

Electronic Monitoring Systems and Temperature Sensors

SIKA[®]
founded 1901
Dr. Siebert & Kühn GmbH & Co. KG



Electronic Digital Thermometer

SolarTemp Marine Type 850 with Mounting Plate

- Display suitable for sensor elements Pt1000
- Type of protection IP65
- Measuring range 0...650 °C
- Optional transmitter output 4...20mA
- Selection of temperature sensors for SolarTemp Marine Type 850 is located on page 24



Technical data	
Ambient temperature	-20...60 °C (case)
Case	170 x 150 mm, steel case blue powder-coated, aluminium mounting plate
Power supply	Solar cell
Light density	Min. 50 Lux
Digital display	4 digit, 7 segment display, 25.4 mm high
Approved by several classification societies	

Order code		
Type	Range	SIKA Order code
Standard version	0...650°C	85065P54
Transmitter version	4...20 mA △ 0...600 °C	85065P53360
Transmitter version	4...20 mA △ 0...300 °C	85065P53330

SolarTemp applications



SolarTemp type approval certificates

-  GL
 - ABS
 - ClassNK Nippon
- DNV
 - LR
 - BV
 - Korean R.

Temperature Sensors

Temperature sensors for marine applications

Temperature measurement in marine applications makes high demands on sensor reliability. Standard temperature sensors not specifically designed for this application will not last long time in this environment. Especially sensors used on diesel engines and propulsion systems are subject to severe vibration with acceleration as high as 200 g in some cases as well as occasional exposure to water and oil. SIKA has long-term experience in manufacturing products for the marine industry and together with engine builders and end users has developed a wide range of temperature sensors suitable for this harsh environment.

Rugged design, vibration resistant components and reliable manufacturing give SIKA sensors a long lifetime also under difficult conditions. For quality assurance each sensor is thoroughly tested during and after production. The quality management system installed by SIKA guarantees a constant and reliable performance of the products.

Due to the high flexibility of SIKA, sensors in many common designs are available. Special sensors can be manufactured on request

Important calibration instructions

Temperature sensors may be subject to changes in accuracy during their lifetime. A periodic calibration of your temperature sensors is required to make sure that they display always a correct temperature value. We provide you with the relevant calibration tools. Please see selection of Test & Calibration products on page 37.

SIKA temperature sensors ...

- for exhaust gas temperature measurement
- for cooling water temperature measurement
- for oil temperature measurement

Approvals

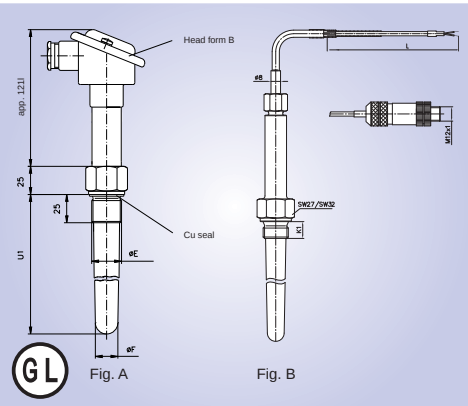
- Most sensors are approved by Germanischer Lloyd
- Additional approvals on request



Temperature Sensors approval certificates

- GL
- ABS
- ClassNK Nippon
- DNV
- BV
- RINA

For SolarTemp Marine Type 850



Transmitter and Sensor Cables

Sensor Cable (connection head to indicator)	
Length*	SIKA Order Code
3 m	WKS8203000F
5 m	WKS8205000F
10 m	WKS8210000F
15 m	WKS8215000F

Sensor Cable (connection indicator to remote control)	
Length*	SIKA Order Code
10 m	WKB8210000F
15 m	WKB8215000F

