

Thermography



C.A 1884, Infrared Camera

- Simplicity and accuracy for rapid fault diagnosis
- Optimized metrology, possibility of multiple parameterization and high-accuracy measurement
- Ergonomics specially designed for on-site applications



Attestation délivrée selon un essai unique
Disponible sur www.cnpp.com
N° 2008-0012

RayCAM Report software

- Fine analysis in line with reality
- Fully-customizable reports
- Improved traceability: monitor the performance of your installation over time

■ C.A 1884

Specifications

Detector	160 x 120, Refresh rate: 50 Hz
Optics	Viewing angle: 20° x 15°, IFOV: 2.2 mrad Min. focusing distance: 10 cm
Measurement range	-20 °C to +250 °C, High Temp. available as an option
Adjustment	Emissivity, ambient temperature, distance, relative humidity
Memory	1,000 radiometric images in 250 folders
Measurement tools	3 manual cursors, 1 automatic Max/Min temp. detector, isotherm, alarm
Ergonomics	Pistol-shaped with multidirectional screen, 0.7 kg

■ RayCAM report

Points, lines, profiles, zones, isotherms
Independent parameterization of the points in the Thermogram
Association of actual image / infrared image
Automatic report generation
Back-up in Word

State at delivery

- > Delivered in a case with RayCAM Report, 1 battery, 1 charger, 1 USB cable, 1 video cable

References to order

- > **C.A 1884** > P01651228
- > **C.A 1884** high-temperature option 600 °C > P01651240
- > **C.A 1884** high-temperature option 1,000 °C > P01651241
- > **C.A 1884** high-temperature option 1,500 °C > P01651242

Accessories / Spares

- | | |
|----------------------|-------------|
| Sun shade | > P01651525 |
| Photo tripod adapter | > P01651526 |
| Lens cap | > P01651522 |
| USB cable | > P01295274 |
| Battery | > P01296041 |
| RayCAM Report | > P01651524 |

Thermography

Additional lenses for the RayCAm C.A 1884

Whatever the application, there is a lens available that will give you a more detailed image of the remote scene or, on the contrary, a much wider-angle view to measure the whole scene in a single image.

> 6.4° x 4.8° lens:

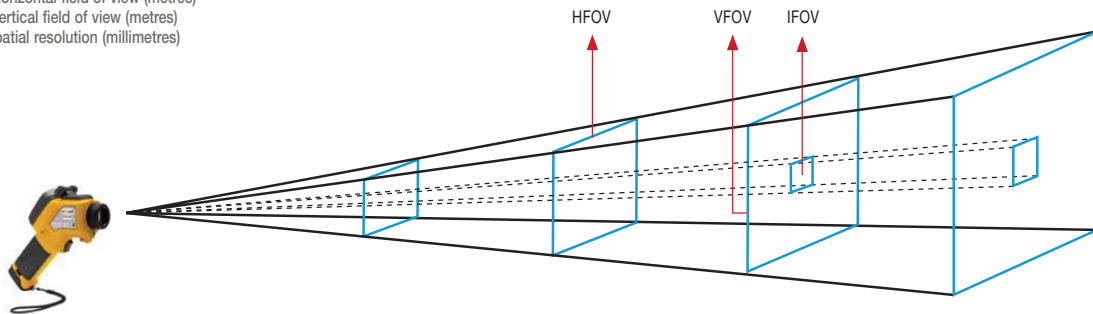
Telephoto lenses optically reduce the distance between the user and the object in order to show small objects at large distances. They are useful for viewing high-voltage lines, for example.

> 38° x 28.5° lens:

Wide-angle lenses widen the field of analysis without increasing the distance to the object. They are useful when observing buildings, for example, as they give an overall view so that energy losses can be located quickly.

