



LUDWIG  
SCHNEIDER



# DIGITAL THERMOMETERS AND MEASURING SYSTEMS

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# THE FUTURE IS HIGHLY PRECISE

## THE TEMPERATURE PROFESSIONALS

Ludwig Schneider GmbH & Co. KG ranks among the world's foremost manufacturers of high-precision temperature and density measuring instruments. Our product variety ranges from push-in thermometers for universal use through to high-precision measuring systems.

These, in combination with a traceable DAkkS calibration certificate – from our own calibration laboratory Ludwig Schneider Messtechnik GmbH – fulfill highest quality standards.

## DIGITAL THERMOMETERS FROM -200 °C TO +1370 °C

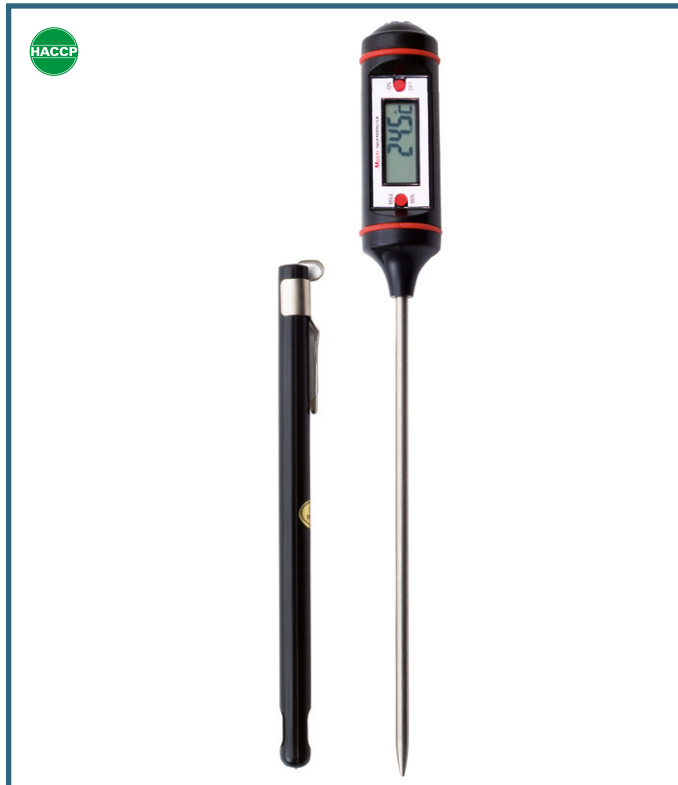
The high-precision digital instruments are designed for the mains-independent measurement of temperatures e.g. in quality control as well as process and production control and are used in the chemical, pharmaceutical and food industry as well in R&D facilities. On request individual marking (e.g. logos, product marks, labels etc.) is possible.

- + PRECISE MEASURING
- + QUICK RESPONSE TIMES
- + EXCELLENT READING LCD DISPLAYS
- + VARIOUS TYPE-DEPENDENT MEMORY FUNCTIONS AVAILABLE (E.G. HOLD, MAX./MIN., TEMPERATURE LIMIT ALARM, TIME/DATE)
- + A CHOICE OF DIGITAL THERMOMETERS IS AVAILABLE WITH WORKS CALIBRATION CERTIFICATE OR DAkkS CALIBRATION CERTIFICATE

## COLOUR SYMBOLS

	AVAILABLE WITH TRACEABLE DAkkS CALIBRATION CERTIFICATE
	AVAILABLE WITH WORKS CALIBRATION CERTIFICATE
	WITH MAGNET (FOR THE ATTACHMENT AT REFRIDGERATORS ETC.)
	WIRELESS
	WITH INTEGRATED ALARM FUNCTION
	WATERPROOF (IP 67)
	FULFILLS HAACP FOOD REGULATIONS
	AVAILABLE WITH INDIVIDUAL SENSORS

## UNIVERSAL PUSH-IN THERMOMETERS



**DIGITAL PUSH-IN THERMOMETER  
WITH PLASTIC SLEEVE INCLUSIVE CLIP  
TYPE 12050**

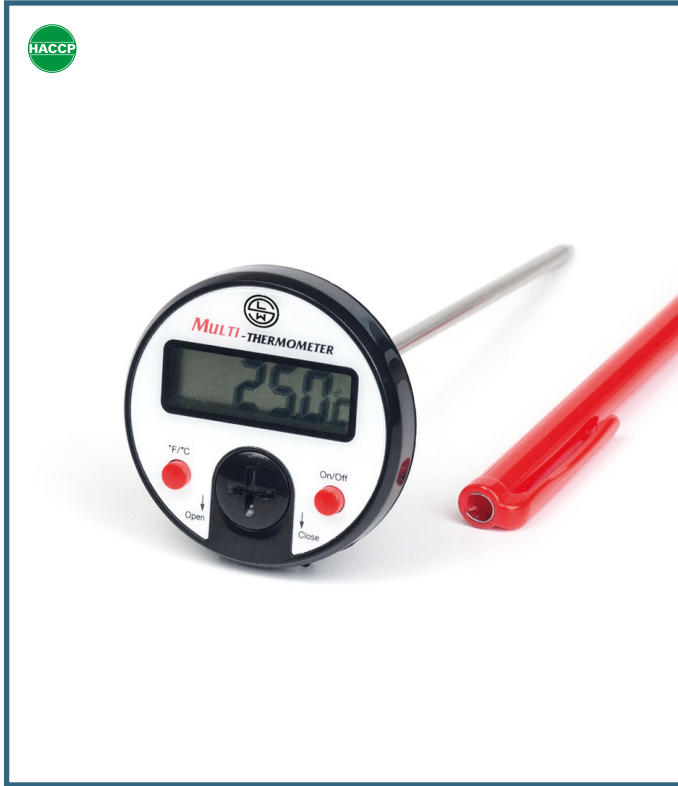
General Specifications	
Measuring range	-50 °C to +150 °C
Accuracy	±1 °C (-30 °C to +150 °C), < ±2 °C
Resolution	0.1 °C (-19.9 °C to +150 °C), 1 °C (< -19.9 °C)
Ambient temperature	0 °C to +50 °C
Casing	75 x 20 mm, plastic, black
Temperature probe	125 x 3.5 mm, stainless steel, with push-in tip
Response time	T 90 = 8 seconds
Function	min/max memory, automatic power-off
<b>Order-No.</b>	<b>55685</b>



**DIGITAL PUSH-IN THERMOMETER  
WITH PLASTIC SLEEVE INCLUSIVE CLIP  
WITH 90° TURNABLE CASING  
TYPE 12070**

General Specifications	
Measuring range	-50 °C to +300 °C
Accuracy	±1 °C (-30 °C to +150 °C), < ±2 °C
Resolution	0.1 °C (-19.9 °C bis +150 °C), 1 °C (< -19.9 °C)
Ambient temperature	0 °C to +50 °C
Casing	75 x 20 mm, plastic, black, turnable by 90°
Temperature probe	200 x 3.5 mm, stainless steel, with push-in tip
Response time	T 90 = 10 seconds
Function	min/max memory, automatic power-off
<b>Order-No.</b>	<b>55681</b>

