

General

Hazardous areas

A sudden explosion can only be caused by a mix of flammable and oxygen substances. Due to their local conditions some industrial areas are defined as explosive. If there's the possibility that any explosionable atmosphere arises, it is an absolute necessity to install any explosion protective proceedings.

Safety by intrinsically-safe instruments

Our handheld instruments are applied in many areas of the energy (gas..) and petrochemical industry. An accuracy up to ± 0.03 °C on handhelds with Ex-protection is very unique, therefore these instruments offer the best solution to many applications. The instruments are suitable for gas atmospheres of the explosion groups IIB.



Marking of EX-Instruments for series P700-EX

Ex II 2 G Ex ib IIB T4 Gb

Ex EC Examination mark according CENELEC

II **Explosion groups**
 Group I: electrical equipment for mining
 Group II: electrical equipment for all remaining hazardous areas.
 For a further classification in Group II can be: IIA, IIB, IIC

Group	IIA	IICB	IIC
Type of gas	propane	ethylene	hydrogene
Ignition energy	High	Medium	Low

2G **Classification of zones:**
 The areas are specified in zones according to the likelihood of the hazard existing at flammable concentrations.

Gases, Vapours, Smog	Dust	Danger
Zone 0	Zone 20	permanent / longterm
Zone 1	Zone 21	occasional
Zone 2	Zone 22	rare / short term

Ex Explosion protected according to DIN EN 60079-0

ib **Type of protection**
 Secondary protecting proceedings which prevent an arousal of the explosionable atmosphere: for example: intrinsically safe (ib).

IIB **Device groups** (according explosion groups)

T4 **Temperature classification**

Maximum surface temperature	T1	T2	T3	T4	T5	T6
	450°C	300°C	200°C	135°C	100°C	85°C

Gb **Equipment protection level (EPL)**



Safety by intrinsically-safe instruments



MAXiCAL
 Process Multifunction Calibrators



P755-EX

Ex II 2 G Ex ib IIB T4 Gb



MAXiCAL
Process Multifunction Calibrators

E Instruments



Technical data

Input:	Pt100
Measuring range:	-200°C...+850°C (gem. EN 60751)
Resolution:	0.1°C
P700-EX / P705-EX:	0.01°C from -200°C...+200°C
P750-EX / P755-EX / P755-LOG-EX:	otherwise 0.1°C
Accuracy:	
P700-EX / P705-EX:	±0.1°C from -100°C...+200°C 0.1% remaining range
P750-EX / P755-EX / P755-LOG-EX:	±0.03°C from -50°C...+199.99°C ±0.05°C von -200°C...-50.01°C otherwise 0.05%
EX-mark:	II 2 G Ex ib IIB T4 Gb
Memory:	6.000 measurements (P755-LOG-EX only)

Calibration

Quality assurance through calibration

Calibration, Manufacturer Testing Certificate, DAkkS Testing Certificate

... a complete service

Many applications, especially within the Quality Assurance System ISO 9000, require the precise documentation of the measurements taken. Additionally, the measured values should be based on national standard values specified by the National Physical and Technical Institute or equivalent European institutions. This requirement is met and documented through the use of a measuring instrument tested by the DAkkS (German Calibration Service) and furnished with a DAkkS or Manufacturer Testing Certificate. When issuing the DAkkS (acc. to EN17025) or Manufacturer Testing Certificate, the instrument and the sensors are tested against precise standard parameters or physical fixed points regarding the measuring accuracy. The maximum error limits are documented on the testing certificate or in the instructions for use. Upon request, we will deliver the measuring instruments together with a DAkkS or Manufacturer Testing Certificate issued on an individual basis according to your requirements and specifications for the application concerned. Measuring instruments with a DAkkS Testing Certificate can be used as a reference for testing subordinate measuring instruments within your Quality Assurance system, thus enabling you to issue testing certificates for subordinate measuring instruments on your own responsibility. Measuring instruments with a testing certificate are ideal for control measurements which have to be documented for reasons of product liability or safety.

DAkkS or comparable Testing Certificates are available for:

- Temperature
- Flow
- Humidity
- Pressure

The following institutes, together with others associated within the Western European Calibration Cooperation (WECC), mutually recognize each others' certificates in their respective countries:

- United Kingdom Accreditation Service (UKAS)
- German Calibration (DAkkS)
- Swiss Calibration Service (SCS)
- Nist of Standards and Technology... (NIST)

Laboratory Equipment
We maintain the following measurement standards in our laboratory:

- Thermometry bridge (1 ppm)
- Precision Resistance (1 ppm)
- Calibration baths -40 °C ... +250 °C
- Block calibrator up to +1300 °C
- Resistance standard probes up to 650 °C
- Thermocouple standards up to 1300 °C
- Black body -20 °C ... +450 °C

For further information, please contact our laboratory or our application engineers.

Intrinsically safe precision measurement instruments

± 0.03 °C system accuracy P750/755-EX:
after adjustment and calibration of the system

Our explosion proofed handheld devices are used worldwide as standard for calibration of volume converters for gas counters and tank facilities. The instrument series is authorized according to international directives. The wide range of different temperature probes cover various applications. To minimise measurement uncertainty of the complete system (instrument and sensor) the Series P700 measuring instruments have a special calibration function which compensates the sensor tolerances when a sensor is replaced. To this end all our measuring sensors are tolerance calibrated in our laboratory. The determined deviation is converted into a number code which is marked on the sensor. This code contains information on the sensor deviation at zero point and the increase in relation to the respective DIN Standard on which it is based. The number code is simply entered in the measuring instrument and is stored by means of the instrument control panel or the software and interface. The instrument processor corrects the tolerance of the measuring sensor defined by the numer code and corrects the measuring error resulting out of this. The corrected measured value is displayed in the LCD. Depending on the type of instrument the smallest measurement uncertainty will be 30 millikelvin.

