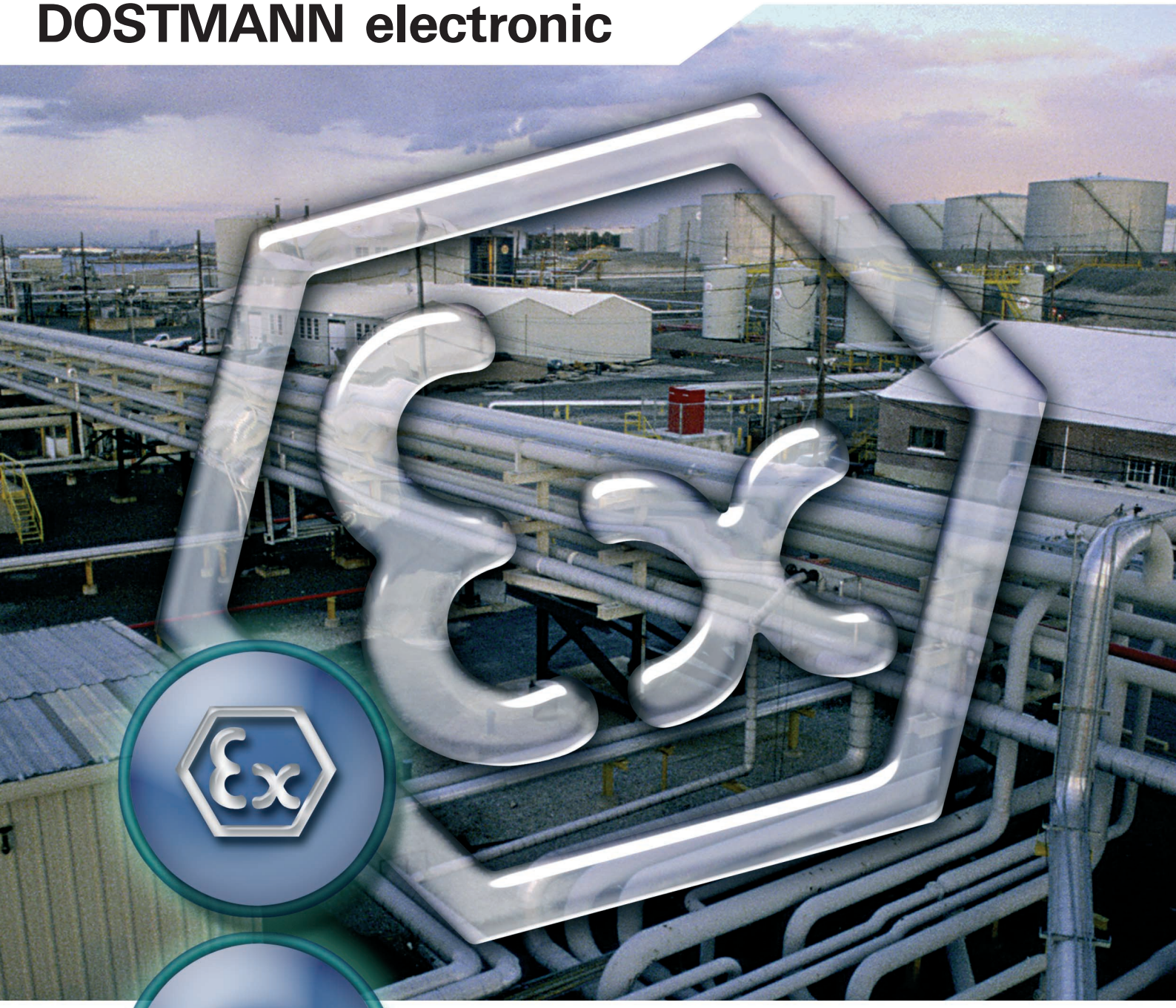
DOSTMANN electronic



Safety by intrinsically-safe instruments of Dostmann electronic

Hazardous areas

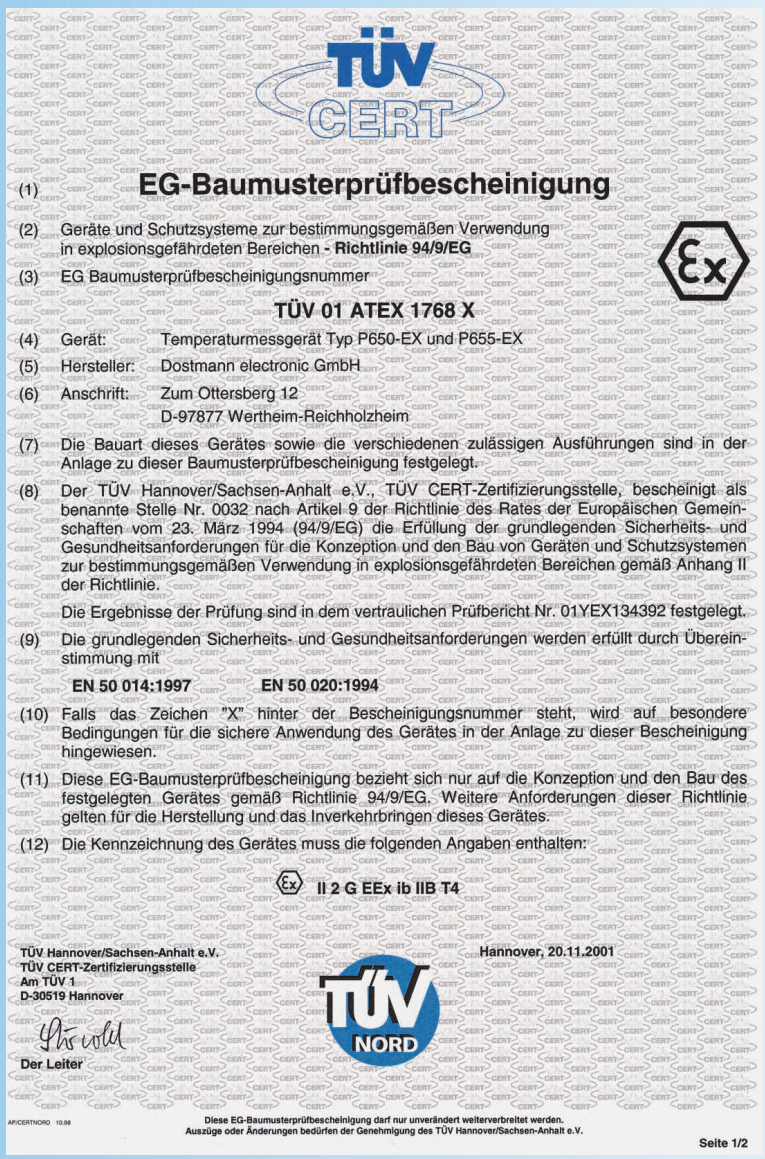
A sudden explosion can only be caused by a mix of flammable and oxygen substances. Due to their local conditions some industrial areas are defined as explosive.

If there's the possibility that any explosionable atmosphere arises, it is a absolute necessary to install any explosion protective proceedings.

Safety by intrinsically-safe instruments of Dostmann electronic

Our handheld instruments are applied in many areas of the energy- (gas..) and pretrochemical industry. An accuracy up to ±0,03 C on handhelds with Ex-protection is very unique, therefore these intruments offer the best solution to many applications.

The instruments of Dostmann electronic are suitable for gas atmospheres of the explosions groups IIB.



TÜV CERT

(1) **EG-Baumusterprüfbescheinigung**

(2) Geräte und Schutzsysteme zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen - **Richtlinie 94/9/EG**

(3) EG Baumusterprüfbescheinigungsnummer

TÜV 01 ATEX 1768 X

(4) Gerät: Temperaturmessgerät Typ P650-EX und P655-EX

(5) Hersteller: Dostmann electronic GmbH

(6) Anschrift: Zum Ottersberg 12
D-97877 Wertheim-Reichholzheim

(7) Die Bauart dieses Gerätes sowie die verschiedenen zulässigen Ausführungen sind in der Anlage zu dieser Baumusterprüfbescheinigung festgelegt.