Lens	IFOV Spatial resolution		0.01 m	0.1 m	0.3 m	0.5 m	1.0 m	2.0 m	10 m	30 m	100 m
			HFOV	VFOV	IFOV	HFOV	VFOV	IFOV	HFOV	VFOV	IFOV
6.4°x4.8° 3 x telephoto lens	0.7 mrad	HFOV	-	0.01	0.03	0.05	0.11	0.22	1.11	3.35	11.18
		VFOV	-	0.008	0.024	0.04	0.08	0.16	0.83	2.51	8.38
		IFOV	-	0.07	0.21	0.34	0.69	1.39	6.98	20.96	69.88
20°x15° Standard lens	2.2 mrad	HFOV	-	0.03	0.10	0.17	0.35	0.70	3.52	10.57	35.26
		VFOV	-	0.02	0.07	0.13	0.26	0.52	2.63	7.89	26.33
		IFOV	-	0.22	0.66	1.10	2.20	4.40	22.04	66.12	220.40
38°x28.5° 0.5 x wide- angle lens	4.4 mrad	HFOV	0.006	0.06	0.20	0.34	0.68	1.37	6.88	20.65	68.86
		VFOV	0.005	0.05	0.15	0.25	0.50	1.01	5.07	15.23	50.79
		IFOV	0.04	0.43	1.29	2.15	4.30	8.60	43.04	129.12	430.40

HFOV: horizontal field of view (metres)
VFOV: vertical field of view (metres)
IFOV: spatial resolution (millimetres)



References to order

- > **C.A 1884 WIDE ANGLE** > P01651243
- > **C.A 1884 WIDE ANGLE + STD** > P01651244
- > **C.A 1884 TELEPHOTO** > P01651245
- > **C.A 1884 TELE + STD** > P01651246



Thermography



IP
65

Specifications

Detector
Optical specifications
Measurement range
Adjustment
Memory
Functions

Measurement tools

Ergonomics

C.A 1879 thermographic camera

> Large LCD screen & removable handle

- Mixing of real and infrared images with Merge function
- Visual and audio alarms
- Automatic detection of Max / Min temperature points
- Storage on SD card
- Voice comments



■ C.A 1879

Detector	47 x 47, refresh rate 8 Hz
Optical specifications	Field of view: 20° x 20° Min. focal distance: 50 cm
Measurement range	-10 °C to 350 °C, ± 2 % or ± 2 °C
Adjustment	Emissivity, reflected temperature
Memory	1,000 images on SD card
Functions	Merge: real / infrared image mix level, adjustable by the user Voice and/or text comments
Measurement tools	2 movable cursors, automatic Min / Max temp. detection, alarm, isotherm, profile
Ergonomics	Battery life: 6 hrs Removable handle, < 700 g

State at delivery

- > The cameras are delivered in a hard case with 1 handle, 1 mains adapter for charging, 1 USB cable, 1 operating manual, software on CD-ROM and a Quick Start-up Guide on paper.

Accessories / Spares

USB cable
In-vehicle adapter

Please contact us.
> HX0061

Reference to order

> DiaCam C.A 1879

> P01651250



Thermography

DiaCAm Report: from infrared analysis to automatic report creation!

The DiaCAm Report software has two operating modes:

> **Image analysis mode**

- Retouching of the image (correction of parameters, comments, etc.)
- Analysis of the infrared image (addition of measurement tools)
- Export into Excel (recovery of the points in a table)

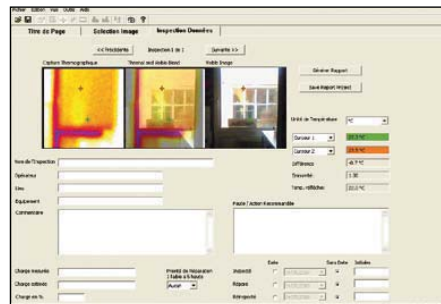


Choose the merge ratio of the real/infrared images to suit your needs:

100 % IR	75 % IR	50 % IR	25 % IR	0 % IR
0 % Visual	25 % Visual	50 % Visual	75 % Visual	100 % Visual

> **Report creation mode**

Production of a full report including a header page for customization of the inspection, a table of contents to list the operations carried out, image analysis pages with comments and a summary of the inspection. The report is generated automatically.



Air conditioning, ventilation, noise and lighting, humidity and pollution are all part of our daily environment. In order to minimise their detrimental impact, these aspects of our environment are subject to regulations that are constantly upgraded.

To comply with these regulations, it is necessary to measure the corresponding systems, using measurements called physical measurements.

