



Resistance Thermometer TCT

Compact, tough, precise temperature measurement

SICK
Sensor Intelligence.

Compact, tough, precise temperature measurement



Product description

The TCT is a Pt100 universal purpose resistance thermometer in a compact stainless steel housing for the temperature measurement in liquids and gases. It can be adapted to specific applications through its various available process connections and insertion lengths. It is available with various connection

threads, with or without compression fittings. In addition, there are configurations available with thermowells. Wetted parts are made from high-grade stainless steel 1.4571. Besides its Pt100 output signal, the TCT is available with an integrated transmitter with output signal 4 mA ... 20 mA.

At a glance

- Pt100 element, accuracy class A according to IEC 60751
- Measuring ranges $-50\text{ °C} \dots +150\text{ °C}$ and $-50\text{ °C} \dots +250\text{ °C}$
- Wetted parts made from corrosion resistant stainless steel 1.4571
- Various mechanical adaptations and insertion lengths, also available with thermowell
- Pt100 (4-wire) or 4 mA ... 20 mA (2-wire)
- Circular connector M12x1 (IP 67) or L-connector according to DIN EN 175301-803 A (IP 65)

Your benefits

- Reliable operation through rugged design and high-quality materials
- Good long-term stability, accuracy and linearity
- Quick and safe installation
- Convenient system integration through compact dimensions and industry-standard output signals
- Optimal solutions for individual requirements



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Detailed technical data

Features

Measuring ranges	-50 °C ... +150 °C -50 °C ... +250 °C
Sensor element	Pt100
Signal outputs and maximum ohmic load R _A	Pt100, 4-wire, 4 mA ... 20 mA, 2-wire ($R_A \leq (L^+ - 9 V) / 0.023 A$ [Ohm])

Performance

Accuracy of sensor element	Class A according to IEC 60751
Accuracy of optional transmitter	$\leq \pm 0.2$ % of span
Linearity of optional transmitter	$\leq \pm 0.1$ % of span

Mechanics/electronics

Process connections ¹⁾	Without process connection, Thread G 1/4 B, Thread G 1/2 B, Thread 1/4" NPT, Thread 1/2" NPT, Compression fitting G 1/4 B, CrNi stainless steel ferrule, Compression fitting G 1/2 B, CrNi stainless steel ferrule, Compression fitting 1/4" NPT, CrNi stainless steel ferrule, Compression fitting 1/2" NPT, CrNi stainless steel ferrule, Compression fitting G 1/4 B, PTFE ferrule, Compression fitting G 1/2 B, PTFE ferrule, Compression fitting 1/4" NPT, PTFE ferrule, Compression fitting 1/2" NPT, PTFE ferrule, Thermowell G 1/4 B, Thermowell G 1/2 B, Thermowell 1/4" NPT, Thermowell 1/2" NPT, Thermowell weld-in diameter 18 mm
Insertion length/diameter of probe ²⁾	25 mm / 3 mm 50 mm / 3 mm 100 mm / 6 mm 150 mm / 6 mm 250 mm / 6 mm 350 mm / 6 mm
Pressure resistance ³⁾	Max. 40 bar with supplied compression fitting with PTFE ferrule, Max. 100 bar with supplied compression fitting with stainless steel ferrule, Max. 120 bar with threaded process connection, Max. 220 bar with variants with thermowell
Housing material	Stainless steel 1.4571
Wetted parts	Stainless steel 1.4571
Electrical connection/enclosure rating ⁴⁾	Plug M12x1, 4-pin, IP 67, L-connector (DIN EN 175301-803 A), 4 pin, IP 65
Supply voltage	10 V DC ... 36 V DC for variant with transmitter 4 mA ... 20 mA
Maximum current consumption	Ca. 30 mA for variant with transmitter 4 mA ... 20 mA
Electrical safety	Protection class: III, Dielectric strength: 500 V AC, Reverse polarity protection of variant with transmitter 4 mA ... 20 mA: L ⁺ towards M
CE-conformity	2004/108/EC, EN 61326-2-3
Weight	Ca. 145 g (depending on configuration)

¹⁾ The compression fittings with PTFE ferrule are suited for temperatures up to +150 °C.

²⁾ For measuring range -50 °C ... +250 °C insertion lengths from 100 mm required.

³⁾ Pressure resistance at room temperature.

⁴⁾ Enclosure rating IP per IEC 60529. The enclosure rating classes specified only apply while the pressure transmitter is connected with female connectors that provide the corresponding enclosure rating.