# UNIVERSAL PUSH-IN THERMOMETERS



**DIGITAL PUSH-IN THERMOMETER  
WITH PLASTIC SLEEVE INCLUSIVE CLIP  
TYPE 13020**

General Specifications	
Measuring range	-50 °C to +150 °C / -58 °F to +302 °F
Accuracy	±1 °C (-30 °C to +150 °C), ±1.8 °F (-22 °F to +302 °F), < > ±2 °C / ±4 °F
Resolution	0.1 °C (-19.9 °C to +150 °C), 1 °C (< -19.9 °C)
Ambient temperature	0 °C to +50 °C
Casing	Ø 54 mm, plastic, black
Temperature probe	135 x 4 mm, stainless steel, with push-in tip
Response time	T 90 = 10 seconds
Function	°C/°F selection, automatic power-off
Order-No.	<b>64726</b>



**DIGITAL PUSH-IN THERMOMETER  
WITH TEMPERATURE PROBE  
TYPE 13010**

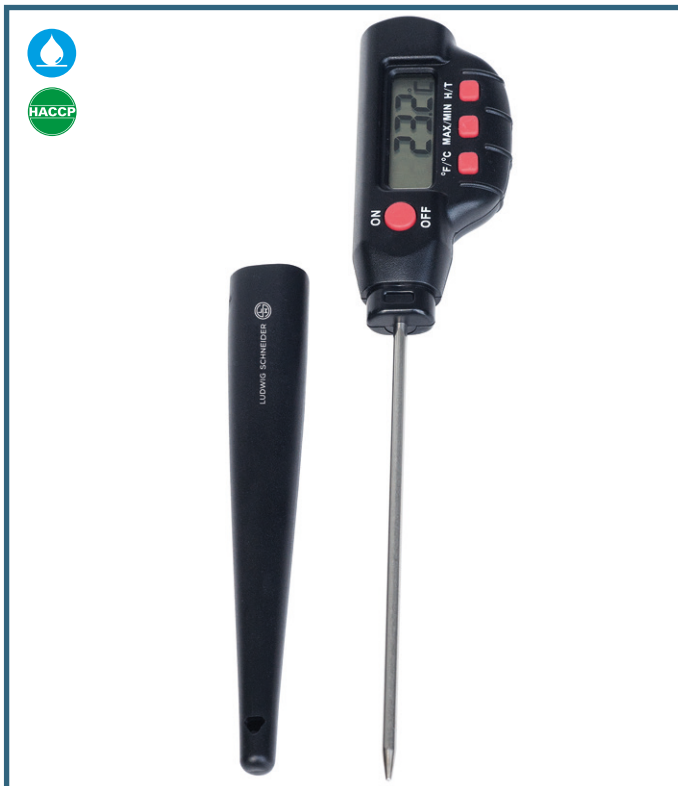
General Specifications	
Measuring range	-50 °C to +300 °C / -58 °F to +572 °F
Accuracy	±1 °C (-30 °C to +150 °C) ±1.8 °F (-22 °F to +302 °F), < > ±2 °C / ±4 °F
Resolution	0.1 °C (-19.9 °C to +199.9 °C), ↔ 1 °C
Ambient temperature	-10 °C to +50 °C
Casing	Ø 54 mm, plastic, black
Temperature probe	120 x 3,5 mm, stainless steel, with push-in tip
Cable length	1 m
Response time	T 90 = 10 seconds
Function	°C/°F selection, automatic power-off
Order-No.	<b>64725</b>

# UNIVERSAL PUSH-IN THERMOMETERS



**DIGITAL POCKET THERMOMETER WITH PLASTIC SLEEVE AND CLIP TYPE 12060**

General Specifications	
Measuring range	-50 °C to +150 °C
Accuracy	±1 °C (-30 °C to +150 °C), < ±2 °C
Resolution	0.1 °C (-19.9 °C to +150 °C), 1 °C (< -19.9 °C)
Ambient temperature	0 °C to +50 °C
Casing	58 x 20 mm, plastic, black
Temperature probe	125 x 3,5 mm, stainless steel, with push-in tip
Response time	T 90 = 4 seconds
Function	min/max memory, automatic power-off
Order-No.	<b>55680</b>



**WATERPROOF DIGITAL POCKET THERMOMETER WITH PLASTIC SLEEVE TYPE 12080**

General Specifications	
Measuring range	-50 °C to +300 °C / -58 °F to +572 °F
Accuracy	±1 °C (-30 °C to +150 °C), < > ±2 °C ±1.8 °F (-22 °F to +302 °F), < > ±4 °F
Resolution	0.1 °C (-19.9 °C to +199.9 °C) 1 °C (< -19.9 °C, > +199.9 °C)
Ambient temperature	0 °C to +50 °C
Casing	215 x 40/20 mm, plastic, black
Temperature probe	120 x 3,5 mm, stainless steel, with push-in tip
Response time	T 90 = 8 seconds
Function	°C/°F selection, hold, min/max memory, automatic power-off, waterproof (IP67)
Order-No.	<b>55682</b>

# UNIVERSAL PUSH-IN THERMOMETERS



**WATERPROOF POCKET THERMOMETER  
WITH PLASTIC SLEEVE  
TYPE 12090**

General Specifications	
Measuring range	-50 °C to +150 °C / -58 °F to +302 °F
Accuracy	±1 °C (-30 °C to +150 °C), < ±2 °C ±1.8 °F (-22 °F to +302 °F), < ±4 °F
Resolution	0.1 °C (-19.9 °C to +150 °C), 1 °C (< -19.9 °C)
Ambient temperature	0 °C to +50 °C
Casing	188 x 24 x 20 mm, plastic, white
Degree of protection	IP67 (waterproof)
Temperature probe	85 x 3.5 mm, stainless steel, with push-in tip
Response time	T 90 = 6 seconds
Function	°C/°F selection, hold, automatic power-off
Order-No.	<b>55686</b>

# DIGITAL MONITORING THERMOMETERS



## DIGITAL MIN/MAX-ALARM-THERMOMETER WITH DATA LOGGING FUNCTION AND USB INTERFACE, TYPE 15010

General Specifications	
Measuring range	-50 °C to +70 °C/-58 °F to +158 °F
Accuracy	±0.5 °C/±0.9 °F
Resolution	0.1 °C/0.1 °F
Memory	removable 2GB Micro SD card (max: 4GB) 24 million recordings
Casing	94 x 110 x 25 mm, plastic, white
External temperature probe*	plug-in probe in 5 ml plastic bottle, filled with ethylene glycol mixture for measuring delay/alarm lag during opened door
Cable length	2 m
Function	°C/°F selection, min/max memory, high/low, alarm, reset, date/time display, data logging function
Order-No.	68260



## DIGITAL MIN/MAX-ALARM-THERMOMETER WITH DATE/TIME SETTING, TYPE 13030

General Specifications	
Measuring range	-50 °C to +70 °C/-58 °F to +158 °F
Accuracy	±0.3 °C/±0.5 °F
Resolution	0.1 °C/0.1 °F
Ambient temperature	0 °C to +50 °C
Casing	75 x 124 x 19 mm, plastic, white
External temperature probe*	plug-in probe in 5 ml plastic bottle, filled with ethylene glycol mixture for measuring delay/alarm lag during opened door
Cable length	3 m
Certificate	certificate of conformity acc. to table
Function	°C/°F selection, min/max memory, high/low alarm, date/time display
Order-No. (standard)	65809

Application	Certified temperature (°C)	Bottle filling	Order-No.
Freezers	-20 °C	ethylene glycol mixture	65809/-20C
Refrigerators	+4 °C	ethylene glycol mixture	65809/+4C
Incubators	+37 °C	ethylene glycol mixture	65809/+37C

Kalibrierung	Certified temperature (°C)	Bottle filling	Order-No.
Works calibration certificate	-10 °C und +40 °C	ethylene glycol mixture	65809/03/2P
DAkS calibration certificate	-10 °C und +40 °C	ethylene glycol mixture	65809/04/2P

\* A calibration can only be made for the external temperature sensor.



