

ecom
instruments

Operating Instructions

Ex-Pt 720



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1. Application

The Ex-Pt 720 is a precise, robust and simple to operate temperature measuring device for temperature measurements in explosion-endangered areas (excluding firedamp-endangered underground mining) of Zones 2 and 1 according to IEC/CENELEC and Zone 2, 1 and 0 according to NEC (FM-Marking).

2. Safety references

This operating manual contains information and safety recommendations which must be complied with in order to guarantee safe functioning of the unit under the conditions described

Please read these operating instructions very carefully before using the unit !

In case of doubt (for example due to mistakes in the translation) the German operating instructions are assumed to be valid.

3. Malfunctioning and inadmissible operation

As soon as one suspects that the safety of the equipment is endangered, it must be taken out of service and immediately removed from the Ex-area. Precautions must be taken to prevent its unintentional reuse.

We recommend that the unit be returned to the manufacturer for checking.

For example, the safety of the unit could be endangered when:

- damage to the housing is visible.
- the unit was subjected to improper strain.
- the unit was incorrectly stored.
- the unit was damaged in transit.
- the lettering on the unit is unreadable.
- malfunctioning occurs.
- obviously incorrect measurements occur.
- measurements with the unit are no longer possible.
- the permissible limiting values were exceeded.

4. Safety regulations

In order to exclude incorrect operation of the unit, its use assumes that the user is aware of and complies with the usual safety regulations.

- The batteries may only be changed outside the Ex-area.
- It is not allowed to take additional batteries into the Ex-area.
- Only type approved batteries may be used.
- Only sensors which have been approved by ecom may be used.
- It must be ensured that the unit is not taken into Zone 0.
- Measurements on electrically live parts are not allowed.
- Observe the measuring range of the temperature sensors. Overheating will damage the sensors.
- Avoid use in aggressive acids or alkalis.
- The unit may not be opened in Ex-areas.

4.1 Special conditions for use in Zone 0

The measurement of temperatures with the Ex-Pt 720 within Zone 0 is only permitted if the following conditions are complied with:

- A stainless-steel sensor Type 0628 2232 or 0628 2432 is used.
- The Ex-Pt 720 itself may not be taken into Zone 0.
- It must be absolutely ensured that the unit does not find its way accidentally into Zone 0. In order to guarantee this, the carrying strap of the unit must be attached additionally to the belt of the user or to a loop attached to his belt. The length of the carrying strap must be so adjusted that when the unit hangs freely on the carrying strap, the Ex-Pt 720 maintains a spacing of 50cm to the boundary area of Zone 0.
- Should the unit be used in the optionally available leather case, the carrying strap of the unit must still comply with the conditions for attachment to the user's body.

5. Ex-Data



EC-test approval-no.: TÜV 01 ATEX 1757 X

Ex-designation: II 2(1) G EEx ia IIC T4

Approved for Zone 1, equipment group II, gas group C explosions-endangered gases, vapours or fog, temperature class T4.

Only the sensors specified in the approval certificate may be used. Sensor no. 0628 2232 and 0628 2432 may be used in Zone 0 !



Report Job Identification No: 3015067

FM Marking : I.S. Class I Div.1 A - D T4
Class I Zone 0 AEx ia IIC T4

Approved for Zone 0, equipment group II, gas group C,
Temperature class T4

6. Technical Details

Ambient temperature Ta: -10 ... +50°C

Storage temperature: -20 ... +70°C

Batteries: 9V-Block, 6LR61 as per IEC
(only type tested batteries)

Supplier	Type
Varta	Alkaline No.4822
Varta	Alkaline Universal No.4022
Varta	Alkaline Electric Power No.8022
Duracell	Alkaline
Duracell	Alkaline Ultra
Duracell	Professional Alkaline Battery Procell
Everady	
(Ralston Energy Systems SA)	Alkaline Energizer
Panasonic	Alkaline Power Line Industrial Battery
Daimon	Alkaline

Operating life: approx. 100h
Dimensions: 190 x 57 x 42 mm
Weight: approx. 200g (with batteries)
Case material: ABS
(slight discolouration due to additives)

