



I N N O V A T I N G F O R E F F I C I E N C Y

# EIT Series

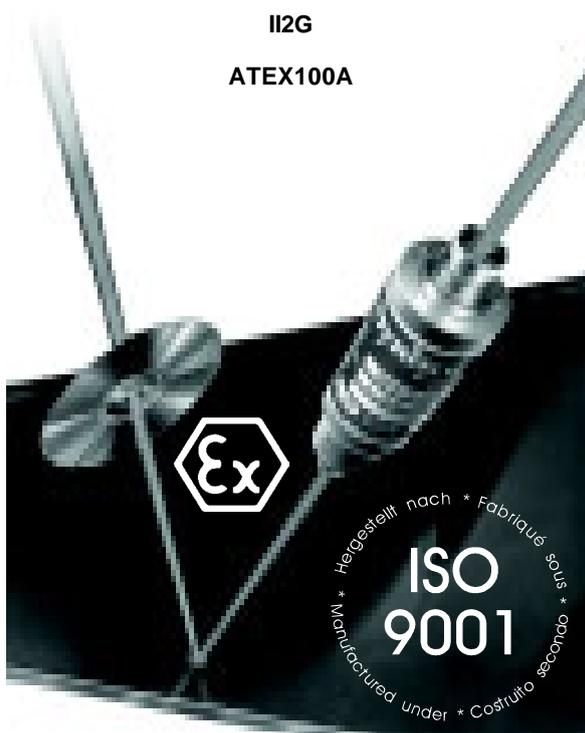
Intrinsically safe pressure transmitter  
for industrial application

Operating manual

CE

II2G

ATEX100A



Hergestellt nach \* Fabriqué sous \*  
ISO  
9001  
Manufactured under \* Costruito secondo \*

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## 1. General

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### 1.1 Important information

This manual applies to the EIT series only. It must be kept near the equipment in a readily and immediately accessible location at all times.

The content of this manual must be read, understood and followed in all points by all relevant people. This applies in particular to the notes on safety. Following the safety instructions will help to prevent accidents, defects and malfunctions.

**DYNISCO** will not be held liable for any injury, loss or damage resulting from failure to follow the instructions in this manual.

If malfunctions occur in spite of having followed the operating instructions, please contact the **DYNISCO** customer service department (see chapter 8, Maintenance).

This applies in particular during the warranty period.

### 1.2 Copyright

Copyright law requires that this manual be used for in-house purposes only.

All reproduction, even partially and for in-house purposes, requires the approval of **DYNISCO**. This manual may not be forwarded to third parties.



### 1.3 Explanation of icons

The manual uses icons to indicate information pertaining to safety:

**ATTENTION** Risk of destruction or damage to equipment, machines or installations



General danger to life or limb

The safety instructions are provided again in the individual chapters of the manual.

### 1.4 Abbreviations

The following abbreviations are used:

<b>OM</b>	operating manual
<b>PT</b>	pressure transducer
<b>f.s.</b>	of full scale

### 1.5 Correct use

The EIT pressure transmitter is for measuring pressure in industrial explosive environments (safety class II 2G EEx ia IIC T5 up to 75°C, II 2G EEx ia IIC T1-T4 up to 80°C) as part of a larger overall system.

Type specific installation of the PT with:

- Internal thread ISO 228/1 - G $\frac{1}{4}$  (EIT 332)
- Screw-in trunnion with external thread DIN 3852-A G $\frac{1}{4}$ A (EIT 352)
- Thread M18 x 1.5 (EIT 372)

The safety and accident prevention regulations specific to the application must be followed.

**When using the PT as a safety component in accordance with the EC Machine Directive, Annex IIc, the equipment manufacturer must take any necessary precautions to ensure that malfunctions of the PT cannot cause damage or injury.**

### 1.6 User's obligations

The operator or owner of the larger overall system, e.g. a machine, is responsible for following the safety and accident prevention regulations that apply to the specific application.



## 2. Notes on safety



The operator or owner of the larger overall system is responsible for following the safety and accident prevention regulations that apply to the specific application.



When planning machinery and using the PT, follow the safety and accident prevention regulations that apply to your application, e.g.:



- EN 60204, Electrical equipment in machines.
- EN 292, Machine safety, general design guidelines.
- DIN 57 100 Part 410, Protection against electric shock.
- EN 50 014, Electrical equipment for explosive atmospheres, general provisions
- EN 50 020, Intrinsic safety “i”



Mounting and electrical connection of the PT must be done by specialists with EMC training, following all applicable regulations, and in **pressureless, voltage-free, intrinsically safe** condition with the **machine switched off**.