# DIGITAL MONITORING THERMOMETERS



## DIGITAL MIN/MAX-ALARM-THERMOMETER TYPE 13000

General Specifications	
Measuring range	-50 °C to +70 °C / -58 °F to +158 °F
Accuracy	±1 °C / ±2 °F
Resolution	0.1 °C
Ambient temperature	0 °C to +50 °C
Casing	98 x 110 x 21 mm, plastic, black
Cable length	3 m
Response time	T 90 = 10 seconds
Function	°C/°F selection, min/max memory, high/low alarm
Order-No.	63800



## TYPE 13000, VERSION WITH BOTTLE (30 ml)

	Freezers	Refrigerators	Incubators
Measuring range	-50 °C to +70 °C	-50 °C to +70 °C	-50 °C to +70 °C
Certified temperature	-20 °C	+4 °C	+37 °C
Bottle filling	ethylene glycol mixture	ethylene glycol mixture	ethylene glycol mixture
Order-No.	63927	63893	63894

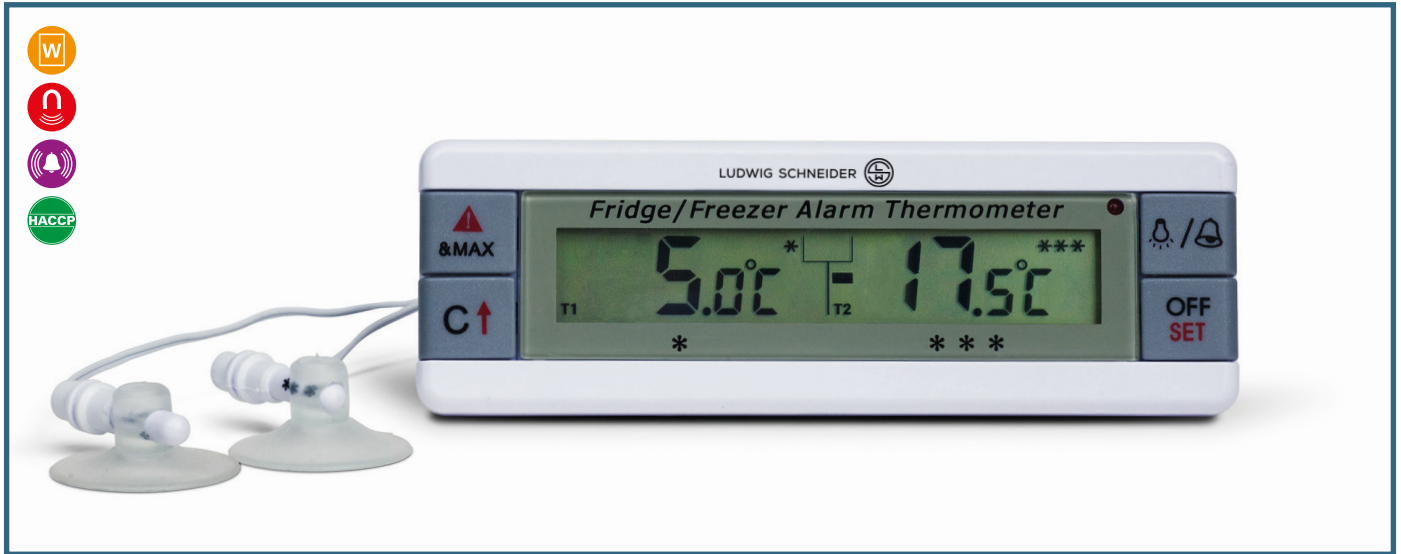


## HYGRO-THERMOMETER CLOCK TYPE 15020

General Specifications	
Measuring range	1 to 99 %, 0 to 50 °C / 32 to 122 °F (internal), -50 to 70 °C / -58 to 158 °F (external)
Accuracy humidity	±4 % 35 to 75 %, otherwise ±5 %
Accuracy temperature	±1 °C / ±2 °F
Resolution	1 %, 0.1°, 1 minute
Alarm duration	2 minutes
Display size	79 x 66 mm
Product size	98 x 110 x 22 mm
Accessories	1x probe holder, 1x external probe with a 3 meter cable,
Function	°C/°F selection, min/max memory, ice point alert, interior and exterior display, time display
Order-No.	68263

# DIGITAL MONITORING THERMOMETERS

DIGITAL THERMOMETER FOR SIMULTANEOUS MONITORING  
OF FREEZERS AND REFRIGERATORS  
TYPE 13040



General Specifications	
Measuring range	-40 °C to +70 °C / -40 °F to +158 °F
Accuracy	±1 °C / ±2 °F
Resolution	0.1 °C / 0.1 °F
Casing	135 x 45 x 23 mm, plastic, white
Temperature probes	2 pieces with suckers
Cable length	1 m
Response time	T 90 = 10 seconds
Certification	certified at 0 °C, accuracy: ±1 °C
Equipment	tilt stand and two magnets
Function	°C/°F selection, min/max memory, dual display for fridge and freezer, programmable alarm limits, light/buzzer alarm indication
Order-No.	65810

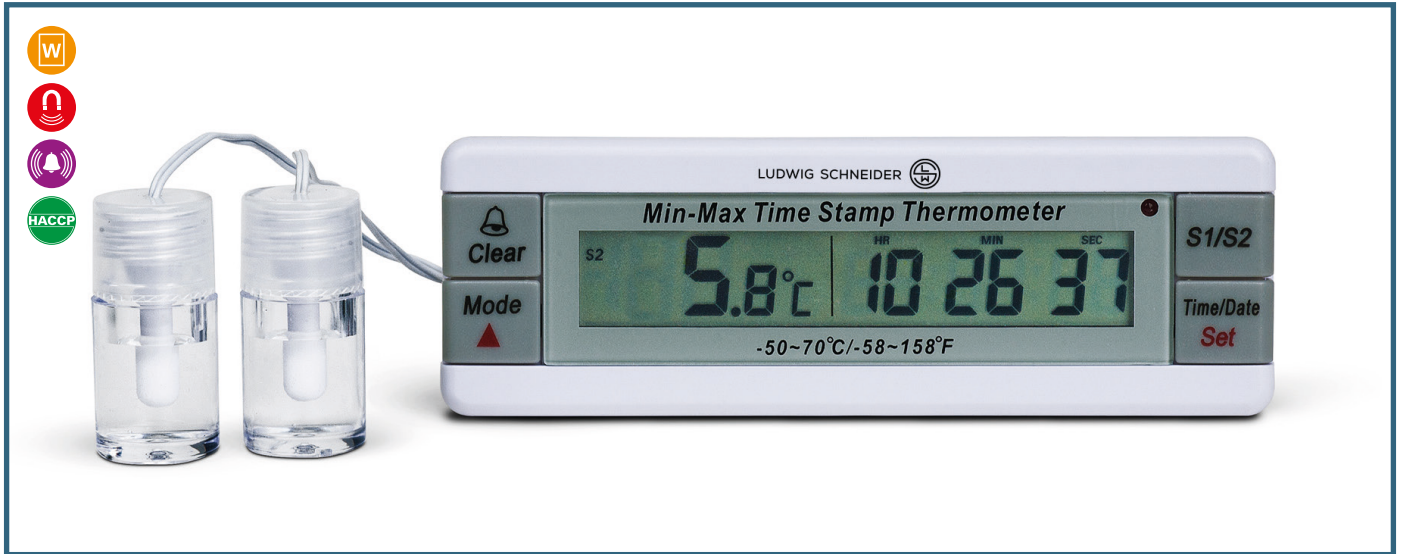
## OPTIONALLY AVAILABLE WITH BOTTLES 5 ml