Handling measurement instruments, interpreting results (charts, diagrams, graphs, etc.): practising environmental measurement is now an integral part of the work performed by electricians, heating and air conditioning specialists... Since all of these areas require complex installations, the tradespeople specialised in them are most suited to work on such systems.

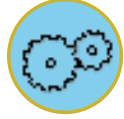
To maintain installations and test environmental parameters when new buildings are being erected, all necessary measurements can be made simply and quickly with our comprehensive range of Chauvin Arnoux measurement instruments, for all areas of application.



Immediate and compulsory temperature testing at each stage of the cold chain



Checking proper functioning of your air conditioning and ventilation system



Preventive maintenance of all types of installations (Industries, hospitals, etc.)



For industry, all measurements enabling work environment testing (noise pollution, carbon dioxide detection, lighting, etc)



Testing of air quality and atmospheric humidity, which are regulated for improved conservation of pieces on exhibit in museums.



Testing the preservation of food products (superstores, etc.)



Testing all parameters to optimise storage (temperature, hygrometry, etc.)



Optimising the quality of transport (vehicles, loads, etc.)



Testing comfort parameters in a restaurant

Temperature Selection Guide



	C.A 1871	C.A 871	C.A 872	C.A 876	C.A 879	C.A 1864	C.A 1866	C.A 861	C.A 863	C.A 865	TK 2000	TK 2002
Infrared measurement	■	■	■	■	■	■	■					
D/S targeting ratio												
8/1	■	■										
10/1			■	■								
12/1					■							
30/1						■						
50/1							■					
Emissivity												
Fixed: 0.95	■	■	■		■							
Variable: 0.1 to 1				■		■	■					
Laser sight	■	■	■	■	■	■	■					
Contact measurement												
1-input K sensor				■				■	■		■	■
2-input K sensor								■	■			■
Pt100 sensor										■		
General functions												
HOLD	■	■	■	■	■	■	■	■	■	■	■	■
Max				■		■	■	■	■	■		
Min				■		■	■	■	■	■		
Avg				■		■	■	■	■	■		
Alarm				■		■	■	■	■	■		
Choice of units	■	■	■	■	■	■	■	■	■	■		
Backlighting	■	■	■	■	■	■	■	■	■	■		
Page	98	96	98	98	96	97	97	99	99	99	100	100

Non-contact thermometers



C.A 871

- > Small and easy to handle
- > Simple to use
- > Ideal for all users

C.A 879

- > Specially designed for comfortable handling
- > Laser sight for precise targeting of the measurement area

Specifications

CD/S targeting ratio	8/1	12/1
Emissivity	Fixed: 0.95	
Measurement range	-40 °C to +538 °C	-50 °C to +550 °C
Resolution	0.1 °C to 100 °C 1 °C for other temperature	
Accuracy*	±2.5 % ±2 °C	±1.5 % ±2 °C
Functions		
Laser sighting	Yes	
Continuous measurement	Yes (continuous press on trigger)	
Hold	Yes	
Measurement units	°C / °F	
Display	2,000 counts, backlighting	
Dimensions	160 x 82 x 41,5 mm	230 x 100 x 56 mm
Weight	180 g	290 g

C.A 871

C.A 879

* Depending on measurement range. See operating manual for details.

States at delivery

- > C.A 871 delivered with 1 carrying bag and 1 x 9 V battery.
- > C.A 879 delivered with 1 carrying bag and 1 x 9 V battery.

Accessories / Spares

- 9 V battery > P01100620
- Carrying case > P01298033

References to order

- > C.A 871 > P01651302Z
- > C.A 879 > P01651805Z

Non-contact thermometers

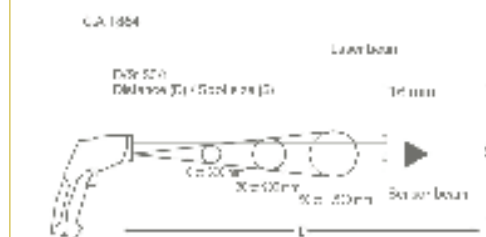
C.A 1864 & C.A 1866

- > Extensive temperature range: measure up to 1,000 °C
- > Variable emissivity ensuring inspections in line with reality
- > High distance/spot-size targeting ratio for greater accuracy
- > Set your alarm thresholds so that you are notified of any high temperatures!