**The machine must be secured against being switched back on!**



Ambient temperature for the electronics housing **max. +75°C** (safety class T5; T1 - T4 max. +80°C). Higher temperatures can result in damage and malfunction. Do not install the pressure transmitter in places where this temperature is exceeded.



**Explosion hazard!** Deviation of the supply voltage from the value given in the technical specifications, or false polarity, can damage the pressure transmitter and cause malfunctions that can pose a risk of explosion.



Operate only with an intrinsically safe, EMC compliant power supply with the following specifications:

Supply voltage max.	28 V DC
Current output max.	93 mA
Power output max.	690 mW
Inductivity max.	1 mH
Capacity max.	53 nF



**Explosion hazard!**

The pressure transmitter must be connected using a 2x2-core, twisted cable (blue cable sheath).

Do not lay connecting cables in the direct vicinity of cables carrying higher voltage or used to switch inductive or capacitive loads.

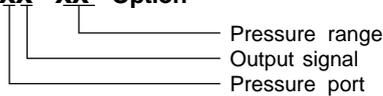


### 3. Technical Data

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#### 3.1 Ordering guide

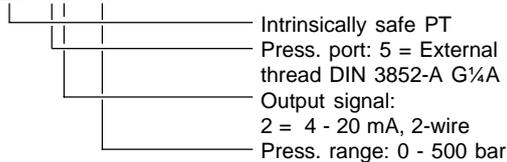
##### EIT 3xx - xx - Option



The exact meanings of the letter/digit combinations are given in the corresponding sections of chapter 3.

#### 3.2 Ordering example

##### EIT 352 - 5C





### 3.3 Safety related specifications

ATEX certificate	No.: ZELM 01 ATEX 0071
Ex safety class	EEx ia IIC T5 up to 75°C EEx ia IIC T1-T4 up to 80°C

Safety class EEx ia IIC T5 includes the following other safety classes:

Intrinsic safety	“ib”
Explosion groups	IIA and IIB
Temperature classes	T1 - T4 up to 80°C

#### Certified maximum values

Associated electrical equipment must satisfy the following conditions:

Supply voltage max.	28 V DC
Current output max.	93 mA
Power output max.	690 mW
Inductivity max.	1 mH
Capacity max.	53 nF

### 3.4 Performance characteristics (EIT3x2-xx)

#### 3.4.1 Accuracy

(Linearity and hysteresis at T = constant)

EIT3x2	±0.3% typ., ±0.5% of full scale
--------	---------------------------------

#### 3.4.2 Repeatability

± 0.1 % of full scale pressure

#### 3.4.3 Resolution

infinite

### 3.5 Pressure side connection (EIT3X2-xx)

EIT332	Internal thread ISO228/1-G¼
EIT352	Screw-in trunnion with external thread DIN 3852-A G¼A
EIT372	Screw-in trunnion with external thread M18 x 1.5 flush diaphragm



### 3.6 Pressure ranges (EIT3x2-XX)

#### 3.6.1 Pressure ranges in bar

Model number	Permitted pressure range bar
EIT3x2-20	0 - 20 <b>series 372 only</b>
EIT3x2-35	0 - 35 <b>series 372 only</b>
EIT3x2-50	0 - 50
EIT3x2-1C	0 - 100
EIT3x2-1,5C	0 - 150
EIT3x2-2C	0 - 200
EIT3x2-3,5C	0 - 350
EIT3x2-5C	0 - 500
EIT3x2-7C	0 - 700
EIT3x2-1M	0 - 1000

Other pressure ranges on request

#### 3.6.2 Max. Overload (without influencing operating data)

2 x full scale pressure up to 700 bar  
Max. 1500 bar for the 1000 bar range

**3.6.3 Burst pressure** 4 x full scale pressure  
3 x full scale pressure for the 20 bar and 1000 bar range

**3.6.4 Limit frequency** 1.5 kHz [-3dB]

### 3.7 Electrical data

Configuration	4-arm Wheatstone bridge strain gauge with int. amplifier
Output signal	2-wire 4 - 20 mA
Strain resistance	$R_L < 750 \Omega$ bei $U_s = 28 V$ $R_L < 145 \Omega$ bei $U_s = 15 V$
Supply voltage	15 - 28 VDC -15 % +0 % over approved electrical equipment to EN 50 020
power consumption	$\leq 20$ mA
Calibration function (room temperature)	80 % $\pm$ 0,5 % of full scale output by externally connecting contacts E and F
Zero balance	min. - 2 % / + 10 % f.s
Range balance	$\pm 10$ % of full scale