Ambient data

Ambient temperature	-40 °C ... +85 °C for variant with transmitter 4 mA ... 20 mA, -40 °C ... +85 °C for variant with output signal Pt100 and L-connector (DIN EN 175301-803 A), -40 °C ... +125 °C for variant with output signal Pt100 and circular plug M12x1
Storage and transport temperature	-40 °C ... +85 °C
Shock resistance according to IEC 60751	500 g
Vibration resistance according to IEC 60751	3 g

Type code

Output signal

P	Output signal Pt100, 4-wire
A	Transmitter 4 mA ... 20 mA, 2-wire

Measuring range

A	-50 °C ... +150 °C
B	-50 °C ... +250 °C

Process connection

ZZ	Without process connection
G1	Thread G 1/4 B
GE	Thread G 1/2 B
N4	Thread 1/4" NPT
N2	Thread 1/2" NPT
S1	Compression fitting G 1/4 B, CrNi stainless steel ferrule
SE	Compression fitting G 1/2 B, CrNi stainless steel ferrule
S4	Compression fitting 1/4" NPT, CrNi stainless steel ferrule
S2	Compression fitting 1/2" NPT, CrNi stainless steel ferrule
P1	Compression fitting G 1/4 B, PTFE ferrule ¹⁾
PE	Compression fitting G 1/2 B, PTFE ferrule ¹⁾
P4	Compression fitting 1/4" NPT, PTFE ferrule ¹⁾
P2	Compression fitting 1/2" NPT, PTFE ferrule ¹⁾
T1	Thermowell, thread G 1/4 B
TE	Thermowell, thread G 1/2 B
T4	Thermowell, thread 1/4" NPT
T2	Thermowell, thread 1/2" NPT
TW	Thermowell, weld-in, diameter 18 mm

Insertion length / diameter

0253	25 mm / 3 mm ²⁾
0503	50 mm / 3 mm ²⁾
1006	100 mm / 6 mm
1506	150 mm / 6 mm
2506	250 mm / 6 mm
3506	350 mm / 6 mm
1006	100 mm / 6 mm (thermowell)
1506	150 mm / 6 mm (thermowell)
2506	250 mm / 6 mm (thermowell)
3506	350 mm / 6 mm (thermowell)

Electrical connection / enclosure rating

M	M12x1, 4-pin, IP 67
L	L-connector according to DIN EN 175301-803 A, IP 65

Design specifics

Z	Without
G	Free from oil and grease

TCT -	1						
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¹⁾ Not for measuring range up to 250 °C.

²⁾ For measuring range -50 °C ... +250 °C insertion length from 100 mm required.

Ordering information

The part numbers below show a selection of our common configurations and represent only an extract of the product portfolio.

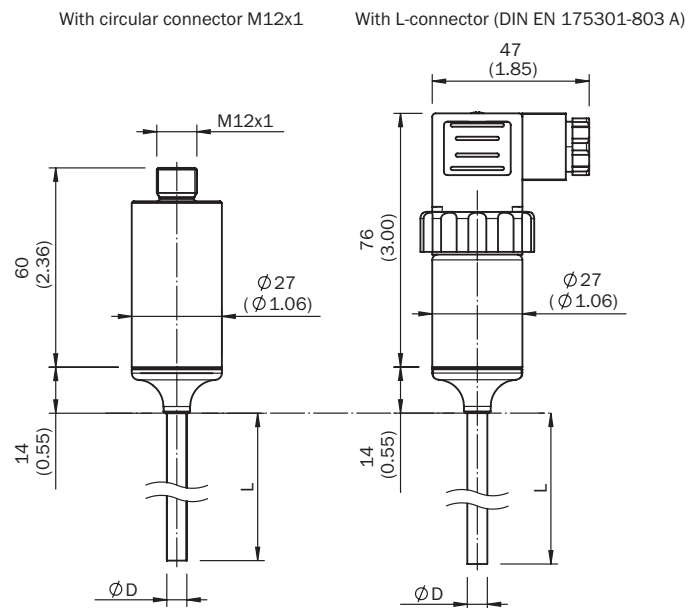
- Measuring range: -50 °C ... +150 °C
- Electrical connection/enclosure rating: plug M12x1, 4-pin, IP 67