	C.A 1864	C.A 1866
Specifications		
D/S targeting ratio	30/1	50/1
Emissivity	0.1 to 1	
Measurement range	-50 °C to 1,000 °C	
Resolution	0.1 °C	
Accuracy	-50 °C to -20 °C: ±5 °C -20 °C to +200 °C: ± 1.5 % of reading + 2 °C +200 °C to +538 °C: ± 2.0 % of reading + 2 °C +538 °C to +1,000 °C: ± 3.5 % of reading ± 5 °C	
Functions	MAX, MIN, AVG, DIFF, HOLD	
Alarms	High and low	
Measurement unit	°C, °F	
Laser sight	Yes, class II laser	
Display	20,000 counts, backlighting	
Dimensions	230 x 100 x 56 mm	
Weight	290 g	

Diagram illustrating the D/S targeting ratio



Accessories / Spares

9 V battery
Carrying case

- > P01100620
- > P01298033



States at delivery

- > **C.A 1864** delivered in carrying case with 1 operating manual and 1 x 9 V battery
- > **C.A 1866** delivered in carrying case with 1 operating manual and 1 x 9 V battery

References to order

- > **C.A 1864** > P01651813
- > **C.A 1866** > P01651814

Non-contact thermometers



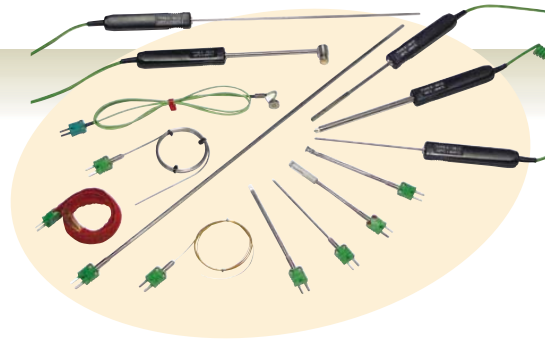
C.A 1871, C.A 872 & C.A 876

- > **C.A 1871**
 - Infrared probe adaptable to all multimeters
 - When the probe is pointed at the surface of an object, the sensor delivers a voltage proportional to the temperature measured
- > **C.A 872**
 - Rugged shockproof sheath
 - Compact for easy handling
- > **C.A 876**
 - Measure temperatures from a distance or by contact
 - Accurate analysis due to its variable emissivity
 - Surface measurement, measurement of medium, measurement of liquids

Specifications	C.A 1871		C.A 872		C.A 876	
					IR measurements	Contact measurements
D/ø targeting ratio	8/1		10/1		10/1	
Emissivity	Fixed 0.95		Fixed 0.95		0.1 to 1	
Measurement range	-30 °C to +550 °C		-20 °C to +260 °C		-20 °C to +550 °C	
Accuracy	±2 % R		±2 % R or ±3 °C		±2% R or ±3 °C	
Resolution	-		1 °C			
Functions			HOLD		Max, Min, Avg, HOLD, Alarms	
Dimensions	164 x 50 x 40 mm				173 x 60.5 x 38 mm	
Weight	182 g		190 g		255 g	

States at delivery

- > **C.A 872** delivered with a shockproof sheath
1 operating manual and 1 battery
- > **C.A 876** delivered with a flexible K thermocouple sensor,
1 operating manual and 1 shockproof sheath
- > **C.A 1871** delivered with 1 Operating Manual and 1 x 9 V battery



References to order

- > **C.A 872** > P01651402Z
- > **C.A 876** > P01651403Z
- > **C.A 1871** > P01651610Z

Accessories / Spares

- > **For C.A 876**
K thermocouple assembly

see page 101

Contact thermometers

C.A 861 & C.A 863

- > Rugged instruments due to their shockproof sheaths
- > Particularly simple measurement of temperatures up to 1,300 °C
- > Temperature differential included on the C.A 863



C.A 865

- > Accurate measurements
- > Stability of the sensor over time
- > Rugged due to its protective sheath