(8) Der TÜV Hannover/Sachsen-Anhalt e.V., TÜV CERT-Zertifizierungsstelle, bescheinigt als benannte Stelle Nr. 0032 nach Artikel 9 der Richtlinie des Rates der Europäischen Gemeinschaften vom 23. März 1994 (94/9/EG) die Erfüllung der grundlegenden Sicherheits- und Gesundheitsanforderungen für die Konzeption und den Bau von Geräten und Schutzsystemen zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen gemäß Anhang II der Richtlinie.

Die Ergebnisse der Prüfung sind in dem vertraulichen Prüfbericht Nr. 01YEX134392 festgelegt.

(9) Die grundlegenden Sicherheits- und Gesundheitsanforderungen werden erfüllt durch Übereinstimmung mit

EN 50 014:1997 **EN 50 020:1994**

(10) Falls das Zeichen "X" hinter der Bescheinigungsnummer steht, wird auf besondere Bedingungen für die sichere Anwendung des Gerätes in der Anlage zu dieser Bescheinigung hingewiesen.

(11) Diese EG-Baumusterprüfbescheinigung bezieht sich nur auf die Konzeption und den Bau des festgelegten Gerätes gemäß Richtlinie 94/9/EG. Weitere Anforderungen dieser Richtlinie gelten für die Herstellung und das Inverkehrbringen dieses Gerätes.

(12) Die Kennzeichnung des Gerätes muss die folgenden Angaben enthalten:

II 2 G EEx ib IIB T4

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

Hannover, 20.11.2001

TÜV NORD

Der Leiter

AP/CERTNORD 10.98

Diese EG-Baumusterprüfbescheinigung darf nur unverändert weiterverbreitet werden.
Auszüge oder Änderungen bedürfen der Genehmigung des TÜV Hannover/Sachsen-Anhalt e.V.

Seite 1/2

Marking of EX-Instruments

II 2G EEx ib IIB T4

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 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

EEx

Explosion protected according CENELEC

ib

Type of protection

Secondary protecting proceedings which prevent an arousal of the explosionable atmosphere: for example: instrinsically 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

Hand-held instruments, series P600-EX

± 0,03 °C system accuracy

The total measurement error is determined by the sum of the sensor measurement, instrument and physical process errors.

The measurement error of the display system is generally known from leaflets or operating instructions. In the majority of cases the measurement uncertainty of the sensor is generally higher than that of the measuring instrument and is only determined as a rule by sensor classification, for example, Type B, without precise figures being given in the leaflet.

To be considered apart from the error tolerance of the measuring instrument is the maximum sensor tolerance to DIN as a possible error source when determining the total uncertainty of measurement or replacing a sensor. Maximum measurement uncertainty of the system (measurement sensor tolerance + specific instrument error) of over 1 °C can be quickly determined from this.

To minimise measurement uncertainty of the complete system (instrument and sensor) the Series P600 measuring instruments have a special calibration function which compensates the sensor tolerances when a sensor is replaced.

P655-EX

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.

The measuring instruments can be calibrated to uncoded measuring sensors through a further instrument function by simple physical compensation (comparison measurement). At the same time this function can be used to easily correct any possible drift error caused by ageing of the sensor, for example.

For the physical calibration you can select either a 1, 2, or 3-point-calibration. To implement this function the measuring sensors to be calibrated are immersed, for example, in two reference temperature points (optional 1 or 3 points) one after the other and the values entered into the instrument through the keyboard.

The instruments monitor the calibration process automatically so that the operation is automatically broken off in the case of references which are unstable, for example, in order to be able to continue to use the previously valued correction values in the processor.

To achieve good results only such references should be used for calibration the maximum error of which are lower than the specific error limits for the respective instruments by the factor 3.

The SmartGraph software offered for the measuring instruments permits simple, efficient administration of the various measuring sensors and pertinent number codes and the transfer for readout of the appropriate code on the measuring instrument.

As a result the above-described calibration function eliminates the influence of the sensor error to a great extent and permits system accuracy which is about the same as the accuracy of the measuring instrument itself.

The resulting high system measuring accuracy predestines the measuring instruments for applications in quality assurance and laboraratory.