Output signal	Process connection	Insertion length/diameter of probe	Model name	Part No.
Pt100, 4-wire	Without process connection	25 mm / 3 mm	TCT-1PAZZ0253MZ	6043158
		50 mm / 3 mm	TCT-1PAZZ0503MZ	6043159
		100 mm / 6 mm	TCT-1PAZZ1006MZ	6043160
		150 mm / 6 mm	TCT-1PAZZ1506MZ	6043161
		250 mm / 6 mm	TCT-1PAZZ2506MZ	6043162
		350 mm / 6 mm	TCT-1PAZZ3506MZ	6043163
	Thread G 1/4 B	25 mm / 3 mm	TCT-1PAG10253MZ	6043164
		50 mm / 3 mm	TCT-1PAG10503MZ	6043165
		100 mm / 6 mm	TCT-1PAG11006MZ	6043166
		150 mm / 6 mm	TCT-1PAG11506MZ	6043167
		250 mm / 6 mm	TCT-1PAG12506MZ	6043168
		350 mm / 6 mm	TCT-1PAG13506MZ	6043169
	Thread G 1/2 B	25 mm / 3 mm	TCT-1PAGE0253MZ	6043170
		50 mm / 3 mm	TCT-1PAGE0503MZ	6043172
		100 mm / 6 mm	TCT-1PAGE1006MZ	6043173
		150 mm / 6 mm	TCT-1PAGE1506MZ	6043174
		250 mm / 6 mm	TCT-1PAGE2506MZ	6043175
		350 mm / 6 mm	TCT-1PAGE3506MZ	6043176
	Compression fitting G 1/4 B, CrNi stainless steel ferrule	25 mm / 3 mm	TCT-1PAS10253MZ	6043177
		50 mm / 3 mm	TCT-1PAS10503MZ	6043178
		100 mm / 6 mm	TCT-1PAS11006MZ	6043179
		150 mm / 6 mm	TCT-1PAS11506MZ	6043180
		250 mm / 6 mm	TCT-1PAS12506MZ	6043181
		350 mm / 6 mm	TCT-1PAS13506MZ	6043183
	Compression fitting G 1/2 B, CrNi stainless steel ferrule	25 mm / 3 mm	TCT-1PASE0253MZ	6043185
		50 mm / 3 mm	TCT-1PASE0503MZ	6043186
		100 mm / 6 mm	TCT-1PASE1006MZ	6043187
		150 mm / 6 mm	TCT-1PASE1506MZ	6043188
		250 mm / 6 mm	TCT-1PASE2506MZ	6043189
		350 mm / 6 mm	TCT-1PASE3506MZ	6043190
Thermowell G 1/4 B	100 mm / 6 mm	TCT-1PAT11006MZ	6043193	
	150 mm / 6 mm	TCT-1PAT11506MZ	6043194	
	250 mm / 6 mm	TCT-1PAT12506MZ	6043195	
	350 mm / 6 mm	TCT-1PAT13506MZ	6043196	
Pt100, 4-wire	Thermowell G 1/2 B	100 mm / 6 mm	TCT-1PATE1006MZ	6043197
		150 mm / 6 mm	TCT-1PATE1506MZ	6043198
		250 mm / 6 mm	TCT-1PATE2506MZ	6043199
		350 mm / 6 mm	TCT-1PATE3506MZ	6043200