- Recommended as reference for calibration of volume converters of gas suppliers
- ATEX-approval and EG conformity
- Highest precision ± 0.03°C
- Wide range of probes and accessories

Order No.	Description
5000-X700	P700-EX hand-held instrument, Pt100 1-channel, without probe and software
5000-X705	P705-EX hand-held instrument, Pt100 2-channel, without probe and software
5000-X750	P750-EX hand-held instrument, Pt100 1-channel, without probe and software
5000-X755	P755-EX hand-held instrument, Pt100 2-channel, without probe and software
5000-X755L	P755-LOG-EX hand-held instrument, Pt100, 2-channel, Pt100, with memory, without probe and software

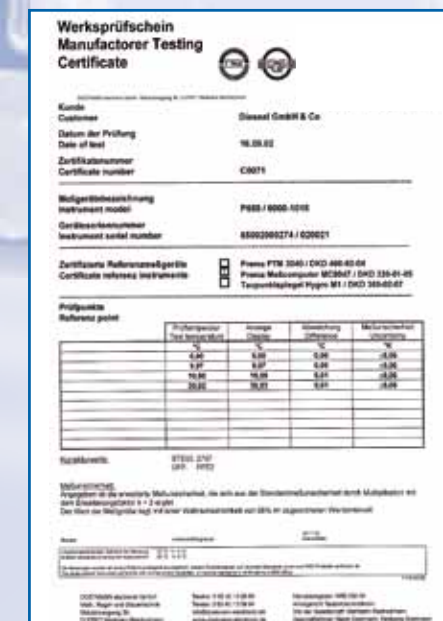
Order No.	Accessories
5090-0081	WINDOWS Software DE-Graph for series P700 (Connection to PC is strictly prohibited in areas with danger of explosion).
5090-0046	PC-cable (USB) for series P700
5600-0007	Service case with form rubber
5990-0001	Battery Ex-approved

Sensors for series P700-EX

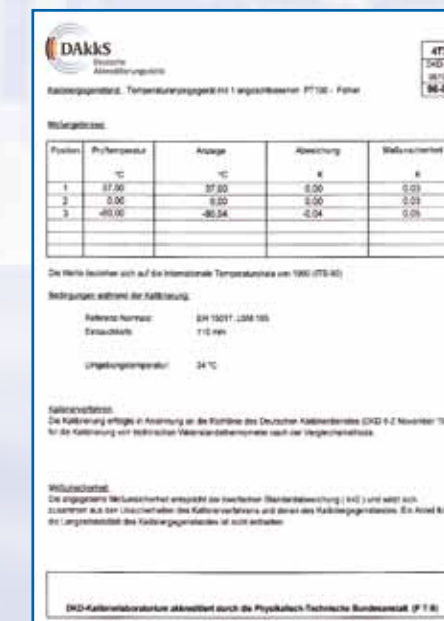
Temperature probes Pt100, 4-wire, DIN IEC 751, tube V2A or Inconel, mineral-insulated, with handle for series P700-EX

Description	Measuring range	L1 x Ø mm	t90	Order No.	
Sensor Class B WS 1.4571 L1 \varnothing	Immersion probe, with handle, mineral insulated	-50°C ... +350°C	150 x 3,0 300 x 3,0	8 8	6000-1001 6000-1002
Sensor Class B L1 \varnothing	High temperature probe, with handle, inconel tube (momentarily up to 600°C)	-200°C ... +550°C	300 x 6,0	20	6000-1056
Sensor Class B WS 1.4571 L1 \varnothing	Insertion probe, with handle	-50°C ... +350°C -50°C ... +350°C	150 x 4,0 300 x 4,0	10 10	6000-1006 6000-1007
Sensor Class B WS 1.4571 L1 \varnothing	Air probe for fast measurements of air or gas temperature, WS 1.4571	-50°C ... +250°C	250 x 4,0	7	6000-1055
Sensor Kl. B / Cl. B 	Immersion probe for tanks, with weight petroleum proof cable (10 m cable length)	-30°C ... +150°C	80 x 4,0	8	6000-1082

High precision probes ±0.03°C (-30°C ... +200°C)	Order No.				
Sensor Kl. 1/3 DIN / Cl. 1/3 DIN WS 1.4571 L1 \varnothing	Immersion probe, with handle, mineral insulated	-200°C ... +450°C	150 x 3,0 300 x 3,0 300 x 1,5	12 12 5	6000-1018 6000-1019 6000-1023
Sensor Kl. 1/10 DIN Cl. 1/10 DIN WS 1.4571 L1 \varnothing	Immersion probe, with handle, mineral insulated	-200°C ... +450°C	150 x 3,0 300 x 3,0	12 12	6000-1073 6000-1074



5600-0006



5600-0005



5600-0003

Order No.	Calibration certificate
5600-0006	ISO-Manufacturer certificate (-90 °C ... -21 °C) per calibration point
5600-0006	ISO-Manufacturer certificate (-20 °C ... +200 °C) per calibration point
5600-0006	ISO-Manufacturer certificate (+200 °C ... +1200 °C) per calibration point

Order No.	Calibration certificate
5600-0005	DAkkS-Certificate (-80 °C ... +1200 °C) according to EN17025 basic fee + per calibration point
5600-0003	Calibration certificate „Standard use“ by Eichamt basic fee + per calibration point