General Specifications	Order-No.
<b>Type 13041</b> with 2 temperature probes, attached in 5 ml plastic bottles, filled with ethylene glycol/water (for measuring delay/alarm lag at opened door) cable: 1 m	<b>65811</b>

# DIGITAL MONITORING THERMOMETERS

DIGITAL THERMOMETER FOR SIMULTANEOUS MONITORING  
OF FREEZERS AND REFRIGERATORS WITH DATE/TIME SETTING  
TYPE 13050



General Specifications	
Measuring range	-40 °C to +70 °C/-40 °F to +158 °F
Accuracy	±1 °C/±2 °F
Resolution	0.1 °C/0.1 °F
Casing	135 x 45 x 23 mm, plastic, white
Temperature probes	2 pieces, plug-in probes in 5 ml plastic bottle, filled with ethylene glycol/water for measuring delay/alarm lag during opened door
Cable length	1 m
Certification	certified at 0 °C, accuracy: ±1 °C
Equipment	tilt stand and two magnets
Function	°C/°F selection, min/max memory, dual display for fridge and freezer, programmable alarm limits
Display	time display: 24 hours, date display: day/month/year, light/buzzer alarm indication
Order-No.	65812

# DIGITAL MONITORING THERMOMETERS



## WIRELESS MIN/MAX ALARM THERMOMETER TYPE 13090

General Specifications	
Measuring range	0 °C to +50 °C/+32 °F to +122 °F (indoor sensor) -50 °C to +70 °C/-58 °F to +158 °F (outdoor bottle sensor) -40 °C to +50 °C/-40 °F to +122 °F (wireless bottle sensor)
Accuracy	±0.5 °C at range -20 °C to +50 °C ±0.9 °F at range -4 °F to +122 °F ±1 °C > -20 °C and < +50 °C ±1.8 °F > -4 °F and < +122 °F
Resolution	0.1 °C
Wireless distance	50 m (open field), 10 m (inside the fridge)
Receiver battery life	about 15 000 hours in normal working mode, about 4000 hours in wireless mode
Transmitter battery life	about 6 000 hours
Display size	(W) 79 x (H) 66 mm
Features	°C/°F selection, 3 channels temperature measurement, programmable low and high alarm limit
Display	triple display for current and min/max temperature as well as indoor/outdoor and wireless temperature, display reading update: 10 seconds, 30 seconds in wireless mode, battery indication
Accessories	outdoor bottle sensor with 1 meter long wire, wireless bottle probe (transmitter)
Order-No.	71280

## DIGITAL HANDHELD MEASURING DEVICES



**DIGITAL HANDHELD MEASURING DEVICE  
WITH TEMPERATURE PROBE  
TYPE 12200**

General Specifications	
Measuring range	-50 °C to +300 °C / -58 °F to +572 °F
Accuracy	±1 °C (-30 °C to +150 °C), < > ±2 °C ±1.8 °F (-22 °F to +302 °F), < > ± 4 °F
Resolution	0.1 °C (-19.9 °C to +199.9 °C) 1 °C (< -19.9 °C, > +199.9 °C)
Ambient temperature	0 °C to +50 °C
Casing	140 x 75 x 27 mm, grey, waterproof (IP67)
Temperature probe	140 x 3,5 mm, stainless steel, with handle and push-in tip
Cable length	1 m
Response time	T 90 = 10 seconds
Function	°C/°F selection min/max memory, high/low alarm, hold
Order-No.	<b>55684</b>



**HANDHELD INFRARED THERMOMETER  
WITH LASER SPOT  
TYPE 23520**

General Specifications	
Measuring range	-20 °C to +500 °C / -4 °F to +932 °F
Accuracy	±2 °C/±4 °F of displayed value
Resolution	0.1 °C/0.2 °F
Field of view	12:1
Ambient temperature	0 °C to +40 °C
Casing	157 x 115 x 36 mm, plastic, black
Response time	0,5 seconds
Function	°C/°F selection, hold, infrared measurement
Symbol	laser on
Order-No.	<b>70539</b>

## DIGITAL HANDHELD MEASURING DEVICES



### DIGITAL HANDHELD MEASURING DEVICE WITH TWO INPUT CHANNELS TYPE 13100 For thermocouples Type K (NiCr-Ni)

General Specifications	
Measuring range	-200 °C to +1370 °C/-328 °F to +2498 °F
Accuracy	±0.1% of displayed value + (+0.7 °C/+1.4 °F)
Resolution	0.1 °C/0.1 °F
Ambient temperature	0 °C to +50 °C
Casing	184 x 64 x 30 mm, plastic, anthracite
Temperature probe	2 probe with blade terminal
Cable length	1 m
Features	PC interface and bag
Function	°C/°F selection, min/max/avg memory, hold, automatic power-off
Relative function	memorize the present reading and show the difference to the next measured values
Order-No.	65625

Available accessories	Order-No.
<b>Mains adapter</b> (100-240 V, 0.3 A, 50-60 Hz, Output: 9 V, 0.2 A)	65627
<b>Software/USB-Set</b> (cable, driver and German software)	65826
<b>Software/USB-Set</b> (cable, driver and English software)	65827



### 4-CHANNEL DATA LOGGER FOR TEMPERATURE TYPE 15210

Suitable for thermocouples types K, J, E, T, N, R, S

General Specifications	
Measuring range	-200 °C to +1370 °C (Type K)/ -328 °F to +2498 °F (Type K)
Accuracy	±0.1% of displayed value + (+0.7 °C/+1.4 °F)
Resolution	0.1 °C/0.1 °F, from 600 °C 1 °C/1 °F
Ambient temperature	0 °C to +50 °C
Memory	32 000 data logger records per channel
Casing	187 x 75 x 29 mm, plastic, black
Temperature probe	2 probes with blade terminal
Cable length	1 m
Function	°C/°F selection, min/max/avg memory, hold, high/low alarm, bluetooth, data logger, automatic power-off
Display	4 channels simultaneous, date/time, backlight, battery indication
Data transfer	wireless via bluetooth or USB
Accessories	bluetooth adapter, software, 2 temperature probes type K, USB cable
Order-No.	70538

# THERMOCOUPLES FOR DIGITAL MEASURING DEVICES

## TYPE 13100; TYPE 15210

### TYPE K THERMOCOUPLE TO IMMERSE (NICR-NI)

Assembly: TE-MI-303, with miniature plug yellow (THERM 2)

#### General Specifications

Mineral-insulated thermocouple 1 x NiCr-Ni type K acc. to DIN EN 60584 class 1, sheath made of Inconel, compensating line fix connected through transition casing made of stainless steel, silicon/teflon insulated, cable length 2 m, cable outlet secured by means of heat-shrink tubing.