Output signal	Process connection	Insertion length/diameter of probe	Model name	Part No.
4 mA ... 20 mA, 2-wire ($R_A \leq (L^+ - 9 V) / 0.023 A [Ohm]$)	Without process connection	25 mm / 3 mm	TCT-1AAZZ0253MZ	6043201
		50 mm / 3 mm	TCT-1AAZZ0503MZ	6043202
		100 mm / 6 mm	TCT-1AAZZ1006MZ	6043203
		150 mm / 6 mm	TCT-1AAZZ1506MZ	6043204
		250 mm / 6 mm	TCT-1AAZZ2506MZ	6043205
		350 mm / 6 mm	TCT-1AAZZ3506MZ	6043206
	Thread G 1/4 B	25 mm / 3 mm	TCT-1AAG10253MZ	6043210
		50 mm / 3 mm	TCT-1AAG10503MZ	6043211
		100 mm / 6 mm	TCT-1AAG11006MZ	6043212
		150 mm / 6 mm	TCT-1AAG11506MZ	6043213
		250 mm / 6 mm	TCT-1AAG12506MZ	6043214
		350 mm / 6 mm	TCT-1AAG13506MZ	6043215
	Thread G 1/2 B	25 mm / 3 mm	TCT-1AAGE0253MZ	6043216
		50 mm / 3 mm	TCT-1AAGE0503MZ	6043217
		100 mm / 6 mm	TCT-1AAGE1006MZ	6043218
		150 mm / 6 mm	TCT-1AAGE1506MZ	6043219
		250 mm / 6 mm	TCT-1AAGE2506MZ	6043220
		350 mm / 6 mm	TCT-1AAGE3506MZ	6043221
	Compression fitting G 1/4 B, CrNi stainless steel ferrule	25 mm / 3 mm	TCT-1AAS10253MZ	6043222
		50 mm / 3 mm	TCT-1AAS10503MZ	6043223
		100 mm / 6 mm	TCT-1AAS11006MZ	6043224
		150 mm / 6 mm	TCT-1AAS11506MZ	6043225
		250 mm / 6 mm	TCT-1AAS12506MZ	6043226
		350 mm / 6 mm	TCT-1AAS13506MZ	6043227
	Compression fitting G 1/2 B, CrNi stainless steel ferrule	25 mm / 3 mm	TCT-1AASE0253MZ	6043228
		50 mm / 3 mm	TCT-1AASE0503MZ	6043229
		100 mm / 6 mm	TCT-1AASE1006MZ	6043230
		150 mm / 6 mm	TCT-1AASE1506MZ	6043231
		250 mm / 6 mm	TCT-1AASE2506MZ	6043232
		350 mm / 6 mm	TCT-1AASE3506MZ	6043233
	Thermowell G 1/4 B	100 mm / 6 mm	TCT-1AAT11006MZ	6043234
		150 mm / 6 mm	TCT-1AAT11506MZ	6043235
250 mm / 6 mm		TCT-1AAT12506MZ	6043236	
350 mm / 6 mm		TCT-1AAT13506MZ	6043237	
Thermowell G 1/2 B	100 mm / 6 mm	TCT-1AATE1006MZ	6043238	
	150 mm / 6 mm	TCT-1AATE1506MZ	6043239	
	250 mm / 6 mm	TCT-1AATE2506MZ	6043240	
	350 mm / 6 mm	TCT-1AATE3506MZ	6043241	