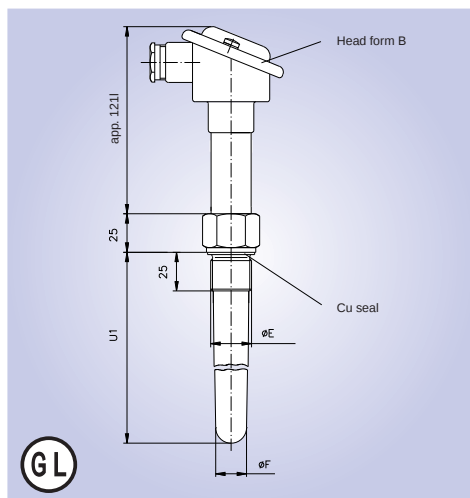
* other lengths available on request

Type	SIKA Order code										ISSA-Code	IMPA-Code
Resistance thermometer	W											
Diameter	14/17 mm conical (Fig. B) (U1= 100 mm or 150 mm)	14										
	17/23 mm conical (Fig. A) (U1= 100 mm or 150 mm)	17										
	20/23 mm conical (Fig. A) (U1= 200 mm)	20										
Material	stainless steel 1.4571	3										
Sensor element	2 x Pt1000 (only for transmitter version) 1 x Pt1000	P53 P54										
Immersion tube length U1	100 mm 150 mm 200 mm		100 150 200								61.122.00 - 61.122.09	65 18 55 - 65 18 58
Measuring insert	demountable	2										
Electrical connection	plug M 12x1 (Fig. B) head form B (Fig. A)	3 B										
Cable	Teflon FEP shielded (only plug M 12x1) (Fig. B) without cable (only Head B) (Fig. A)	5 0										
Mechanical connection	½ BSP ¾ BSP thread M 33x2	2 3 F										
Length of sensor cable (only plug M 12x1)	2 m 3 m 5 m										03 05 09	

Please ask for customised specifications

For exhaust gas temperature measurement

- Accuracy class
Resistance thermometer class B
Thermocouple class 1
- Measuring insert is demountable
- Diameter (acc. immersion tube length)
17/23 mm conical (U1= 100 mm or 150 mm)
20/23 mm conical (U1= 200 mm)
- Type of protection IP54
- Max. temperature 600 °C
- Process connection with fixed thread connection
- Electrical connection
Head form B of aluminium die casting, silver finish
- Max. ambient temperature 200 °C
- Approval
Germanischer Lloyd, GL

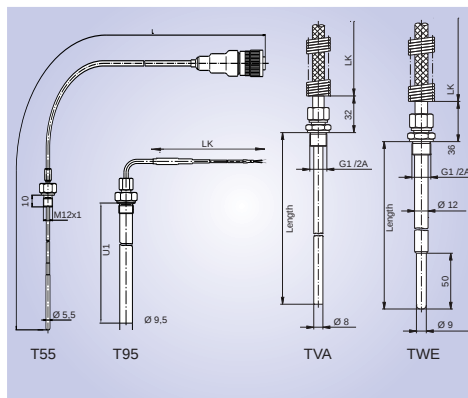


Type	SIKA Order code						ISSA-Code	IMPA-Code
Resistance thermometer	W							
Thermocouple	T							
Diameter F	17/23 mm conical (U1= 100 mm or 150 mm) 20/23 mm conical (U1= 200 mm)	17 20						
Material	stainless steel 1.4571	3						
Sensor element	1 x Pt100 3-wire / class B 1 x NiCr-Ni (type K)		P31 1TK					
Immersion tube length U1	100 mm 150 mm 200 mm			100 150 200			61.116.00 (general number)	65 25 22 (general number)
Measuring insert	demountable				2			
Electrical connection	head form B with ceramic socket head form B with transmitter				B0 BT			
Process connection E	¾ BSP M 27x2 M 33x2					3T6 HT6 FT6		

Please ask for customised specifications

Cable sensors for exhaust gas temperature measurement

- Accuracy class
Resistance thermometer class B
Thermocouple class 1
- Measuring insert is not demountable
- Diameter 8 mm or 12 mm
- Type of protection IP54
- Max. temperature
600 °C for resistance thermometer and
800 °C for thermocouple
- Process connection
without or with compression fitting
- Electrical connection
Compensation cable, wire-braided
- Approval
Germanischer Lloyd, GL (only for type TWE)