Certification

II 2G EEx ib IIB T4

Technical data

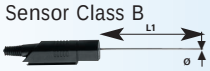
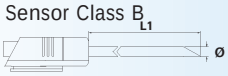
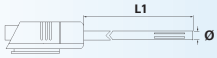
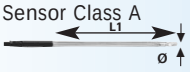
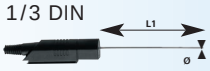
	P600-EX	P605-EX	P650-EX	P650-EX
Channel 1	Pt100	Pt100	Pt100	Pt100
Channel 2	---	Pt100	---	Pt100
Measuring range	-200...+850°C	-200...+850°C	-200...+850°	200...+850°C
Accuracy	± 0,1°C from -100°C...+200°C 0,1% remaining range		± 0,03°C from -100°C...+150°C ± 0,05°C from -200°C...+200°C 0,01% remaining range	
Resolution	0,1°C		0,01°C von -200°C...+200°C otherwise 0,1°C	
Battery life	ca. 20 h			
Connectors	DIN 8-pole			
Working temperature	0°C....+40°C			
Display	2-line LCD			
Housing	plastic (ABS)			
Dimensions	300 x 85 x 40 mm (LxBxH)			
Weight	300 g			
Power supply	9 V battery			
EX-Certification	**EEx ib IIB T4**	**EEx ib IIB T4**	**EEx ib IIB T4**	**EEx ib IIB T4**
Order No.	**5000-X600**	**5000-X605**	**5000-X650**	**5000-X655**

Sensoric for series P600-EX

Temperature probes Pt100, 4-wire, DIN IEC 751, tube V2A or Inconel, mineral-insulated, with handle for series P600

Cable PVC/PVC 1000 mm

suitable for P600-EX/P605-EX/P650-EX/P655-EX

Description		Measuring range	L1 x ⌀ mm	t90	Order No.
Sensor Class B 	Immersion probe for measuring in liquid and powderd materials	-200°C...+500°C -200°C...+600°C	150 x 3,0 300 x 3,0 300 x 6,0	8 8 20	**6000-1001** **6000-1002** **6000-1056**
Sensor Class B 	Insertion probe for measuring in solid, powderd and semi-solid materials	-200°C...+500°C	150 x 4,0 300 x 4,0	10 10	**6000-1006** **6000-1007**
Sensor Class B 	Air probe for fast measure-ments of air temperature	-50°C...+250°C	250 x 4,0	10	**6000-1055**
Sensor Class A 	Laboratory glass probe	-50°C...+400°C	150 x 6,0	7	**6000-1026**
Sensor Class 1/3 DIN 	Immersion probe for measuring in liquid and powderd materials	-200°C...+500°C -200°C...+500°C -200°C...+500°C	150 x 3,0 300 x 3,0 150 x 1,4	8 8 5	**6000-1018** **6000-1019** **6000-1023**
Sensor Class 1/10 DIN 	Immersion probe for measuring in liquid and powderd materials	-200°C...+500°C -200°C...+500°C	150 x 3,0 300 x 3,0	8 8	**6000-1073** **6000-1074**

Accessories

Service case **Order No.**
with foam rubber insert **5600-0007**

Battery **Order No.**
Ex-approved **5990-0063**

Basis-Set (EX-Instruments)
- Service case
- 2 x 9 V battery
- DKD-certificate for 6 testing points

Ex-Set 1 **Order No.**
1 x instrument P650-EX **5000-1X50**
1 x probe (6000-1019)

Ex-Set 2 **Order No.**
1 x instrument P655-EX **5000-1X55**
2 x probe (6000-1019)

Infraret Instruments MTL- EX / MX- EX

Product profile

Non contact thermometers use infrared technology to measure the temperature of materials up close, or from a distance. You simply aim, pull the trigger, and read the temperature on a large, backlight LCD display.

Lightweight, compact, and easy-to-use, the MTL and the MX can safety measure hot, hazardous, or hard-to-reach materials without contaminating or damaging the material's surface. For safe and accurate temperature measurement, reach for a MTL or MX2-instrument.