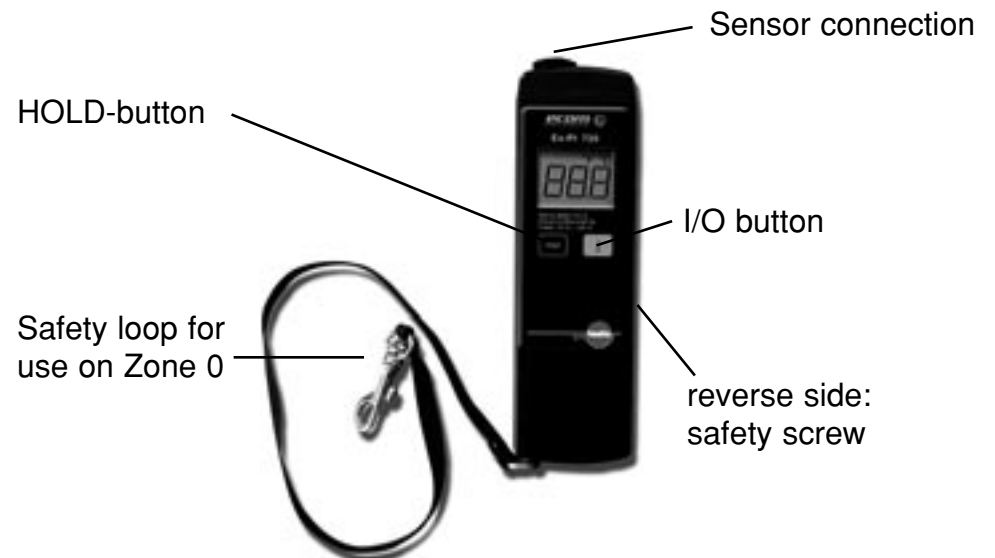
IP-protective rating: IP 54
EC-designation: C₀102
Display: LCD, digit height 14mm
Measuring device: Pt 100-Sensor, 4-wire-technique
Measuring range: -50°C to +400°C

Accuracy: -50°C to +199,9°C: ±0,2°C, ±1 digit
+200°C to +400°C: ±0,2% from measured value, ±1 digit

Resolution: -50°C to +199,9°C: 0,1°C
+200°C to +400°C: 1°C

System accuracy: -50°C to +99,9°C: ±0,6°C, ±1 digit
(with immersion/
insertion sensor) +100°C to +400°C: ±0,5% from measured value, ±1 digit

7. Operating instructions



7.1 Commissioning

- carefully read operating instructions.
- open back of unit with key.
- insert battery correctly (observe polarity).
- insert battery safety cover.
- close unit with safety screw.

7.2 Switching-on and measuring

7.2.1 Switching-on

Insert sensor into measuring socket (take note of plug coding).

Switch unit on with >I/O pushbutton<.

After switching on, a short display and function test will take place.

The measuring instrument is now ready for use.

7.2.2 Hold-Function

The measured values can be retained in the display with the

>Hold< pushbutton

7.2.3 Auto-Off-Function

The Auto-Off-Function switches the unit off after 10 minutes operating time thus avoiding unintentional discharge of the battery.

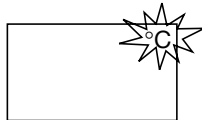
7.2.4 Changing measuring range

The display can be switched between °C and °F.

While switching the unit on with the >I/O pushbutton< press

>HOLD-pushbutton< and hold it.

After the self test is finished, the currently selected max. measuring value will blink.



Pressing the >Hold-pushbutton< switches between °C and °F.

Should no pushbutton be pressed for 5 seconds after a changeover, then the new measuring value will be accepted.

7.2.5 Switching-off

Switch the unit off with the >I/O pushbutton< . The display is no longer active.

7.3 Battery change

Should the <BAT> symbol be displayed constantly, then the battery will need to be changed within the next 1-2 hours. The unit switches itself automatically off should the battery voltage be too low.

Open the back of the unit by unscrewing it, remove the exhausted battery and insert a new one (observe polarity).

- while changing the battery, the cover may not be separated from the unit top shell.
- only batteries of Type 6LR61 as per IEC may be used. The use of alternative types of batteries is strictly forbidden.
- batteries may only be changed outside the Ex-area.
- the taking of additional batteries into the Ex-area is not allowed.