Type	SIKA Order code				ISSA-Code	IMPA-Code
Diameter	5.5 mm 9.5 mm 8 mm 12 mm	T55 T95 TVA TWE				
Material	stainless steel 1.4571 stainless steel 1.4571	type T55 / T95 type TVA / TWE	3 C			
Sensor element	1 x NiCr-Ni (type K) 2 x NiCr-Ni (type K) for type TVA / T95 1 x Pt100 3-wire / class B (only Ø 12 mm) 1 x NiCr-Ni (type K) (for T55 / T95) 2 x NiCr-Ni (type K) (for T55 / T95)	K11 K12 P31 1TK 2TK				
Length	100 mm 150 mm 175 mm 200 mm 250 mm 1500 mm (only for T55) 200 mm without demountable insert* (only for T95)	0100 0150 0175 0200 0250 1500 2000**			61.116.00 - 61.116.13	65 25 21 - 65 25 26
Electrical connection	FEP cable, wire-braided fibre glass, wire-braided mineral insulated cable Cannon plug (for T55)		07 08 09			
Process connection	without clamp coupling steel, galvanized ¼ BSP clamp coupling steel, galvanized ½ BSP clamp coupling steel, M 12x1 (for T55)		0 I K R			
Cable length LK	without cable (only for T55) 1.0 m 1.5 m 2.0 m 3.0 m		00 01 02 03 05			

* exchangeable insert available on request

** please consider the difference in the order code for type T95. All other lengths are also available on request

Please ask for customised specifications

For cooling water temperature measurement

- Accuracy class
Resistance thermometer class B
- Measuring insert is demountable
- Diameter 8 mm, 12 mm or 14 mm
- Type of protection
 - IP65 (Fig. A)
 - IP54 (Fig. B)
- DIN 43772
- Max. temperature 200 °C
- Process connection with fixed thread connection
- Electrical connection
Head form B made of aluminium die casting and silver finish or
Cable socket angle type type Form A
- Approval
Germanischer Lloyd, GL (only for Fig. A)

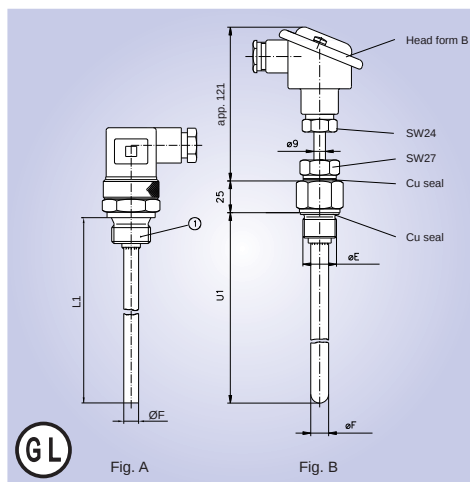


Fig. A

Fig. B

Type	SIKA Order code				ISSA-Code	IMPA-Code
Resistance thermometer	W					
Diameter F	8 mm (Fig. A) 12 mm (Fig. B) 14 mm (Fig. B)	08 12 14				
Material	stainless steel 1.4571	3				
Sensor element	1 x Pt100 3-wire / class B 2 x Pt100 3-wire / class B (Fig. B)	P31 P32				
Immersion tube length U1	80 mm 100 mm 120 mm 150 mm 200 mm	080 100 120 150 200			61.116.00 - 61.116.13	65 25 21 - 65 25 26
Measuring insert	demountable	2				
Electrical connection	head form B with ceramic socket (Fig. B) head form B with transmitter* (Fig. B) angle type Form A (Fig. A)	B0 BT 10				
Process connection E	½ BSP (Fig. B) ¾ BSP (Fig. B) M 27x2 (Fig. B) M 33x2 (Fig. B) ½ BSP (Fig. A) M 18x1,5 (Fig. A) M 20x1,5 (Fig. A) M 33x2 (Fig. A)			2T2 3T2 HT2 FT2 2GL 6GL NGL 3GL		