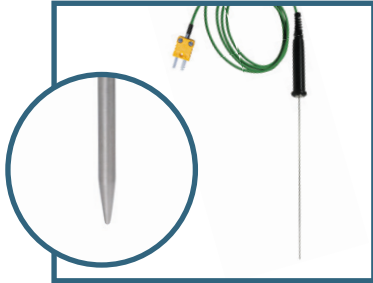
Sheat Ø	Nominal length	Range of application	Order-No.
3 mm	150 mm	-50 °C to +200 °C	71110
3 mm	250 mm	-100 °C to +400 °C	57499
3 mm	400 mm	-100 °C to +800 °C	71111
3 mm	600 mm	-100 °C to +1.000 °C	71112
1 mm	150 mm	-50 °C to +200 °C	71113
1 mm	250 mm	-100 °C to +400 °C	71114
1 mm	400 mm	-100 °C to +800 °C	71115
0.5 mm	150 mm	-50 °C to +200 °C	71116
0.5 mm	250 mm	-100 °C to +400 °C	71117
0.5 mm	400 mm	-100 °C to +800 °C	71118

### TYPE K THERMOCOUPLE TO INSERT OR IMMERSE WITH HANDLE (NICR-NI)

Assembly: TE-MI-303-HG, with miniature plug yellow (THERM 2)

#### General Specifications

Mineral-insulated thermocouple 1 x NiCr-Ni type K acc. to DIN EN 60584 class 2, made of Inconel, compensating line fix connected through handle made of plastic, silicon/teflon insulated, cable length 2 m, cable outlet secured by means of bend protection.



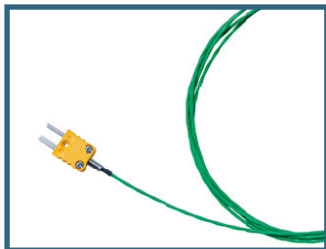
Sheat Ø	Nominal length	Range of application	Version	Order-No.
3 mm	150 mm	-100 °C to +200 °C	to immerse	65859
3 mm	250 mm	-100 °C to +400 °C	to immerse	66269
3 mm	400 mm	-100 °C to +800 °C	to immerse	71119
3 mm	150 mm	-100 °C to +200 °C	with insertion tip	71120
3 mm	250 mm	-100 °C to +250 °C	with insertion tip	71121
3 mm	400 mm	-100 °C to +250 °C	with insertion tip	71122
3.8 mm	150 mm	-50 °C to +200 °C	with insertion tip	65861

### TYPE K THERMOELECTRIC LEAD

Assembly: TE-GL-314, with miniature plug yellow (THERM 2)

#### General Specifications

Thermocouple type K acc. to DIN EN 60584 class 2, thermocouple wire ø 0.5 mm separately and jointly, insulated with glass silk, thermocouple junctions 2 mm free.



Length	Range of application	Order-No.
500 mm	-100 °C to +300 °C	71123
1000 mm	-100 °C to +300 °C	71124
2000 mm	-100 °C to +300 °C	71125
3000 mm	-100 °C to +300 °C	71126
5000 mm	-100 °C to +300 °C	71127
10000 mm	-100 °C to +300 °C	71128

### TYPE K THERMOCOUPLE FOR SPECIAL APPLICATIONS with handle, with miniature plug yellow (THERM 2)



#### General Specifications

Surface probe with handle acc. to DIN EN 60584 Class 2, cable length: 2 m.

Head Ø:	Range of application	Version	Order-No.
15 mm	-50 °C to +400 °C	straight	65860
15 mm	-50 °C to +400 °C	90° angled	65862

## DIGITAL HANDHELD MEASURING DEVICES



### PRECISION HANDHELD MEASURING DEVICE WITH Pt100, IEC 751 TYPE 13750

General Specifications	
Measuring range	-100 °C to +400 °C/-148 °F to +752 °F
Resolution	0.01 °C/0.02 °F
Ambient temperature	0 °C to +50 °C
Memory	for 99 values
Casing	185 x 65 x 36 mm, plastic, black
Function	°C/°F selection, min/max memory, hold, calibration mode, automatic power-off
Relative function	memorize the present reading and show the difference to the next measured values
Display	date/time, backlight, battery indication
Incl. Pt100 probe, 4 wire, class A, IEC 751	
Accuracy Measuring system	±0.2 °C in range of: -50 °C bis + 150 °C
Nominal length	230 mm, Ø 5 mm
Cable length	1.5 m
Order-No.	70542



### PRECISION DIGITAL HANDHELD MEASURING DEVICE WITH Pt100 WITH DATA LOGGING FUNCTION TYPE 13760

General Specifications	
Measuring range	-100 °C to +400 °C/-148 °F to +752 °F
Resolution	0.01 °C/ 0.02 °F
Ambient temperature	0 °C to +50 °C
Memory	for 16 000 values
Casing	185 x 65 x 36 mm, plastic, black
Function	°C/°F selection, min/max memory, hold, calibration mode, data logger, automatic power-off
Relative function	memorize the present reading and show the difference to the next measured values
Display	date/time, backlight, battery indication
Incl. Pt100 probe, 4 wire, class A, IEC 751	
Accuracy Measuring system	±0.2 °C in range of: -50 °C to + 150 °C
Nominal length	230 mm, Ø 5 mm
Cable length	1.5 m
Order-No.	70541



# PHYSICS – DIGITAL PRECISION MEASURING DEVICES

For highest precision we provide our PHYSICS measuring devices for precise measurements in meteorology, chemical, biotechnology, food industries, water analytics, science and research as well as for quality assurance or inspection equipment monitoring in the industrial sector. By means of real-time recording or logger function it is furthermore possible to make rapid and precise temperature recordings directly on site.

## GENERAL TECHNICAL DATA

- + 2 output channels
- + 2 lines, statically 7/16 segments
- + Display illumination: 2 LEDs, white
- + 7 silicone keys
- + ABS casing (max. 70 °C), light grey
- + Degree of protection: IP54, dust- and splash-proof
- + Dimensions and weight: L 127 x W 83 x H 42 mm, 290 g

Calibration for sensors and measuring devices on request.

## FURTHER GENERAL FEATURES

- + Test functions: segment monitoring, range monitoring, probe error check, battery check
- + Measuring functions: measuring value, zero-setting, max./-/min. value documentation, 2-step adjustment, scaling (optional: multi-point calibration for temperature values)
- + Function menu: min/max values, average value of time, individual values or measuring points
- + Interfaces: USB, RS232, Ethernet, Bluetooth, analogue
- + Language selection: German, English, French

## PHYSICS 100

Digital measuring device for precise measurements with a wide range of measuring units and sensor technologies, e.g. temperature, resistance thermometer Pt100, thermocouples, NTC, air humidity, pressure etc. Beside the PHYSICS 100-1 type with one input channel we offer also Type 100-2 with 2 input channels (both input channels or measuring points can be covered simultaneously).



General Specifications	
Probes	thermocouples, resistance thermometers, humidity, pressure, NTC and more
Measuring input	100-1: 1 input channel 100-2: 2 input channels
Memory	for 100 values
Input channels	for more than 65 measuring ranges
Galvanic isolation	Semiconductor relays (50 V)
Channels	4 function channels e.g. for dual probes 4 internal functions (e.g. difference)
AD converter	Delta-Sigma 16 bit, 2.5 or 10 M/s
Probe voltage	battery operation: 9 V, max. 150 mA mains operation: 12 V, max. 150 mA
Resolution	0.01 °C
Order-No.	<b>63731</b> PHYSICS 100-1 (1 input channel) <b>63874</b> PHYSICS 100-2 (2 input channels)

## FURTHER FEATURES

- + Intelligent probe display with probe specific functions (cold-junction compensation etc.)

# PHYSICS – DIGITAL PRECISION MEASURING DEVICES

## PHYSICS 300

Complex digital measuring device with data logger function\* for precise measurements with a wide range of measuring units and sensor technologies, e.g. temperature, resistance thermometer Pt100, thermocouples, NTC, air humidity, pressure, electric values etc.