7.4 Temperature probes

7.4.1 Standard probes

Immersion / insertion probe

0628 1232: measurement range:-50 ... 400°C

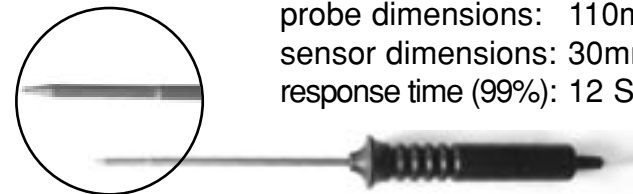
accuracy: class A

Ex-Zones: 2, 1

probe dimensions: 110mm x 4mm (w x ø)

sensor dimensions: 30mm x 3,2mm (w x ø)

response time (99%): 12 Sec.



Surface probe

0628 1932:

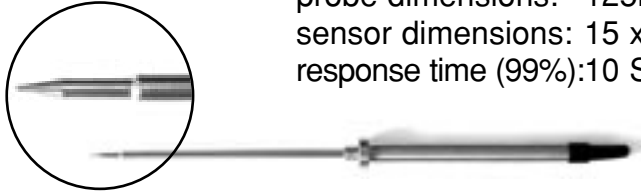
measurement range:-50 ... 400°C
accuracy: class B
Ex-Zones: 2, 1
probe dimensions: 110mm x 4mm (w x ø)
sensor dimensions: 3,2mm (ø)
response time (99%):40 Sec.



Stainless-steel probe

0628 2232:

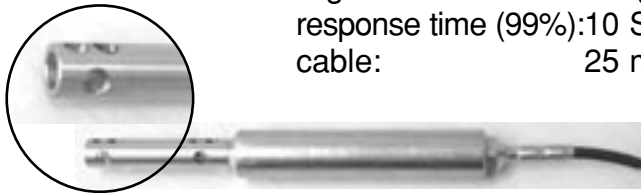
measurement range:-50 ... 400°C
accuracy: class A
Ex-Zones: 2, 1, 0
probe dimensions: 125mm x 4mm (w x ø)
sensor dimensions: 15 x 3mm (w x ø)
response time (99%):10 Sec



Drone Tankprobe

0628 2432:

measurement range:-50 ... 400°C
accuracy: class A
Ex-Zones: 2, 1, 0
probe dimensions: 235mm x 25mm (w x ø)
weight: 400g (without cable)
response time (99%):10 Sec
cable: 25 m



7.4.2 Special probes

Immersion / insertion probe

0600 9999

measurement range:-50 ... 400°C

0628 1232:

accuracy: class A

Ex-Zones: 2, 1

probe dimensions: >50mm x >4mm (w x ø)

sensor dimensions: >30mm x >3,2mm (w x ø)

response time (99%):12 Sec.

Surface probe

0600 9999

measurement range:-50 ... 400°C

0628 1932:

accuracy: class B

Ex-Zones: 2, 1

probe dimensions: >50 mm x >4mm (w x ø)

sensor dimensions: >9 mm (ø)

response time (99%):40 Sec.

Stainless-steel insertion probe

0600 9999

measurement range:-50 ... 400°C

0628 2232:

accuracy: class A

Ex-Zones: 2, 1, 0

probe dimensions: >50mm x >4mm (w x ø)

sensor dimensions: >15 x >3mm (w x ø)

response time (99%):10 Sec.

Drone Tankprobe

0600 9999

measurement range:-50 ... 400°C

0628 2432:

accuracy: class A

Ex-Zones: 2, 1, 0

probe dimensions: 235mm x 25mm (w x ø)

weight: 400g (without cable)

response time (99%):10 Sec

cable: 1 ... 50 m

7.4.3 Calibration instructions

The plastic handle withstands a temperature of approx. 200°C for a short time. A long-term maximum of 90°C is recommended.

Please take this into account when calibrating the system or individual components.

8. Repair

Should repairs be necessary, then the conditions of ELEX V must be complied with. We recommend that repairs be carried out in the manufacturer's factory as it is necessary for the unit to be checked for technical and safety reasons.