* For this please ask us for our transmitter catalogue.
Please ask for customised specifications

KombiTemp®

Temperature Sensors with local display

Technical data			
Type	K 122	K 422	K 522
Housing	die cast aluminium, gold-coloured anodised		
length width	110 mm 30 mm	150 mm 36 mm	110 mm 30 mm
Thermometer capillaries	special glass prismatic approx. 6 mm diameter, with black burnt-in scale, blue thermometer filling		
Immersion tube	diameter 10 x 1 mm		
Electrical Connection	cable socket angle type, Form A		
Immersion tube material	brass, up to PN 16 bar st. steel, up to PN 40 bar		
Design	straight, fixed thread connection		angle type 90° ✱, fixed thread connection



Type	SIKA Order code				ISSA-Code	IMPA-Code
K 122	K122					
K 422	K422					
K 522	K522					
Temperature range	-30...50 °C	35				
	0...60 °C	06				
	0...100 °C	10				
	0...120 °C	12				
	0...160 °C	16				
	0...200 °C	20				
Immersion tube length	63 mm	063				
	100 mm	100				
	160 mm	160				
Mechanical connection	½ BSP	2				
	M 20 x 1.5	7				
Immersion tube material	brass (2.0321, for pressure up to 16 bar)	1				
	stainless steel (1.4571, for pressure up to 40 bar)	3				
Electrical temperature sensors	1x Pt100 / 3-wire	1				
	1x Pt1000 / 2-wire	7				
Scale	°C	0				
	°C and °F	2				

Please ask for customised specifications

CargoTemp Roller

More safety by manual temperature monitoring of bulk cargo



Mobile temperature monitoring in your cargo holds!

- Easy to handle
- Cable with depth indication
- Large integrated LC display
- Comes in a sturdy plastic suitcase

Why is temperature monitoring important?

Many products are self-heating and/or self-igniting as bulk cargo. This autonomous process may lead to the cargo destroying itself, if measures to counteract are not taken in time.

Which products are affected?

- Raw materials such as tobacco, cocoa, cotton and jute
- oleiferous goods such as seeds and nuts
- all products that can be grouped under the umbrella term „oil cake“, such as expeller, pellets and extractions, as well as
- aluminium powder, ores and coals

As a basic principle, all goods falling under the IMDG Code, chapter 2.4 class 4.2, should be temperature monitored, in order to detect the incipient self-heating process in time.

Technical Data	
Measurement Input	Pt1000 / 2-wire
Cable length	35 m
Cable design	temperature proofed, braided FEP cable, with 6 marks every 5 meters for depth indication, tension = 50 N
Measuring probe	length = 100 mm, Ø = 20 mm, weight = 200 g
Measurement input	Pt1000 / 2-wire
Measuring range	-40.0...150.0 °C
Resolution	0.1 °C
Accuracy	±0.5 % FS ±1 digit
Display	3 ½ digit LCD, 18 mm high
Measuring rate	3 sec.
Power supply	maintenance-free battery
Battery life time	approx. 10 years
Housing	robust PP-plastic, blue/black, with handle
Housing size	Ø approx. 210 mm, depth approx. 95 mm, handle approx. 45 mm
Protection class	IP40
Accessories	portable ABS-plastic case with foam inlay case dimensions 394 x 294 x 106 mm
Weight	approx. 2 kg incl. case
SIKA Order code	ETCTP000350004

Display and Monitoring System

Centralised data collection with EB 3000

The EB system is an easy to use cost effective way to interface distributed measuring points to a central display unit. The connection to a monitoring system or a PC is possible for logging the data. Up to 240 sensors on a total bus length of up to 1000 m can be installed. The cabling can be made either in a bus, star or tree design and thus allows great flexibility of the system. The EB system is mainly used for temperature measurement; many components for other applications are available on request

Application area

- Cargo hold monitoring for bulkcarriers, especially if heat sensitive goods are carried for example rice, cereals, carbon and wood.
- Monitoring of self heating or self igniting bulk cargo as "oil cake" cargos, cotton, jute, ores...
- Other applications where more than one sensor is required for measuring, controlling, monitoring or recording.