Subject to type of probe 2, 3 or 4 input channels or measuring points can be covered simultaneously.



General Specifications	
Probes	thermocouples, resistance thermometers, humidity, pressure, NTC and more.
Measuring input	300-2: 2 input channels 300-4: 4 input channels*
Memory	for 99 values
Input channels	for more than 70 measuring ranges
Galvanic isolation	semiconductor relays (50 V)
Channels	4 function channels e.g. for dual probes 4 internal functions (e.g. difference)
AD converter	delta sigma 16 bit, 2.5 or 10 M/s
Probe voltage	battery operation: 9 V, max. 150 mA mains operation: 12 V, max. 150 mA
Internal memory	*only model 300-4: approx. 12 000 measured values
Resolution	0.01 °C
Order-No.	<b>63884</b> PHYSICS 300-2 (2 input channels) <b>63885</b> PHYSICS 300-4 (4 input channels and datalogging function)

## FURTHER FEATURES

- + Intelligent probe display with probe specific functions (cold-junction compensation etc.)
- + Measurement menu freely configurable, measured values can be displayed numerically or graphically in bar chart form
- + Sleep mode for long-term documentations

# PHYSICS – DIGITAL PRECISION MEASURING DEVICES

## PHYSICS 1000

Ludwig Schneider's high-precise digital measuring device PHYSICS 1000 offers highest resolution, accuracy and linearity for mains independent measurements.

With its ultra high resolution of 0.001 °C this digital measuring device provides dependable and reproducible results of mobile temperature measurements in quality assurance, process monitoring and production control in the chemical, pharmaceutical and food industries as well as for research and development.



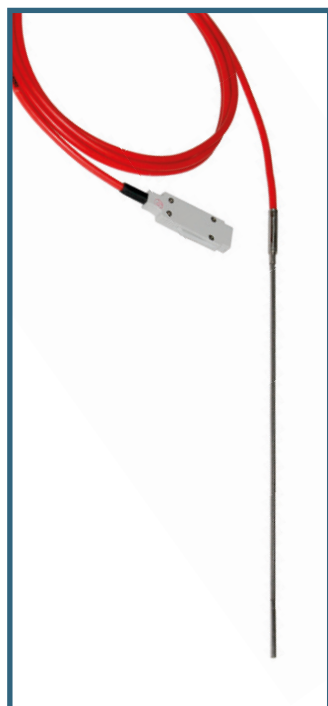
General Specifications	
Probes	resistance thermometers Pt100
Measuring input	2 input channels
Galvanic isolation	semiconductor relays (50 V)
Measuring range	-200 °C to +400 °C
Self calibration	zero point, measuring current
Accuracy	0.010 K of value ±1 digit
Temperature drift	0.003 %/°C
AD converter	delta sigma 24 bit, 2.5 M/s
Internal RAM memory	100 measured values, memory stick for over 25 000 measured values optional, (data logging function)
Resolution	0.001 °C
<b>Order-No.</b>	<b>66637</b>

## FURTHER FEATURES

- + Reference measuring instrument for temperature
- + Highest accuracy by multi-point adjustment of the Pt100 temperature sensor

# THERMOCOUPLES FOR PHYSICS - DIGITAL MEASURING DEVICES

## SUITABLE TO PHYSICS MEASUREMENT DEVICES



### Pt100 RESISTANCE THERMOMETER TO IMMERSE

Assembly: WT-MI-303

#### General Specifications

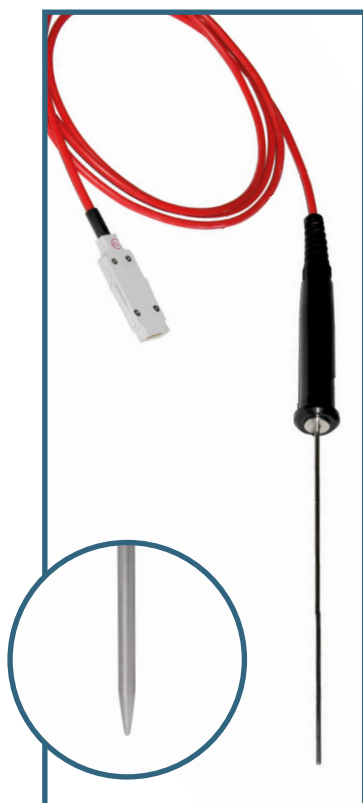
Immersion resistance thermometer Pt100, acc. to DIN EN 60751 class A or AA, 4-wire connection, with sheathed cable made of stainless steel, compensating line fix connected through transition casing made of stainless steel, teflon/silicone insulated, cable length: 2 m, cable outlet secured by means of heat-shrink tubing.

#### PLUG PHYSICS RESOLUTION 0.01 °C (CLASS A)

Sheat Ø	Nominal length	Range of application	PHYSICS 100	PHYSICS 300	PHYSICS 1000	Order-No.
3 mm	150 mm	-50 °C to +200 °C	x	x		70133
3 mm	300 mm	-90 °C to +350 °C	x	x		70136
3 mm	400 mm	-90 °C to +350 °C	x	x		70139
4 mm	150 mm	-50 °C to +200 °C	x	x		70127
4 mm	300 mm	-90 °C to +350 °C	x	x		70112
4 mm	400 mm	-90 °C to +350 °C	x	x		70130

#### PLUG PHYSICS RESOLUTION 0.001 °C (CLASS AA)

Sheat Ø	Nominal length	Range of application	PHYSICS 100	PHYSICS 300	PHYSICS 1000	Order-No.
3 mm	250 mm	-50 °C to +250 °C			x	70969



### Pt100 RESISTANCE THERMOMETER TO IMMERSE OR INSERT WITH HANDLE

Assembly: WT-MI-303-HG

#### General Specifications

Resistance thermometer Pt100, acc. to DIN EN 60751 class A, 4-wire connection, with sheathed cable made of stainless steel, compensating line fix connected through handle made of plastic, teflon/silicone insulated, cable length: 2 m, cable outlet secured by means of bend protection.

#### TO IMMERSE

With plug PHYSICS resolution 0.01 °C (class A)

Sheat Ø	Nominal length	Range of application	PHYSICS 100	PHYSICS 300	PHYSICS 1000	Order-No.
3 mm	150 mm	-50 °C to +200 °C	x	x		70094
3 mm	250 mm	-90 °C to +350 °C	x	x		59954
3 mm	300 mm	-90 °C to +350 °C	x	x		70097
3 mm	400 mm	-90 °C to +350 °C	x	x		70100
4 mm	150 mm	-50 °C to +200 °C	x	x		70103
4 mm	300 mm	-90 °C to +350 °C	x	x		70106
4 mm	400 mm	-90 °C to +350 °C	x	x		70109

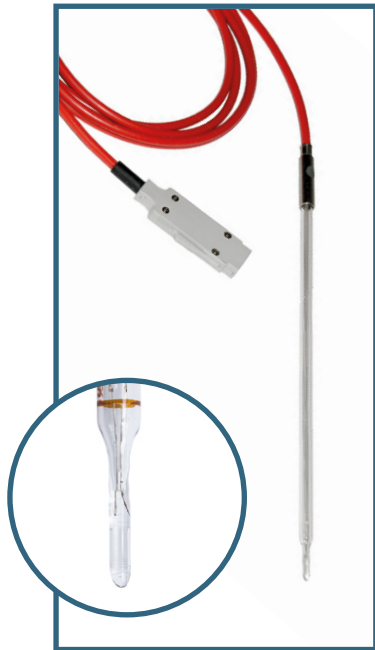
#### TO INSERT

With plug PHYSICS resolution 0.001 °C (Class AA)

Sheat Ø	Nominal length	Range of application	PHYSICS 100	PHYSICS 300	PHYSICS 1000	Order-No.
4 mm	150 mm	-50 °C to +200 °C	x	x		59966

# THERMOCOUPLES FOR PHYSICS - DIGITAL MEASURING DEVICES

## SUITABLE TO PHYSICS MEASUREMENT DEVICES



### Pt100 RESISTANCE THERMOMETER OF GLASS (N16B)

Assembly: WT-GL-3/6-303

#### General Specifications

Labor resistance thermometer of glass Pt100, acc. to DIN EN 60751 class A, 4-wire connection, with glass shaft  $\varnothing$  6 mm, narrowed at sensor to  $\varnothing$  3 mm, compensating line fix connected through transition casing made of stainless steel, teflon/silicone insulated, cable length: 2 m, cable outlet secured by means of heat-shrink tubing.