9. Cleaning and maintenance

The unit should only be cleaned with a moist cloth or sponge. Detergents or abrasive materials should not be used.

We recommend that the function and accuracy of the unit be checked every two years by the manufacturer.

10. Guarantee & liability

For this product, ecom Instruments GmbH guarantees the function and material for a period of two years under normal operating and maintenance conditions.

The guarantee does not apply to products which are improperly used, modified, neglected, damaged in accidents or exposed to abnormal operating conditions.

Claims under the guarantee can be made by returning the defective equipment to the factory. We reserve the right to repair, renew the settings or exchange the device.

The above-mentioned guarantee conditions are the sole and only right of the purchaser to compensation, are exclusively valid and replace all other contract or legal warranty obligations. ecom Instruments GmbH accepts no responsibility for special, direct, indirect, accompanying or consequential damage as well as losses including the loss of data which may arise through the use or acquisition of the equipment independent of whether it was caused by violation of the warranty obligation, lawful or unlawful action, action in good faith or any other action.

If in certain countries the limitation of a legal guarantee as well as the exclusion or limitation of accompanying or consequential damage is not permissible, it may be that the above-mentioned limitations and exclusions are not valid for every purchaser. Should any such clauses of these guarantee terms be declared null and void or not realisable by a competent court, then the effectiveness or enforceability of any of the other conditions of these guarantee terms will be unaffected by the court decision.

11. Declaration of EC-Conformity

We ecom Instruments GmbH, Industriestraße 2
D-97959 Assamstadt

declare under our sole responsibility that the product
Ex-Pt 720
to which this declaration relates is in accordance with the provision
of the following directives

94/9/EC Equipment and protective systems in
explosionendangered areas
89/336/EEC Electromagnetic compatibility

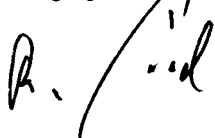
and is in conformity with the following standards or other normative
documents

EN 50014:1997 Electrical equipment for explosion-
endangered areas
EN 50020:1994 Electrical equipment for explosion-
endangered areas
Intrinsic safety "i"
EN 61326-1:1997 Electromagnetic compatibility (small business).
The equipment was tested for electromagnetic
compatibility in the frequency range of
60-1000 mHz. The specified tolerances could
not be complied with in the frequency band
280-300 mHz.

ecom instruments GmbH

Assamstadt, 28.05.02

Rolf Nied
Managing Director



12. EG type approval

TÜV CERT

- (1) **EC – Type approval test certificate**
- (2) Equipment and protective systems for use according to certain regulations in
explosion-endangered areas – Guideline 94/9/EC
- (3) EG Type approval test certificate number
TÜV 01 ATEX 1757 X
- (4) Equipment: Explosion-protected temperature measuring unit Type Ex-Pt 720*
- (5) Manufacturer: ecom instruments GmbH
- (6) Address: D-97959 Assamstadt, Industriestrasse 2
- (7) The type of design as well as the various permissible versions are specified in the appen
dix to this type approval test certificate.
- (8) The TÜV Hannover/Sachsen-Anhalt e.V., TÜV CERT-certification authority, hereby con
firms, as recognized authority no. 0032 according to Article 9 of the Guidelines of the
Council of the European Union dated March 23rd, 1994 (94/9/EG), the fulfilment of the
fundamental safety and health requirements for the conception and design of equipment
and protective systems according to certain regulations in explosion-endangered areas in
line with Appendix II of the guidelines.

The test results are recorded in the confidential test report No. 01 YEX 137383.
- (9) The fundamental safety and health requirements are fulfilled on account of compatibility with
EN 50014:1997 **EN 50020:1994**
- (10) Should the letter "X" appear at the end of the certification number, attention is drawn to
special conditions for the safe use of the equipment which can be found in the appendix.
- (11) This EG type approval test certificate only refers to the conception and testing of certain
equipment in line with Guideline 94/9/EG. The additional requirements of this guideline
which are valid for the manufacture and commissioning of this equipment are not covered
by this certificate.
- (12) The designation of the equipment must contain the following details:



II 2 (1) G EEx ia IIC T4

TÜV Hannover/Sachsen-Anhalt e.V
TÜV CERT-certification authority
Am TÜV 1
D-30519 Hannover

Hannover, 19.02.2002

The person in charge

This EG type approval test certification may only be distributed in unchanged form.
Extracts or changes need the approval of the TÜV Hannover/Sachsen-Anhalt e.V

(15) Description of the equipment

The explosion-protected temperature measurement unit Type Ex-Pt 720* may be used in explosion-endangered areas which require category 2 or 3 respectively. The sensors which are specially mentioned in the operating instructions may be used for the measurement of temperatures in category 1.