Order No. 5020-0409 ②

MTL-EX

Certification
Ⓔx II 2G EEx ia IIC T4

Technical data:

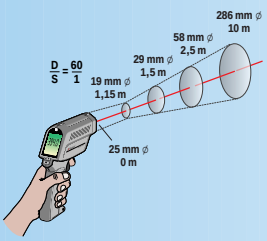
Temperature range:	-30°C...+900°C
Accuracy:	-30°C...-1°C ± 2°C
(at ambient 25°C)	0°C..+99°C ±1°C
±5°C)	100°C or 900°C ±1%
	±1°C or ±1% of reading
	- whichever is greater,
Repeatability:	±0.5% of reading or ±1°C
	whichever is greater
Response time: (95%)	250 ms
Indication elimination:	0.1°C
	with temperature
Emissivity adjustment:	0.10 to 1.50
	(0.01 incremental)
Display:	actual temperature
	minimum temperature
	maximum temperature
	graphical trend (previous 10 readings)
	warning symbol
	emissivity level
	battery condition
Ambient operating range:	0°C...+50°C
	with laser max. +45°C
Storage temperature:	-20°C...+50°C
Relative humidity:	10...95% rH, at up to 30°C
Battery:	IEC LR6/AA respectively R6/AA
Weight:	450 g
Dimensions:	200 x 170 x 50 mm
Spectral response:	8 to 14 µm
Laser :	class 2 laser

- MAX/MIN/HOLD-function
- HI / LOW-alarm
- Backlight-LCD
- Laser offset circle
- contact sensor port

Technical data:

Temperature range:	-18°C...+260°C (0°F...+500°F)
Display resolution:	0,5°C (1,0°F)
Target sighting:	Laser (class 2)
Accuracy:	-18°C...-1°C ±3°C
(at 23°C)	0°C..+99°C ±2°C
	100°C...+260°C ±2%
	±2°C or ±2% of reading
	- whichever is greater,
Repeatability:	±2% of reading or ±2°C
	- whichever is greater
Response time:	500 ms
Emissivity:	preset 0.95
Spectral response:	7 to 18 µm
Ambient operating range:	0°C...+50°C
Storage temperature range:	-20°C...+65°C
(without battery)	
Relative humidity:	10...95% rH
	non-condensing at up to 30°C
Power supply:	9 V alkaline battery
	type IEC 6LR 61
Dimensions:	152 x 101 x 38 mm
Weight:	200 g

MX-Spot



Order No. 5020-0410 ②

MX2-EX

Certification
Ⓔx II 2G EEx ia IIC T4

Calibration

Calibration, Manufacturer Testing Certificate, DKD 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 DKD (German Calibration Service) and furnished with a DKD or Manufacturer Testing Certificate.

When issuing the DKD 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.

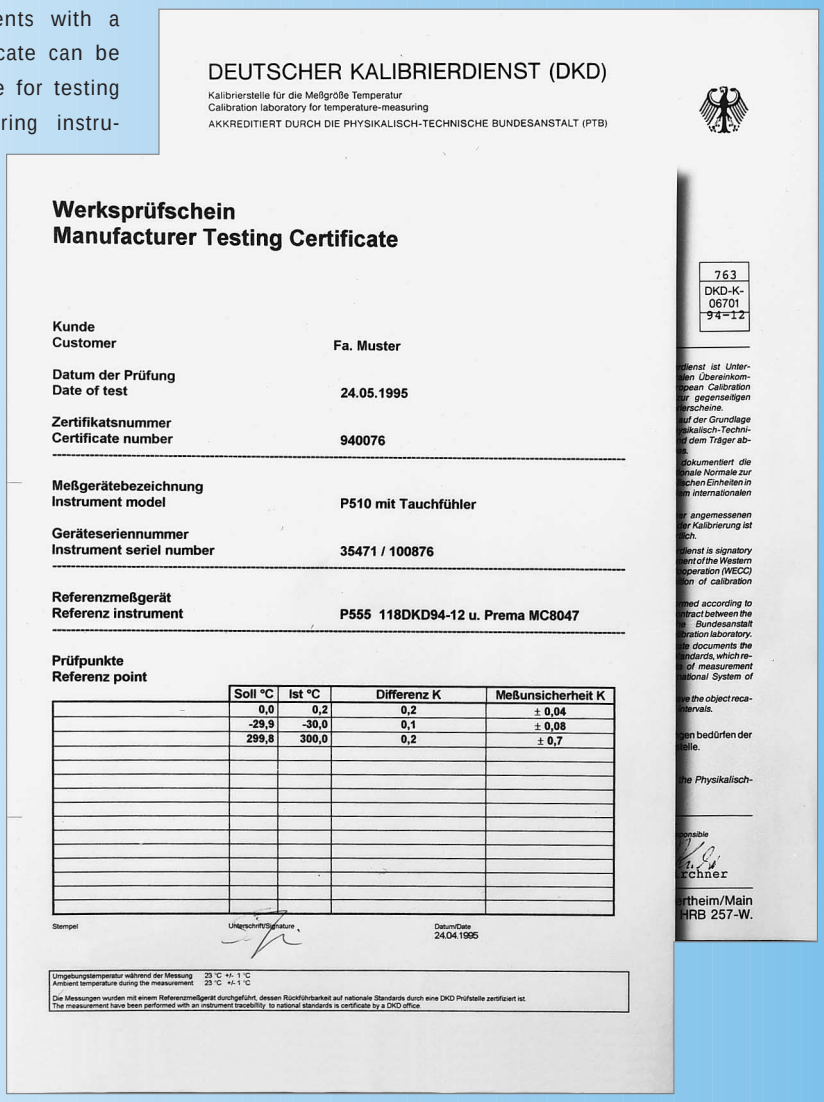
Upon request, we will deliver the measuring instruments together with a DKD or Manufacturer Testing Certificate issued on an individual basis according to your requirements and specifications for the application concerned.