Leakage resistance > 1000 MΩ bei 50 V

### 3.8 Temperature influence

Storage temperature - 45°C to + 120°C  
(medium temperature)

Operating temperature - 25°C to + 80°C  
(medium temperature)

Max. housing temperatures

Safety class T1 - T4 - 25°C to + 80°C

Safety class T5 - 25°C to + 75°C

Compensated

temperature range 0°C to + 70°C  
(medium temperature)

Zero shift due to

temperature change ± 0.1 % f.s. / 10 °C typ.

Sensitivity shift due to

temperature change ± 0.2 % f.s. / 10 °C typ.

### 3.9 EMC requirements

Conforming to **CE** in accordance with EMC directive.

Emitted interference DIN EN 50081-1  
(residential area)

Immunity DIN EN 50082-2  
(industrial area)

Connecting cables defined as data lines

### 3.10 Materials

In contact with medium 15-5PH Mat.No. 1.4545

### 3.11 Max. Mounting torque 22 Nm

### 3.12 Environmental protection to IEC 529

Pressure transducer IP65 (without connector)

Standard female cable  
connector DIN IP40



Cable connection  
option D05 IP67

**3.13 Weight** 0.25 kg

**3.14 Seal**

Data of the standard seal:

Appropriate media	Mineral oil, water, air, oil-water-emulsions
Temperature range	- 35°C to + 120°C according to elastomer quality
Operating pressure	When fitted in a recess up to 1000 bar. Without recess and outside Ø of seal < 40 mm up to 400 bar



### 3.15 Dimensions

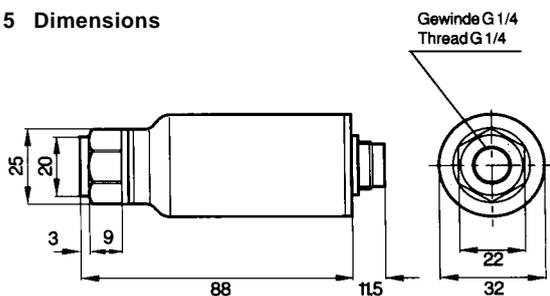


Fig. 01: EIT332

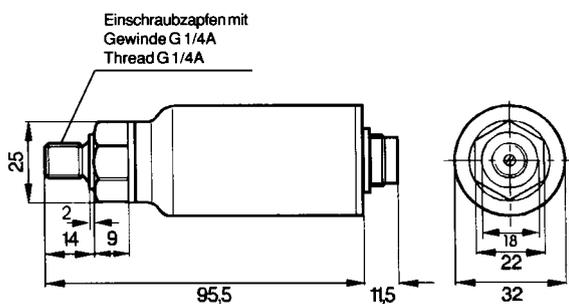


Fig. 02: EIT352

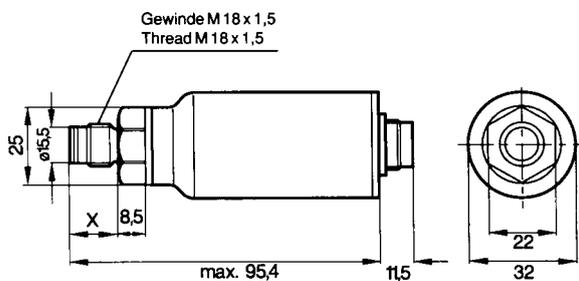


Fig. 03: EIT372

	20 bar	35 bar	50 bar	100 bar	150 bar
X	12.55 <sup>+0.305</sup>	12.61 <sup>+0.305</sup>	12.78 <sup>+0.305</sup>	12.95 <sup>+0.313</sup>	13.12 <sup>+0.313</sup>
	200 bar	350 bar	500 bar	700 bar	1000 bar
X	13.225 <sup>+0.313</sup>	13.515 <sup>+0.313</sup>	13.75 <sup>+0.313</sup>	13.95 <sup>+0.313</sup>	14.29 <sup>+0.313</sup>



## 4. Function

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### 4.1 Construction

The PTs of series EIT are industry standard.

The most important advantages are:

- Intrinsically safe EEx ia IIC T5
- thermal stability
- insensitivity to pressure peaks
- insensitivity to electromagnetic radiation (EMC)
- fully welded housing
- potted electronics
- maximum pressure 1000 bar

### 4.2 Description of functions

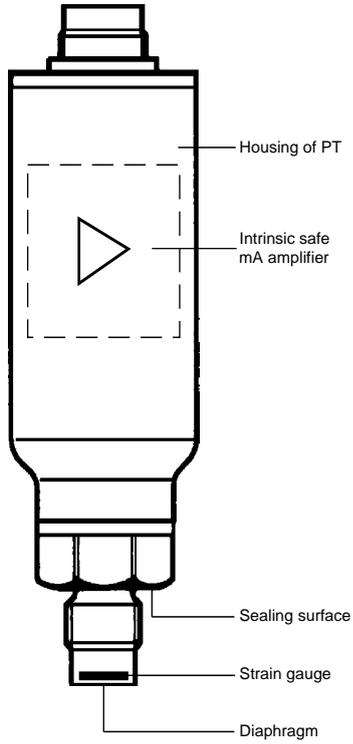
Through a diaphragm, the PT furnishes an electrical signal that is proportional to the pressure of the medium.

The pressure applied by the medium is forwarded to the measuring diaphragm. The deflection of the measuring diaphragm changes the resistance of the strain gauge bonded to the measuring diaphragm. The strain gauge is a Wheatstone bridge.

Dependent on the PT model, an electric signal proportional to the pressure is generated via the supply voltage or the amplifier.



Fig. 04: Functioning principle of the PT of the EIT series





## 5. Transport / delivery

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**ATTENTION** ESD sensitive component. Electrostatic discharge may damage the PT.  
Take ESD precautions.

### 5.1 Transport/packing/transport damage

- Do not let the PT be damaged by other items during transit.
- Use only the original packaging.
- Report transport damage to **DYNISCO** immediately in writing.

### 5.2 Storage

- Store the PT in original packaging only.
- Protect against dust and moisture.

### 5.3 Scope of delivery

- PT with diaphragm protection cap
- Seal
- Cable socket
- Calibration sheet
- Operating manual



## 6. Installation

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Ambient temperature for the electronics housing **max. +75°C** (safety class T5; T1 - T4 max. +80°C).



Higher temperatures can result in damage and malfunction. Do not install the pressure transmitter in places where this temperature is exceeded.

### 6.1 Screw-in trunnion / Mounting hole

- Make screw-in trunnion / mounting hole as shown in figure 05 / 06 and 07.

Fig. 05: Screw-in trunnion for PT EIT 332 with internal thread according to ISO 228/1 - G $\frac{1}{4}$

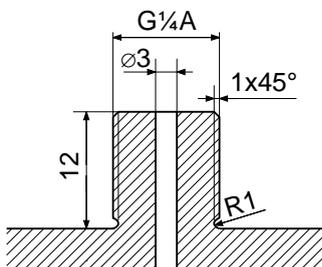
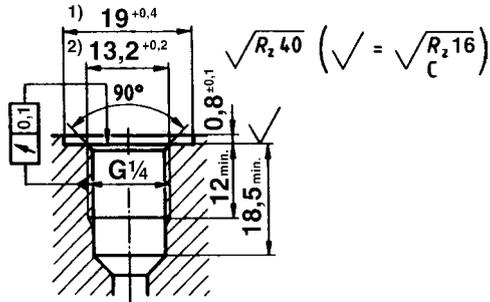


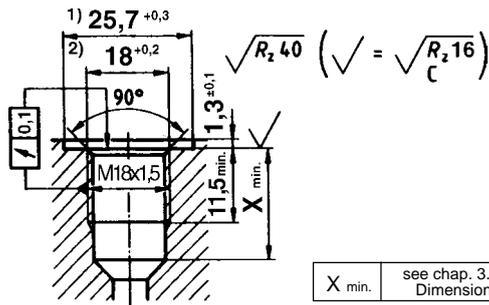


Fig. 06: Mounting hole form X  
for PT EIT 352 with screw-in trunnion  
according to DIN 3852-A G $\frac{1}{4}$ A



- 1) The recess is not necessary when no seal is used and the contact area is plain and rectangular to the axis of the thread.
- 2) Thread counterbored to outside diameter.