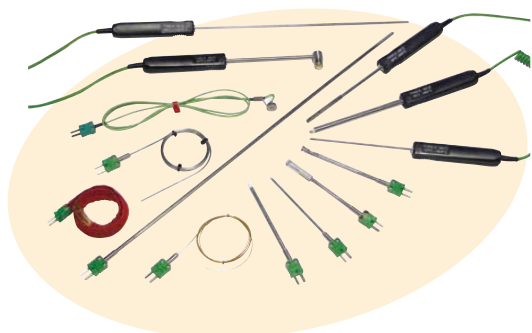
Specifications

	C.A 861	C.A 863	C.A 865
Sensor	K Couple	K Couple	Pt 100
No. of inputs	1	2	1
Range	-40 °C to +1,350 °C	-50 °C to +1,300 °C	-50 °C to +200 °C
Accuracy	±0.1 % +1 °C	±0.3 % +1 °C	±0.5 °C
Functions		Max., HOLD, °C or °F	
Dimensions		173 x 60.5 x 38 mm	
Weight	185 g		175 g

Accessories / Spares

> For the C.A 861, C.A 863 and C.A 865

- Pt100 probes
 - K thermocouples
 - CK extensions
- (see page 101)



States at delivery

- > **C.A 861** delivered with 1 flexible K thermocouple sensor and 1 shockproof sheath
- > **C.A 863** delivered with 2 flexible K thermocouple sensors and 1 shockproof sheath
- > **C.A 865** delivered with 1 Pt100 sensor and 1 shockproof sheath

References to order

- > **C.A 861** > P01650101Z
- > **C.A 863** > P01650201Z
- > **C.A 865** > P01650301Z

Contact thermometers

IP
65



TK 2000 & TK 2002

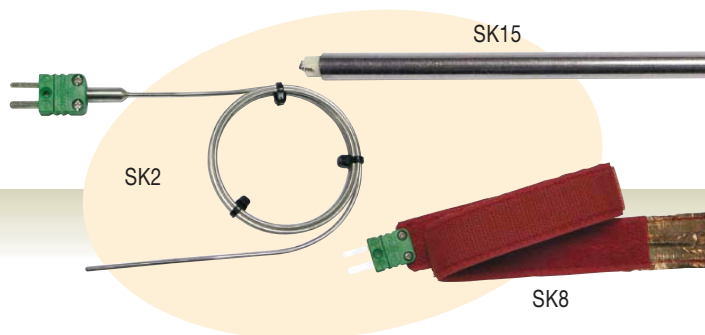
- > Compact, accurate thermometers which are easy to use: simply connect up the probe and start measuring!
- > IP 65 protection means they can be used in any type of environment
- > Measure the temperature difference with the TK 2002's two thermocouple inputs

Specifications

	TK 2000	TK 2002
No. of inputs	1	2
Range	-50 °C to +1,000 °C	
Accuracy	±1.5 % +0.5 °C	
Functions	HOLD, °C	
Dimensions	163 x 63 x 37.5 mm	
Weight	200 g	

States at delivery

- > **TK 2000** delivered with 1 flexible K thermocouple sensor
- > **TK 2002** delivered with 2 flexible K thermocouple sensors