The permissible ambient temperature range is 0°C to +50°C.

Electrical data

Power supply one block battery as per IEC 6LR61 or 6F22
(internal battery) U = 9V

Only batteries which have satisfied the type-testing in accordance with section 10.9 of EN 50020:1994 are allowed to be used. The manufacturers and their type numbers are listed in the operating instructions.

(16) Test documentation is listed in test report No. YEX 137383.

(17) Special conditions

The temperature measuring unit Type Ex-Pt 720* may not be opened within the explosion-endangered area.

The version with the type designation EX-Pt 720L may only be used within explosion-endangered areas when it is enclosed in the leather case which is supplied with it.

In addition, the following applies to the measurement of temperatures within category 1:

The temperature measuring unit Type Ex-Pt 720* itself may not be taken into areas which require category 1 operating equipment. Only the sensors listed in the operating instructions as being suitable for category 1 may be used.

The carrying strap of the unit is to be attached to a loop on the user's belt in such a way that when the unit hangs freely on the strap it always maintains a spacing of > 50 cm from the boundary of the area which requires category 1. Only the manufacturer's carrying strap may be used.

(18) Fundamental safety and health requirements

No additional ones.

The company: ecom instruments GmbH
Industriestrasse 2
D-97959 Assamstadt

In the future, the explosion-protected temperature measuring instrument Type Ex-Pt 720* may be manufactured in accordance with the documentation listed in the test report. The changes are concerned with the external design and the use of further sensors. The permissible ambient temperature is dependent on the type as shown in the following table:

Type	Permissible ambient temperature range
Ex-Pt 720 L	0°C to +50°C
Ex-Pt 720	-10°C to +50°C

The electrical data are valid without change for this supplement.

(16) Test documentation is listed in test report No. 02 YEX 164755.

(17) Special conditions

The temperature measuring unit Type Ex-Pt 720* may not be opened within the explosion-endangered area. The version with the type designation EX-Pt 720L may only be used within explosion-endangered areas when it is enclosed in the leather case which is supplied with it.

In addition, the following applies to the measurement of temperatures within explosion-endangered areas which need category 1 equipment:

The temperature measuring unit Type Ex-Pt 720* itself may not be taken into areas which require category 1 equipment. Only the sensors listed in the operating instructions as being suitable for category 1 may be used.

The carrying strap of the unit is to be attached to a loop on the user's belt in such a way that when the unit hangs freely on the strap it always maintains a spacing of > 50 cm from the boundary of the area which requires category 1. Only the manufacturer's carrying strap may be used.

(18) Fundamental safety and health requirements

No additional ones.

APPROVAL REPORT

Ex-Pt 720 TEMPERATURE MEASURING UNIT FOR USE IN HAZARDOUS (CLASSIFIED) LOCATIONS

Prepared for:

**ecom instruments
Industriestraße 2
D-97959 Assamstadt**

Project ID: 3015067

Class: 3610

Date of Approval: October 25, 2002

Authorized by: 

G. A. Smith, Group Manager

FM Approvals
1151 Boston-Providence Turnpike
PO Box 9102
Norwood, MA 02062

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2. SUPPLEMENT

to

EC-Type-Examination Certificate No. TÜV 01 ATEX 1757 X (translation)

of the company: ecom instruments GmbH
Industriestrasse 2
97959 Assamstadt
Germany

The explosion-proof temperature measuring device of type EX-Pt 720* has been approved for manufacture according to the documents listed in the test/examination report. The changes refer to the outer structure and the use of an additional sensor.

The electrical data and the special conditions shall continue to be valid for this supplement.

The test documents are listed in test protocol No. 03 YEX 550274.

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The Chief Officer



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