Fig. 07: Mounting hole for PT EIT 372 with screw-in  
trunnion M18 x 1.5



X min.	see chap. 3.15, Dimensions
--------	-------------------------------

- 1) The recess is not necessary when no seal is used and the contact area is plain and rectangular to the axis of the thread.
- 2) Thread counterbored to outside diameter.



When reworking the screw-in trunnion / mounting hole, pay particular attention to the centricity of:

- the hole,
- the thread and
- the sealing surface.

Pressure sealing with the standard seal takes place on the sealing surface and on the front cylindrical section of the PT.

The sealing surface must be:

- correctly machined
- free from marks and rough edges

## 6.2 Mounting the Pressure Transducer



Mounting and electrical connection of the PT must be done by specialists with EMC training, following all applicable regulations, and in **pressureless, voltage-free, intrinsically safe** condition with the **machine switched off**.



**The machine must be secured against being switched back on!**

**ATTENTION** ESD sensitive component. Electrostatic discharge may damage the PT. Take ESD precautions.

**ATTENTION** Before mounting the PT, check the screw-in trunnion / mounting hole carefully. The PT must only be mounted when the screw-in trunnion / mounting hole satisfy the requirements stipulated in chapter 6.1. Screw-in trunnion / mounting hole that does not satisfy these requirements can damage the PT.

**ATTENTION** For pressure sealing use always the seal that is delivered with the PT!

**ATTENTION** To prevent the PT from sticking permanently at the screw-in trunnion / mounting hole, coat the thread section of the transducer with high temperature resistant grease or a suitable parting agent.

**ATTENTION** Always use a spanner applied to the designated hexagon collar when screwing the PT in and out.



Do not apply the tool to the housing!

**ATTENTION** Maximum mounting torque **22 Nm**.  
If the mounting torque is too high, the PT  
may be damaged or its zero point may  
shift.

- put the seal between PT and screw-in trunnion /  
mounting hole. The seal has to fit plain to the  
surface and must not be damaged.
- screw the PT to the screw-in trunnion / mounting  
hole and tighten.

### 6.3 Electrical connection



Mounting and electrical connection of the  
PT must be done by specialists with EMC  
training, following all applicable regulations,  
and in **pressureless, voltage-free,  
intrinsically safe** condition with the  
**machine switched off**.



**The machine must be secured against  
being switched back on!**



#### **Explosion hazard!**

The pressure transmitter must be  
connected using a 2x2-core, twisted cable  
(blue cable sheath).

Do not lay connecting cables in the direct  
vicinity of cables carrying higher voltage or  
used to switch inductive or capacitive  
loads.



Operate only with an intrinsically safe,  
EMC compliant power supply with the  
following specifications:

Supply voltage max.	28 V DC
Current output max.	93 mA
Power output max.	690 mW
Inductivity max.	1 mH
Capacity max.	53 nF

**ATTENTION** ESD sensitive component. Electrostatic  
discharge may damage the PT.  
Take ESD precautions.

**ATTENTION** The electrical connection must comply  
with EMC requirements.

**ATTENTION** If the electrical connection is not made as  
described in chapter 6.3.1, or if cables /



cable connectors / cable glands other than those stipulated by **DYNISCO** are used, **DYNISCO** cannot guarantee that EMC requirements will be satisfied.

### 6.3.1 EMC / C€ compliant connection

- Earth the machine section with the screw-in trunnion / mounting hole for the PT in accordance with regulations. The PT must be connected to earth via the screw-in trunnion / mounting hole.
- Connect the shield of the connecting cable on both sides, making sure it conducts with full and continuous contact.
- When introducing the connecting cable into an EMC compliant switch cabinet, for example, connect the shield correctly (cable gland, conducting, full contact, continuous) to the conductive housing or route it via built-in cable connector that is also connected to the conductive housing.
- Connect unused cable cores or free cable ends correctly to the cable shield on both sides..

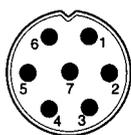
For order numbers of EMC compliant cable connectors required for connecting the PT, see chapter 9, Accessories.

## 6.4 Connection assignments

### Standard models EIT:

Equipment connector: 7-pin male connector,  
DIN  
Female connector: DIN

Fig. 08: 7-pin female connector



Top view solder-side

PIN	Designation
1	supply voltage (+)
2	supply voltage (-)
3	signal (+)
4	signal (-)
5	calibration
6	calibration
7	

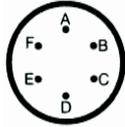
The connector housing is connected conductively to the housing of the PT.



**Models EIT3x2 with option D21:**

Equipment connector: 6-pin male connector,  
Bendix PT02A-10-6P  
Female connector: PT06A-10-6S(SR)

Fig. 09: 6-pin female connector



Top view solder side

PIN	Designation
A	signal (+)
B	signal (-)
C	supply voltage (+)
D	supply voltage (-)
E	calibration
F	calibration

The connector housing is connected conductively to the housing of the PT.

**6.5 Wiring**

Fig. 10: Wiring proposal for 2-wire mA with measuring transducer supply unit to EN 50 020

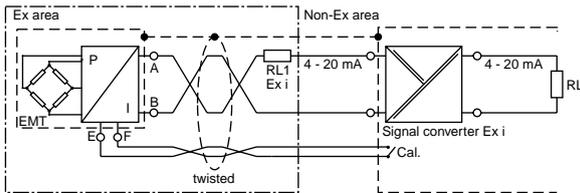
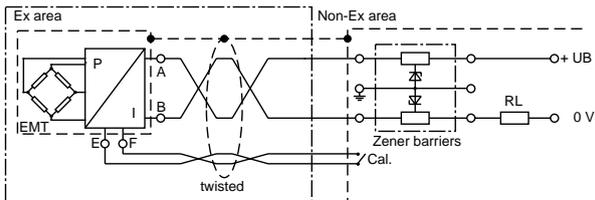


Fig. 11: Wiring proposal for 2-wire mA with Zener barriers to EN 50 020





## 7. Commissioning

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**ATTENTION** Before putting the PT into operation, make sure the PT is securely mounted and sealed.

### 7.1 Supply voltage



#### **Explosion hazard!**

Deviation of the supply voltage from the value given in the technical specifications, or false polarity, can damage the pressure transmitter and cause malfunctions that can pose a risk of explosion.

### 7.2 Calibration

PTs of series EIT 3x2 have an internal calibration signal. Connecting terminals 5 and 6 switches the calibration signal to the signal output. It is 80% of the full scale pressure of the transmitter.

**ATTENTION** Calibrate in pressureless state and at room temperature. Other ambient temperatures will corrupt the signal. Use an adjustment screwdriver!

**ATTENTION** Do not change the installed position of the PT after calibration. If the position is changed you must re-calibrate the PT.

The adjustment is made at two potentiometer screws in the cover section of the electronic housing.

- Remove the cap screws from the potentiometers.

Potentiometer adjusting screw "N" for zero adjustment.

Potentiometer adjusting screw "B" for range adjustment.

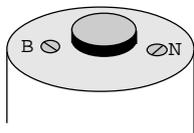


Fig. 12: Electronics housing cover



- Connect a meter or suitable instrument to the signal output to verify the settings.
- Adjust zero at potentiometer adjusting screw "N" and verify on the meter.
- Connect terminals 5 and 6.
  - ⇨ The calibration signal is connected to the output.
- Adjust calibration value (80% of full scale pressure) at potentiometer adjusting screw "B" and verify on the meter.
- Check the zero setting again.
- Repeat the zero adjustment and calibration value as necessary.

### 7.3 Zero adjustment

Adjust zero at operating temperature!

- Wait until a steady operating temperature is reached at the pressure sensor.
- Adjust zero at potentiometer adjusting screw "N" and verify on the meter.
- Replace the cover screws on the potentiometers.

### 7.4 Operation

**ATTENTION** Operating temperature at the PT diaphragm **max. 80°C**. Higher temperatures will damage the PT.



Ambient temperature for the electronics housing **max. +75°C** (safety class T5; T1 - T4 max. +80°C).

Higher temperatures can result in damage and malfunction.



Do not install the pressure transmitter in places where this temperature is exceeded.



## 8. Maintenance

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### 8.1 Maintenance



Mounting and electrical connection of the PT must be done by specialists with EMC training, following all applicable regulations, and in **pressureless, voltage-free, intrinsically safe** condition with the **machine switched off**.