Accessories / Spares

- > **TK 2000 and TK 2002**
K thermocouple assembly
CK extension

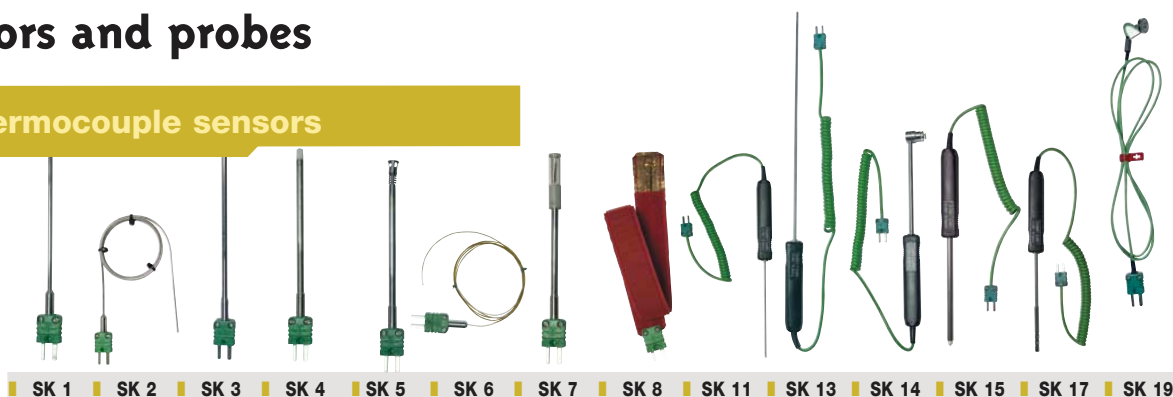
see page 101
see page 102

References to order

- > **TK 2000** > P01653100
- > **TK 2002** > P01653110

Sensors and probes

K thermocouple sensors



Series	Type	Description	Measurement range	Response time	Diameter	Length
SK 1	Needle sensor	Penetration (20 mm minimum) in pasty, viscous or liquid media.	-50°C to +800°C	1 s	3 mm	15 cm
SK 2	Bendable sensor	Bendable as required. Curve radius > 4 mm.	-50°C to +1,000°C	2 s	2 mm	1 m
SK 3	Semi-rigid sensor	Slightly bendable.	-50°C to +1,000°C	6 s	4 mm	50 cm
SK 4	Surface sensor	For small flat surfaces. Use of silicone grease improves contact quality	0 to 250°C	1 s	5 mm	15 cm
SK 5	Surface sensor with spring	For flat surfaces. The spring ensures optimum contact, even if the sensor is not set up perpendicularly. Use of silicone grease improves contact quality.	-50°C to +500°C	1 s	5 mm	15 cm
SK 6	Flexible sensor	Sensor specially designed for measurements in places where access is difficult. Not to be used in liquids (tip not leakproof).	-50°C to +285°C	1 s in contact use 3 s in ambient-air use	1 mm	1 m
SK 7	Air sensor	Suitable for all ambient air measurements (moving air). If the air is stationary, agitate the sensor.	-50°C to +250°C	5 s	5 mm	15 cm
SK 8	Pipe sensor	For measurements on pipes. The pipe is cleaned and dried before applying the copper sheet. The Velcro ribbon is then wound round it to ensure contact.	-50°C to +140°C	10 on stainless-steel tube	90 mm	32 cm
SK 11	Needle sensor (stainless steel)	For penetration in pasty or viscous products	-50°C to +600°C	12 s	3 mm	13 cm
SK 13	General purpose sensor	Spiral lead: 45 cm to 1 m	-50°C to +1,100°C	12 s	3 mm	30 cm
SK 14	Elbowed surface sensor	For measuring surface temperatures when access is difficult.	-50°C to +450°C	8 s	6 mm	13 cm
SK 15	Surface sensor with spring	For flat surfaces. The spring ensures optimum contact, even if the sensor is not set up perpendicularly.	-50°C to +900°C	2 s	8 mm	13 cm
SK 17	Air sensor	Suitable for all ambient air measurements (moving air). If the air is stationary, agitate the sensor.	-50°C to +600°C	3 s	6 mm	13 cm
SK 19	Magnetic sensor	Sensor with magnet for flat metal surfaces.	-50°C to +200°C	7 s	4 mm	1 m

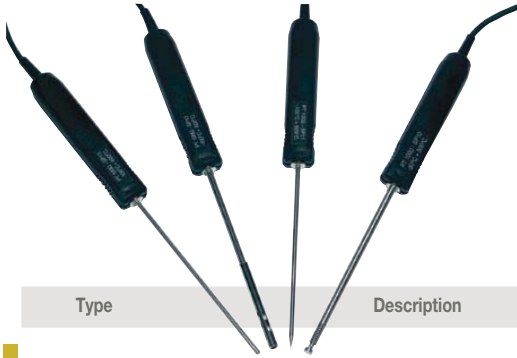
Class-11 thermocouple accuracy -40 °C to +333 °C: ± 2.5 °C +333 °C to +1,200 °C: ± 0.0075 x t °C