#### PLUG PHYSICS RESOLUTION 0.01 °C (CLASS A)

Glass shaft $\varnothing$	Nominal length	Range of application	PHYSICS 100	PHYSICS 300	PHYSICS 1000	Order-No.
3/6 mm	150 mm	-50 °C to +250 °C	x	x		70148
3/6 mm	200 mm	-50 °C to +250 °C	x	x		70152
3/6 mm	250 mm	-50 °C to +250 °C	x	x		70145*
3/6 mm	300 mm	-50 °C to +250 °C	x	x		70155
3/6 mm	350 mm	-50 °C to +250 °C	x	x		70158

#### PLUG PHYSICS RESOLUTION 0.001 °C (CLASS AA)

Glass shaft $\varnothing$	Nominal length	Range of application	PHYSICS 100	PHYSICS 300	PHYSICS 1000	Order-No.
3/6 mm	250 mm	-50 °C to +250 °C			x	67056*

\* With ring marks on the glass shaft according to the immersion depths of standardized precision glass thermometers.



### Pt100 RESISTANCE THERMOMETER PTFE COATED

Assembly: WT-K-6

#### General Specifications

Cable resistance thermometer Pt100, acc. to DIN EN 60751 class A, 4-wire connection, compensating line directly connected with protective conduit made of stainless steel, VA-wire netting/teflon insulated, cable length: 2 m, with PTFE coating from measuring tip to +20 mm connection cable.

#### WITH PLUG PHYSICS RESOLUTION 0.01 °C (CLASS A)

Protective conduit $\varnothing$	Nominal length	Range of application	PHYSICS 100	PHYSICS 300	PHYSICS 1000	Order-No.
6 mm	70 mm	-50 °C to +200 °C	x	x		70171
6 mm	100 mm	-50 °C to +200 °C	x	x		70175
6 mm	150 mm	-50 °C to +200 °C	x	x		70178
6 mm	200 mm	-50 °C to +200 °C	x	x		70181



### Pt100 RESISTANCE THERMOMETER FOR SURFACES

#### General Specifications

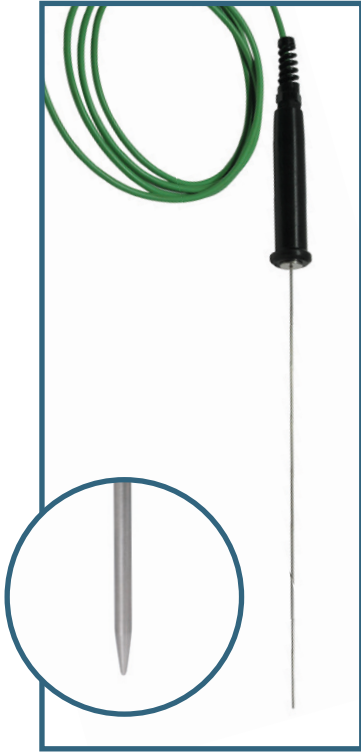
Surface resistance thermometer Pt100, acc. to DIN EN 60751 class A, 4-wire connection, compensating line fix connected through handle made of plastic, PVC insulated, cable length: 2 m.

#### PLUG PHYSICS RESOLUTION 0.01 °C (CLASS A)

Contact surface $\varnothing$	Nominal length	Range of application	PHYSICS 100	PHYSICS 300	PHYSICS 1000	Order-No.
9 mm	150 mm	-100 °C to +130 °C	x	x		71099

# THERMOCOUPLES FOR PHYSICS - DIGITAL MEASURING DEVICES

## SUITABLE TO PHYSICS MEASUREMENT DEVICES



### THERMOCOUPLE TO IMMERSE OR INSERT WITH HANDLE

#### TYPE K (NICR NI)

Assembly: TE-MI-303-HG,

#### General Specifications

Thermocouple with handle type K NiCr-Ni, acc. to DIN EN 60584 class 2, made of Inconel, compensating line fix connected through handle made of plastic, teflon/silicone insulated, cable length: 2 m, cable outlet secured by means of bend protection.

#### TO IMMERSE

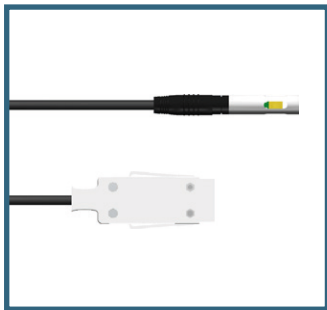
plug Physics resolution 0.1 °C (class 2)

Sheat Ø	Nominal length	Range of application	PHYSICS 100	PHYSICS 300	PHYSICS 1000	Order-No.
1,5 mm	250 mm	-100 °C to +400 °C	x	x		59961
3 mm	250 mm	-100 °C to +400 °C	x	x		59962

#### TO INSERT (WITH INSERTION TIP)

plug Physics resolution 0.1 °C (class 2)

Sheat Ø	Nominal length	Range of application	PHYSICS 100	PHYSICS 300	PHYSICS 1000	Order-No.
3 mm	150 mm	-50 °C to +200 °C	x	x		59963



### HUMIDITY PROBE, DIGITAL, WITH AIR PRESSURE MEASURING

#### General Specifications

Digital humidity probe with air pressure measuring for temperature, humidity and air pressure.

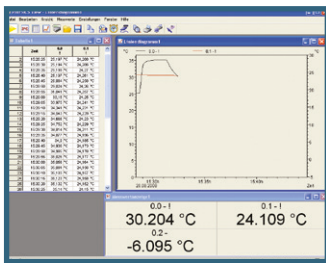
With plugable, digital sensor element in slotted sensor cap. All sensor characteristic and adjustment data are stored on the data storage medium of the sensor module itself.

Measuring range: 5 to 98 % r.H. / -20 °C to +60 °C, 700 to 1 100 mbar, not condensing

Diameter	Cable length	PHYSICS 100	PHYSICS 300	PHYSICS 1000	Order-No.
9 x 65 mm	2000 mm	x	x		63953

# ACCESSORIES FOR PHYSICS DIGITAL MEASURING DEVICES

General Specifications	Order No.
Mains adapter 230 V, 2000 mA	57090
Mains adapter 120 V, 300 mA (US)	71191
USB cable (galvanically isolated, max. 115.2 kB)	57091
Bluetooth adapter plug, class 2	58321
Memory plug with MM card for further measuring values	57733
Software PHYSICS View	58306
Hard protective case	61972
Sturdy protective cover	58804



## SOFTWARE PHYSICS VIEW

PHYSICS View is a software package that can be used to evaluate and display measured data on PHYSICS devices (with 2 measuring inputs). PHYSICS View runs under MS-Windows and can be used to drive a PHYSICS device with up to four measuring points. As soon as the connection between the computer and the measuring instrument has been established the program detects and lists these measuring points automatically. The measured values are then read at a sampling rate selected by the user.