**The machine must be secured against being switched back on!**

**ATTENTION** ESD sensitive component. Electrostatic discharge may damage the PT.  
Take ESD precautions.

**ATTENTION** Do not clean PT with hard objects.  
This will damage the PT!

**ATTENTION** Always use a spanner applied to the designated hexagon collar when screwing the PT in and out.  
Do not apply the tool to the housing!

The PT is almost maintenance free.

- Clean the PT with soft and dry cloth during the machine maintenance.

### 8.2 Repair/disposal

Please send defective PTs to your **DYNISCO** representative.

For addresses, see the back cover of the operating manual.

## 9. Accessories

- Pressure sensor simulator
- Pressure sensor calibrating device

### Cable connector, cable gland, cable

Designation	Order no.
Cable connector DIN 7-pin	E311 0035
Cable connector Bendix	E311 0029
Cable gland PG 7 CE	E447 0037
Connection cable VT 460 - 6 Meter	9VT0 0017
Connection cable VT 460 - 10 Meter	9VT0 0018



## 10. Troubleshooting

### 10.1 Troubleshooting

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#### 10.1 Troubleshooting

Fault	Possible cause	Resolution
No signal	Cable breakage or poor contact	Check cable and contact, or replace
	No supply voltage	Check supply voltage
Strong zero shift when screwing in	Mounting hole incorrectly produced (alignment error)	Check hole, rework if necessary
	Mounting torque too high	Adjust to max. 22 Nm mounting torque
No signal change despite pressure rise	Diaphragm damaged	Send pressure transducer to <b>DYNISCO</b> for repair



## 11. Declaration of conformity



### Konformitätserklärung

**Declaration of conformity**  
**Déclaration de conformité**  
**Declaración de conformidad**  
**Declaração de conformidade**

Hiermit erklären wir, daß unser Produkt, Typ:  
We hereby declare that our product, type:  
Nous déclarons par la présente que notre produit, type:  
Por la presente declaramos que nuestro producto, tipo:  
Com a presente, declaramos que o nosso produto, tipo:  
Con la presente dichiariamo che il nostro prodotto tipo:  
Hiermee verklaren wij dat ons produkt, type:  
Hermed erklærer vi, at vores produkt af typen:  
Με την παρούσα δηλώνουμε, ότι το προϊόν μας τύπου:

folgenden einschlägigen Bestimmungen entspricht:  
complies with the following relevant provisions:  
correspond aux dispositions pertinentes suivantes:  
satisface las disposiciones pertinentes siguientes:  
está em conformidade com as disposições pertinentes, a saber:  
è conforme alle seguenti disposizioni pertinenti:  
voldoet aan de eisen van de in het vervolg genoemde bepalingen:  
overholder følgende relevante bestemmelser:  
αποτεκρίνεται στους ακόλουθους σχετικούς κανονισμούς.

Angewendete harmonisierte Normen, insbesondere:  
Applied harmonized standards, in particular:  
Normes harmonisées utilisées, notamment:  
Normas armonizadas utilizadas particularmente:  
Normas armonizadas utilizadas, em particular:  
Norme armonizzate applicate in particolare:  
Gebruikte geharmoniseerde normen, in het bijzonder:  
Ανεπτυχθέντα εναρμονισμένα πρότυπα, ειδικότερα:

Dynisco Europe GmbH  
Wannenäckerstraße 24  
D 74078 Heilbronn  
Tel. (0 71 31) 2 97 - 0  
Fax (0 71 31) 2 32 60

**Dichiarazione di conformità**  
**Verklaring van overeenstemming**  
**Konformitetserklæring**  
Αήλωστη συμμόρφωσης ΕΟΚ

**Drucktransmitter / Druckaufnehmer**  
**Pressure Transmitter / Pressure Transducer**  
**Serie MDT, EMT, EIT, MDA, IDA, TDA, LDA, PT, Dyna4**

EMV-Richtlinie (89/336/EWG, 93/68/EWG, 93/44/EWG)  
EMC guidelines (89/336/EEC, 93/68/EEC, 93/44/EEC)  
Directive EMV (89/336/CEE, 93/68/CEE, 93/44/CEE)  
Reglamento de compatibilidad electromagnética (89/336/MCE, 93/68/MCE, 93/44/MCE)  
Directriz relativa à compatibilidade electro-magnética (89/336/EWG, 93/68/EWG, 93/44/EWG)  
Diretiva sulla compatibilità elettromagnetica (89/336/CEE, 93/68/CEE, 93/44/CEE)  
EMV-richtlijn (89/336/EEG, 93/68/EEG, 93/44/EEG)  
Direktiv om elektromagnetisk forlignelighed (89/336/EØF, 93/68/EØF, 93/44/EØF)  
κατευθυντήρια οδηγία περί ηλεκτρομαγνητικής συμβατότητας (89/336/EWG, 93/68/EWG, και 93/44/EWG)