Measuring instruments with a DKD 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.

DKD or comparable Testing Certificates are available for

- temperature
- humidity
- flow, and
- pressure



DEUTSCHER KALIBRIERDIENST (DKD)

Kalibrierstelle für die Meßgröße Temperatur
Calibration laboratory for temperature-measuring
AKKREDITIERT DURCH DIE PHYSIKALISCH-TECHNISCHE BUNDESANSTALT (PTB)

763
DKD-K-06701
94-12

Werksprüfschein
Manufacturer Testing Certificate

Kunde / Customer	Fa. Muster
Datum der Prüfung / Date of test	24.05.1995
Zertifikatsnummer / Certificate number	940076
Meßgerätebezeichnung / Instrument model	P510 mit Tauchfühler
Geräteseriennummer / Instrument seriel number	35471 / 100876
Referenzmeßgerät / Referenz instrument	P555 118DKD94-12 u. Prema MC8047

Prüfpunkte / Referenz point

Soll °C	Ist °C	Differenz K	Meßunsicherheit K
0,0	0,2	0,2	± 0,04
-29,9	-30,0	0,1	± 0,08
299,8	300,0	0,2	± 0,7

Stempel / Unterschrift/Signature / Datum/Date 24.04.1995

Umgebungstemperatur während der Messung / Ambient temperature during the measurement 23 °C +/- 1 °C, 23 °C +/- 1 °C

Die Messungen wurden mit einem Referenzmeßgerät durchgeführt, dessen Rückführbarkeit auf nationale Standards durch eine DKD Prüfstelle zertifiziert ist.
The measurement have been performed with an instrument tracebility to national standards is certificate by a DKD office.

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

GB	National Measurement Accreditation Service (NAMAS)
D	Deutscher Kalibrierdienst (DKD)
CH	Swiss Calibration Service (SCS)

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

DKD Certificate / Manufacturer Testing Certificate for temperature / rel. humidity

	Manufacturer Certificate Order No. 5600-0006	DKD Certificate Order No. 5600-0005
Temperature		
Humidity Invironment temperature 25 °C		

We are standing for competence and know-how when it comes to measuring temperature, humidity, air flow and pressure value.

Our measuring instruments are manufactured on modern production lines and are carefully assembled. In our well-equipped laboratory, the instruments are matched to comparative references that are traceable back to national standards defined by the German PTB or similar European authorities. Our measuring probes are of high quality, subject to constant testing and accurate controls. This is a guarantee for highly accurate and reliable products.

Helping customers with professional advice is part of our company identity.

Please feel free to ask for more information!

presented to you by: