77

Max. surface temperature without dust layer	Ambient temperature range (electronics, zone 21)	Medium temperature range (measuring sensor, zone 20 or zone 21)
450 °C	-40 °C ... +85 °C	-40 °C ... +400 °C
300 °C	-40 °C ... +85 °C	-40 °C ... +273 °C
200 °C	-40 °C ... +85 °C	-40 °C ... +173 °C
135 °C	-40 °C ... +85 °C	-40 °C ... +108 °C
100 °C	-40 °C ... +66 °C	-40 °C ... +73 °C
85 °C	-40 °C ... +51 °C	-40 °C ... +58 °C

CI4xxx – Options S62 and S77
 with internal Pt100 in the pressure mediator

Max. surface temperature without dust layer	Ambient temperature range (electronics, zone 21)	Medium temperature range (measuring sensor, zone 20 or zone 21)
450 °C	-40 °C ... +85 °C	-40 °C ... +200 °C
300 °C	-40 °C ... +85 °C	-40 °C ... +200 °C
200 °C	-40 °C ... +85 °C	-40 °C ... +173 °C
135 °C	-40 °C ... +85 °C	-40 °C ... +108 °C
100 °C	-40 °C ... +66 °C	-40 °C ... +73 °C
85 °C	-40 °C ... +51 °C	-40 °C ... +58 °C

“Conditions of Use”

Unchanged as follows:

1. Since the intrinsically safe circuit is connected with the earth potential for safety reasons, potential equalization has to exist in the complete course of the erection of the intrinsically safe circuit.
2. For EPL Ga/Gb applications the medium tangent materials have to be resistant to the media. Observe manual of the manufacturer.