EN 50081-1 / EN 50082-2

Heilbronn, den 1. Mai 1996

Daniel Nigg, Geschäftsführer

Operating manual



## 12. Ex-Declaration of conformity



Prüf- und Zertifizierungsstelle

ZELM Ex



### (1). EC-TYPE-EXAMINATION CERTIFICATE (Translation)

- (2) Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres - Directive 94/9/EC
- (3) EC-TYPE-EXAMINATION CERTIFICATE Number:

**ZELM 01 ATEX 0071**

- (4) Equipment: **Pressure Transmitter Type EMT 4xx2-... , Type IPT 4xx2-... and Type EIT 3x2-...**
- (5) Manufacturer: **Dynisco Europe GmbH**
- (6) Address: **Wannenäckerstraße 24, D-74078 Heilbronn**
- (7) This equipment and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.
- (8) The Prüf- und Zertifizierungsstelle ZELM Ex, notified body No. 0820 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres, given in Annex II to the Directive.  
The examination and test results are recorded in the confidential report ZELM Ex 0090019066.
- (9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

**EN 50 014: 1997+A1+A2      EN 50 020: 1994**

- (10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.
- (11) This EC-type-examination Certificate relates only to the design and construction of the specified equipment in accordance with Directive 94/9/EC. Further requirements of this Directive apply to the manufacture and supply of this equipment.
- (12) The marking of the equipment shall include the following:



**II 2 G EEx ia IIC T5 resp. T4**

Zertifizierungsstelle ZELM Ex

Braunschweig, December 11, 2001

*H. Zelm*  
Dipl.-Ing. Harald Zelm



Sheet 1/2

EC-type-examination Certificates without signature and stamp are not valid. The certificates may only be circulated without alteration. Extracts or alterations are subject to approval by the Prüf- und Zertifizierungsstelle ZELM Ex. In the case of dispute, the German text shall prevail.

Prüf- und Zertifizierungsstelle ZELM Ex • Siekgraben 56 • D-38124 Braunschweig



Prüf- und Zertifizierungsstelle

ZELM Ex



### SCHEDULE

(13)

(14) **EC-TYPE-EXAMINATION CERTIFICATE ZELM 01 ATEX 0071**

(15) Description of equipment

The pressure transmitters EMT 4xx2-..., IPT 4xx2-... and EIT 3x2-... types are used to transform the pressures measured by a diaphragm into an electrical signal, that is proportional to the pressure. The pressure applied by the medium is forwarded to the measuring diaphragm. The deflection of the measuring diaphragm changes the resistance of the strain gauge bonded to the measuring diaphragm. The strain gauge is a Wheatstone bridge. An electrical signal 4... 20 mA proportional to the pressure is generated via the integrated amplifier. Except the strain gauge the whole electronics is laid under casting compound into the housing.

The temperature ranges dependent on the temperature class are shown in the following table:

ambient temperature	temperature class
75 °C	T5
80 °C	T4

Electrical data

Supply and signal circuit

type of protection Intrinsic Safety EEx ia IIC  
 for connection to certified intrinsically safe circuits only  
 maximum values :  $U_i = 28$  V  
 $I_i = 93$  mA  
 $P_i = 690$  mW  
 effective internal inductance:  $L_i = 1$  mH  
 effective internal capacitance:  $C_i = 53$  nF

References:

The instruction manual has to be observed.

(16) Report No. ZELM Ex 0090019066

(17) Special conditions for safe use

not applicable

(18) Essential Health and Safety Requirements

met by standards

Zertifizierungsstelle ZELM Ex



Braunschweig, December 11, 2001

*H. Jelm*  
Dipl.-Ing. Harald Jelm

Sheet 2/2

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Technische Änderungen vorbehalten  
Technical subject to change  
Sous réserve de modifications techniques  
Con riserva di modifiche tecniche

9LIT0225 02/2003