## CASE FOR PHYSICS DEVICE AND ACCESSORIES

Hard protective case with foam inserts (picture may differ from original product)



## STURDY PROTECTIVE COVER FOR PHYSICS MEASURING DEVICE (GREY)

With combi-bracket for standing/hanging

# CALIBRATED TEMPERATURE MEASUREMENT SYSTEMS



## SET TYPE 13100 incl. thermocouple type K

### General Specifications

SET 1 consisting of	Handheld measuring device TYPE 13100 Thermocouple 71111 Mains adapter 100-240 V
	Inclusive 3-point calibration per thermocouple Temperature range -90 °C to +499 °C

Order-No.	
Works calibration, incl. works calibration certificate	65625-SET1/03
DAkS calibration, incl. DAkS calibration certificate	65625-SET1/04

### General Specifications

SET 2 consisting of	Handheld measuring device TYPE 13100 2 Thermocouples 71111 Mains adapter 100-240 V
	Inclusive 3-point calibration per thermocouple Temperature range -90 °C to +499 °C

Order-No.	
Works calibration, incl. works calibration certificate	65625-SET2/03
DAkS calibration, incl. DAkS calibration certificate	65625-SET2/04



## SET TYPE 15210 incl. thermocouple type K

### General Specifications

SET 3 consisting of	Handheld measuring device TYPE 15210 2 Thermocouples 71111
	Inclusive 3-point calibration per thermocouple Temperature range -90 °C to +499 °C

Order-No.	
Works calibration, incl. works calibration certificate	70538-SET3/03
DAkS calibration, incl. DAkS calibration certificate	70538-SET3/04

### General Specifications

SET 4 consisting of	Handheld measuring device TYPE 15210 4 Thermocouples 71111
	Inclusive 3-point calibration per thermocouple Temperature range -90 °C to +499 °C

Order-No.	
Works calibration, incl. works calibration certificate	70538-SET4/03
DAkS calibration, incl. DAkS calibration certificate	70538-SET4/04



# CALIBRATED TEMPERATURE MEASUREMENT SYSTEMS



## SET TYPE 13750 incl. resistance thermometer Pt100

General Specifications	
SET 5 consisting of	1-channel handheld measuring device TYPE 13750 Pt100 probe, 4-wire, class A Mains adapter 100-240 V
	Inclusive 3-point calibration per resistance thermometer Temperature range -90 °C to +395 °C
Order-No.	
Works calibration, incl. works calibration certificate	70542-SET5/03
DAkKS calibration, incl. DAkKS calibration certificate	70542-SET5/04



## SET TYPE 13760 incl. resistance thermometer Pt100

General Specifications	
SET 6 consisting of	1-channel data logger TYPE 13760 Pt100 probe, 4-wire, class A Mains adapter 100-240 V
	Inclusive 3-point calibration per resistance thermometer Temperature range -90 °C to +395 °C
Order-No.	
Works calibration, incl. works calibration certificate	70541-SET6/03
DAkKS calibration, incl. DAkKS calibration certificate	70541-SET6/04

# CALIBRATED TEMPERATURE MEASUREMENT SYSTEMS



## SET PHYSICS 100-2 incl. resistance thermometer Pt100

### General Specifications

SET 7 consisting of	Handheld measuring device PHYSICS 100-2 2 resistance thermometer 70097 Sturdy protective cover Mains adapter 230 V
	Inclusive 3-point calibration per resistance thermometer Temperature range -90 °C to +350 °C

Order-No.	
Works calibration, incl. works calibration certificate	63874-SET7/03
DAkKS calibration, incl. DAkKS calibration certificate	63874-SET7/04



## SET PHYSICS 1000 incl. resistance thermometer Pt100

### General Specifications

SET 8 consisting of	Handheld measuring device PHYSICS 1000 2 resistance thermometer 70969 Sturdy protective cover Mains adapter 230 V
	Inclusive 3-point calibration per resistance thermometer Temperature range -90 °C to +350 °C

Order-No.	
Works calibration, incl. works calibration certificate	66637-SET8/03
DAkKS calibration, incl. DAkKS calibration certificate	66637-SET8/04

# ACCREDITED DAkkS-CALIBRATION LAB FOR TEMPERATURE & DENSITY

More than ever before today's products must provide reliably precise results. Through our DAkkS-calibration laboratory for temperature and density we provide the required reliability – now and in the future.

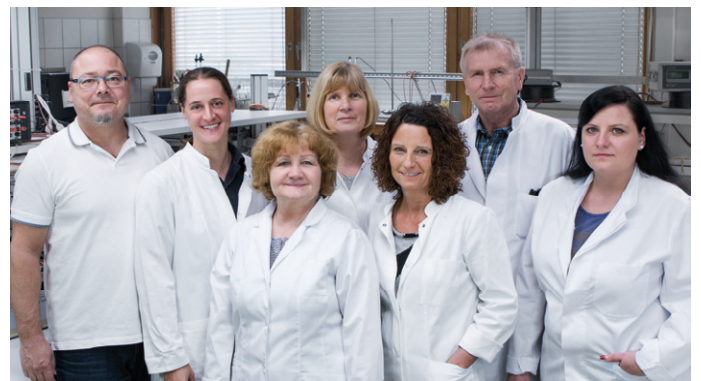
We measure temperatures from  $-196\text{ °C}$  to  $1850\text{ °C}$  and vouch for highest precision to all international standards. We document and certify measuring instruments in accordance with the individual requirements of our customers.



## CERTIFIED PRECISION MADE BY LUDWIG SCHNEIDER MESSTECHNIK

In our modern calibration laboratory we offer our clients a wide variety of measurements including documentation:

- + **CALIBRATION TO FIXED POINTS**  
Resistance thermometers
- + **ADJUSTMENT OF**  
digital and analog measured-value  
detection systems
- + **COMPARISON MEASUREMENTS OF**  
Resistance thermometers  
Thermocouples  
Liquid-in-glass thermometers  
Mechanical thermometers  
Block calibrators  
Calibration baths and simulators  
Hydrometers and alcoholmeters



## BEYOND THE USUAL OUR SERVICE PERFORMANCE

From consulting, through calibration, documentation and training up to the development and manufacturing of customized calibration systems we offer you a wide range of services.

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[www.kalibrierlabor.org](http://www.kalibrierlabor.org)



LUDWIG  
SCHNEIDER

## PRODUCT SUMMARY

- Catalogue PRECISION LABORATORY THERMOMETERS /  
GROUND JOINT THERMOMETERS

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- Catalogue PRECISION THERMOMETERS FOR MATERIAL TESTING ASTM, ETC.

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- Catalogue GENERAL PURPOSE THERMOMETERS /  
THERMOMETERS FOR SPECIAL APPLICATION

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- Catalogue TEMPERATURE PROBES  
THERMOCOUPLES AND RESISTANCE THERMOMETERS

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- Catalogue RESISTANCE THERMOMETERS

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- Catalogue THERMOCOUPLES

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- Catalogue ACCU-SAFE

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- Catalogue PRECISION THERMOMETERS FOR METEOROLOGY

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- Catalogue ENGINE THERMOMETERS

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- Catalogue PRECISION HYDROMETERS

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- Catalogue DIGITAL THERMOMETERS AND MEASURING SYSTEMS

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