Technical features

- Connection of up to 240 sensors possible
- Total bus length of up to 1000 m
- Polarity-free 2-wire system in bus, star or tree design
- Bi-directional exchange of information
- Polarity-free and short-circuit proof sensor module
- Supply of the sensor via bus cable
- All bus functions are maintained even in case of sensor module failure
- Fully automatic start-up installation via software is possible
- New sensor modules will be automatically detected
- During operation sensor modules may be changed, removed or added
- Scan time approx. 55 ms for each sensor module
- CRC check ensures very high transmission reliability

Technical Data	
Inputs	20 + 2 virtual channels
Display	1 line, 4 digit 7 segment LED, red 13mm high
Channel display	2-digit, 7-segment LED, 7 mm high, red
Status display	11 LED
Relay output	4 x SPST, 5 A / 2 A / 250 VAC and 1 x SPDT, 5 A / 2 A / 250 VAC
Serial interface	EB interface
Protection class	IP65 (front)
Dimensions	96 x 48 x 100 mm (W x H x D)
Power supply	230 VAC, 50/60 Hz (standard) 12 VAC, 50/60 Hz (optional) 24 VAC, 50/60 Hz (optional) 115 VAC, 50/60 Hz (optional)
SIKA Order code	EME8EB30000000 (230 VAC)



Sensor Modules for temperature

Technical data	
Sensor type	Pt1000 / 2-wire, potential-free
Temperature range	-30.0...100.0 °C Standard -50.0...400.0 °C with extension tube -50...500.0 °C with extension
Accuracy	±0.2 % of reading ±0.2 °C
Cable	PVC, length 1 m
Immersion tube material	Stainless steel 1.4571
SIKA Order code	
Type EBT-IF1	EME8EBTIF10000
Type EBT-IF2	EME8EBTIF20000
Type EBT-IF3	EME8EBTIF30000



Type EBT-IF1
(Standard, D = 6 mm, L = 100 mm)



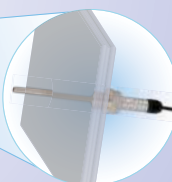
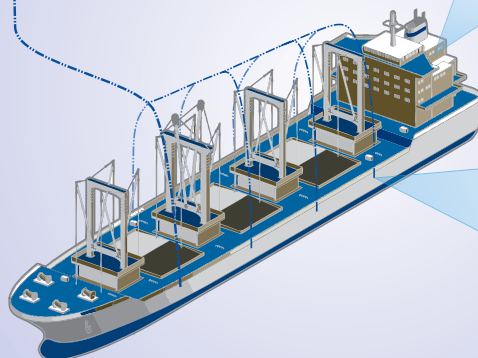
Type EBT-IF2
(Standard, D = 6 mm, L = 100 mm,
½ BSP, without extension tube)



Type EBT-IF3
(Standard, D = 6 mm, L = 50 mm,
½ BSP, with extension tube 100 mm)