References to order

- > SK 1 > P03652901
- > SK 2 > P03652902
- > SK 3 > P03652903
- > SK 4 > P03652904
- > SK 5 > P03652905
- > SK 6 > P03652906

- > SK 7 > P03652907
- > SK 8 > P03652908
- > SK 11 > P03652917
- > SK 13 > P03652918
- > SK 14 > P03652919
- > SK 15 > P03652920
- > SK 17 > P03652921
- > SK 19 > P03652922

Sensors and probes



Pt 100 Ω temperature sensors

> Pt 100 Ω temperature sensors with spiral lead 45 cm to 1 m long

Type	Description	Measurement range	Response time	\emptyset	Length
SP 10	Surface sensor with spring For flat surfaces. The spring ensures optimum contact, even if the sensor is not set up perpendicularly.	-50 °C to +200 °C	6 s	5 mm	Needle 13 cm
SP 11	Needle sensor For penetration (20 mm minimum) in pasty and viscous products.	-100 °C to +600 °C	7 s	3 mm	Needle 13 cm
SP 12	Air sensor Suitable for all ambient air measurements (moving air). If the air is "stationary", agitate the sensor.	-100 °C to +600 °C	5 s	5 mm	Needle 13 cm
SP 13	Liquid sensor Specially designed for liquids.	-100 °C to +600 °C	7 s	3 mm	Needle 13 cm

Class B Pt100 probe accuracy ± 0.3 °C



CK3

CK2

CK1

CK4

Extensions











Description	\emptyset	Length
CK 1*	Terminated by male connector / female connector	4 mm 1 m
CK 2*	Terminated by male connector / 2 bare wires	4 mm 1 m
CK 3*	Terminated by 5-pin DIN 5 connector / female socket	4 mm 1 m
CK 4*	Terminated by 2 banana plugs / female socket	4 mm 1 m








*Temperature withstand of extensions: -40 °C to +100 °C

References to order

> SP 10	> P03652712	> CK 1	> P03652909
> SP 11	> P03652713	> CK 2	> P03652910
> SP 12	> P03652714	> CK 3	> P03652913
> SP 13	> P03652715	> CK 4	> P03652914

Selection guide for environmental measurement

										
	C.A 846	C.A 847	C.A 1244	C.A 822	C.A 1224	C.A 1226	C.A 850	C.A 852	C.A 1051	C.A 1052
Temperature measurement										
Pt 100 probe	■		■	■	■	■			■	■
2-input K probe									■	■
Relative humidity measurement										
RH of air	■		■						■	■
Dew-point measurement			■						■	■
RH of materials		■								
Air speed measurement										
Rotating-vane sensor				■	■				■	■
Hot-wire sensor						■			■	■
Flow measurement					■	■			■	■
Air pressure measurement										
Differential pressure							■	■	■	■
High pressure (=> 10 bar)							■			
Low pressure (=> 100 mbar)								■	■	■
General functions										
HOLD	■		■	■	■	■	■	■	■	■
Max	■		■	■	■	■	■	■	■	■
Min			■		■	■	■	■	■	■
Avg					■	■			■	■
Choice of units	■		■	■	■	■	■	■	■	■
Backlighting	■			■			■	■	■	■
Recording										■
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	C.A 811	C.A 813	C.A 832	C.A 834	C.A 895	C.A 1725	C.A 1727
Lighting measurement							
< 20,000 lux	■						
< 200,000 lux		■					
Spectral correction	■	■					
Incidence correction	■	■					
Noise measurement							
A and C frequency weighting			■	■			
Slow / fast time weighting			■	■			
Analogue output			■	■			
Gas detection							
CO detection					■		
Speed measurement							
With and without contact						■	■
rotating-vane speed						■	■
linear speed						■	■
Frequency, period						■	■
Duty cycle						■	■
counting						■	■
General functions							
HOLD	■	■		■	■	■	■
Max	■	■	■	■	■	■	■
Min				■	■	■	■
Choice of units	■	■				■	■
Backlighting	■	■	■	■	■		
Buzzer					■		■
Recording					■		■
Software							■
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