Please ask for customised specifications

Application example for hold monitoring

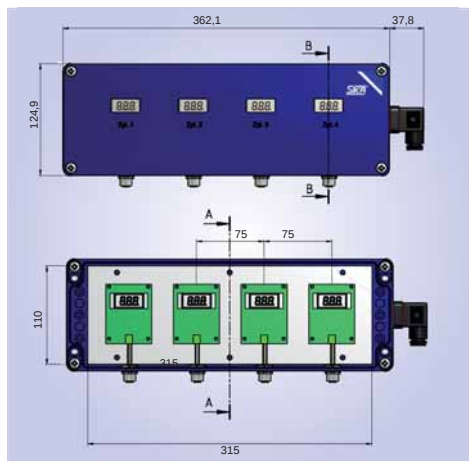


Alarm Retrofit Set

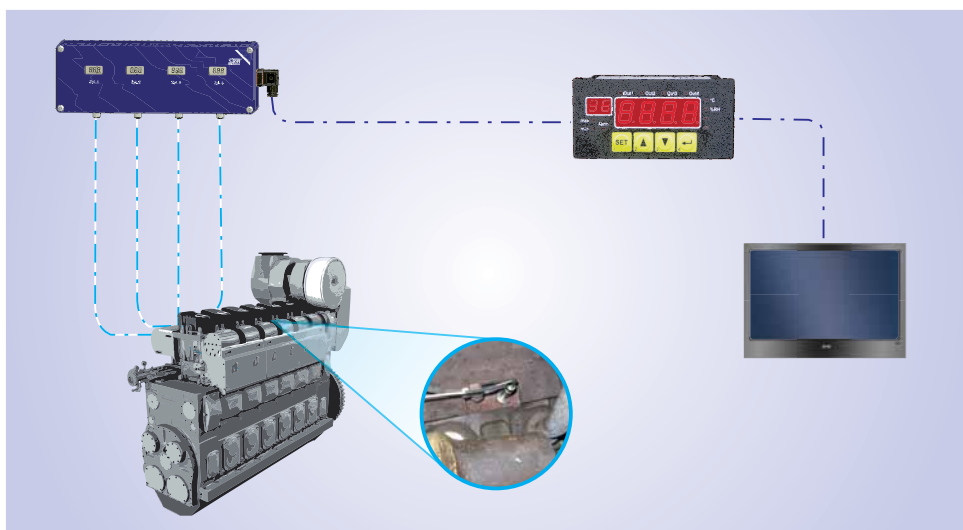
The SIKA exhaust gas temperature Retrofit Set is suitable for all auxiliary Diesel engine types. Installation with on-board equipment is possible without problems. The integrated bus system sends the temperature values of each cylinder through an easy-to-install cable to the control room. The display fitted there sends the temperature values on to the ship's control system and will sound an alarm if the exhaust gas values are critical. All that is needed to put together a set are the number of cylinders, the mechanical dimensions of the sensor and the cable length.

Advantages at a glance

- Universally retrofittable at a reasonable price
- Unlimited number of measuring points
- Easy to install with on-board equipment
- Bus system to transfer data



Application example for Exhaust Gas Monitoring



Contact us for a customised offer for your engine type.

Multi-channel temperature indicator, Series TS 31000

The instruments of the series TS 31000 are 16- or 32-channel temperature measuring instruments for thermocouples. The TS 31000 is operated and programmed contactless via 2 light reflecting buttons.

The customer specific pre-configuration for 16 applications (e.g. engine types) offers a wide field of use.

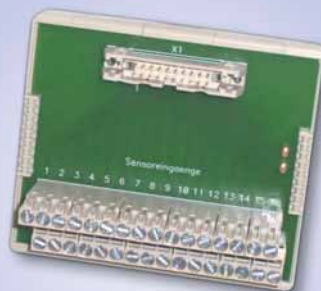
The TS 31000 is equipped with a micro controller for the complete control as well as for the linearisation of the different types of thermocouples and the cold junction sensors.

The measured temperature of the selected measuring point is shown on an easy reading 4-digit LED display. The customer specific text of the selected measuring point is indicated on a 2-line LCD matrix display.

The sensors are connected to the TS 31000 by the two 20-pole plug connectors or by 16-channel interchange modules with flat strip line.



Technical Data	
Number of measuring inputs	16 or 32
Channel selector	Electronic switch
Inputs	TC Type K, E, J, T, S, B or R
Display	Measured value display: 4-digit LED text display: 2-line alphanumeric LCD
Supply voltage	24 VDC (standard)
Supply voltage optional with external power supply	115 VAC, 50 / 60 Hz 230, VAC; 50 / 60 Hz 250, VAC; 50 / 60 Hz
Housing	96 x 96 x 75 mm



Interchange module for 16 channels with 32 screwclamps (sensor inputs).
Output: 20 pole plug connector (picture similar)

Your Personal Notes

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