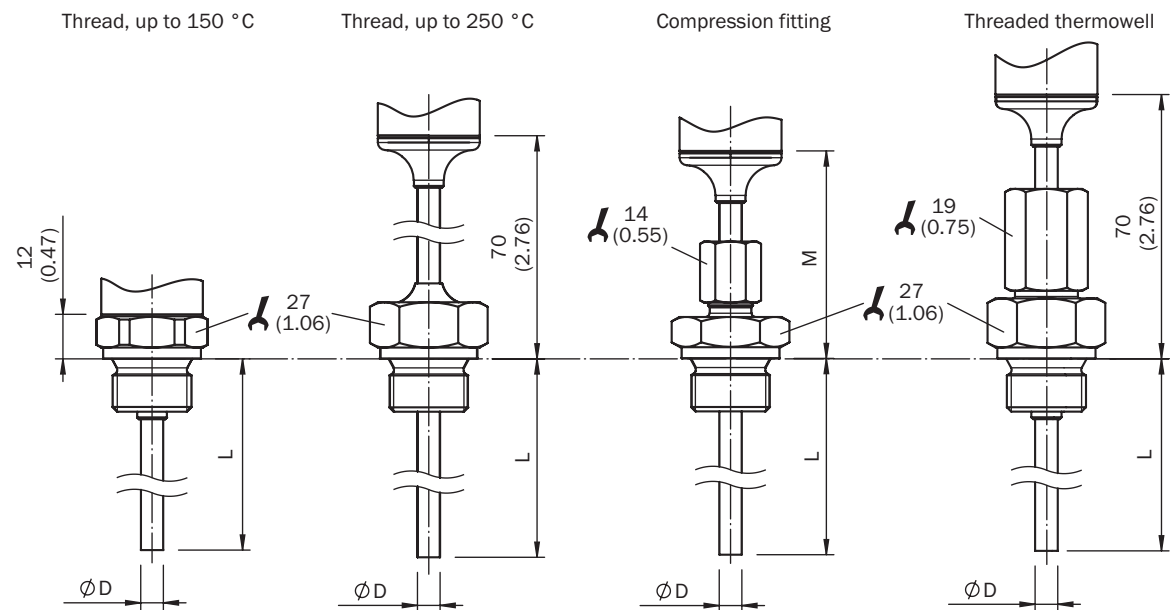
Dimensional drawings

Housing dimensions, without process connection



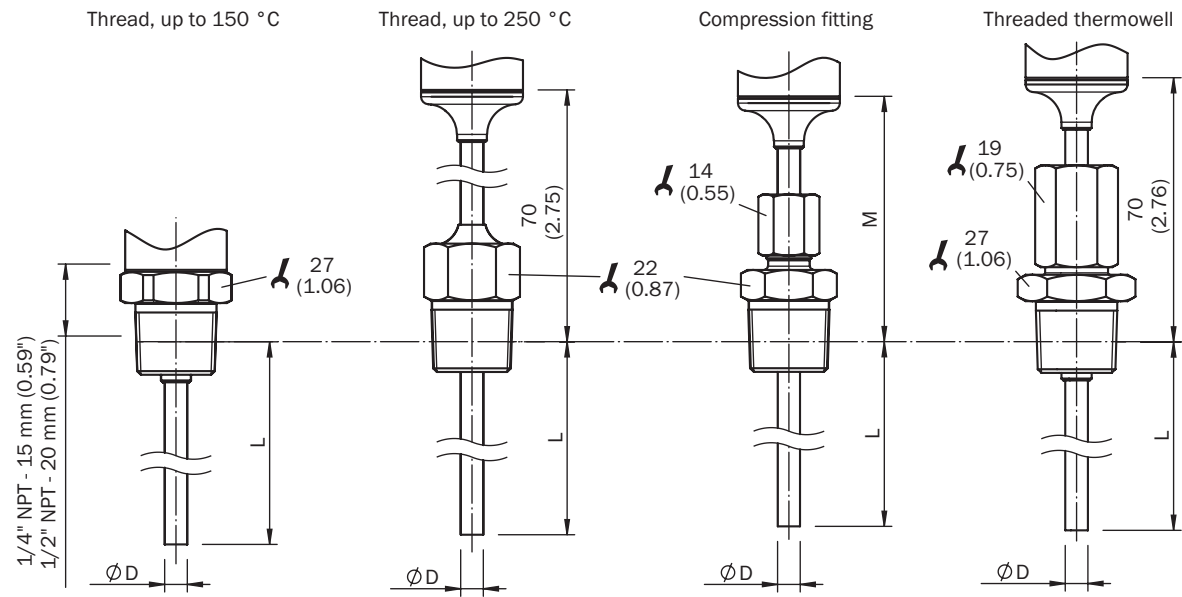
All dimensions in mm (inch)

Process connections, cylindrical threads



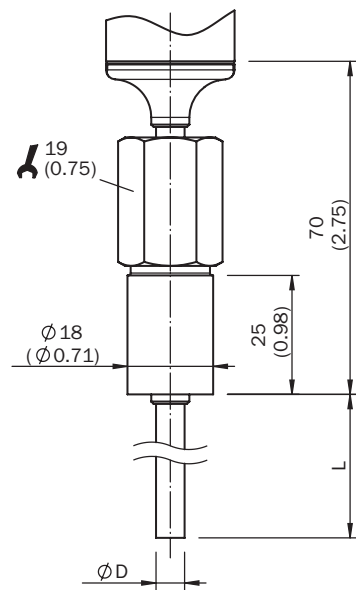
All dimensions in mm (inch)

Process connections, conical threads



All dimensions in mm (inch)

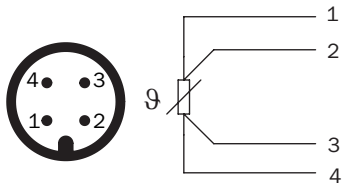
Process connection, weld-in thermowell



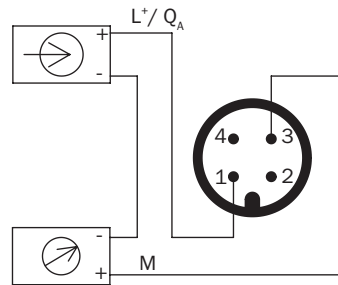
All dimensions in mm (inch)

Connection type and diagram

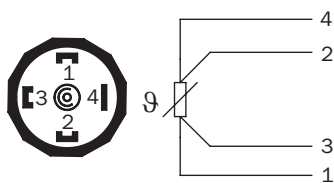
Plug M12x1, output signal Pt100



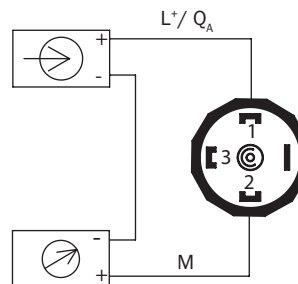
Plug M12x1, output signal 4 mA ... 20 mA



L-connector (DIN EN 175301-803 A), output signal Pt100



L-connector (DIN EN 175301-803 A), output signal 4 mA ... 20 mA



Recommended accessories

Plug connectors and cables

	Model name	Part No.
Cable, M12, 4-pin, straight connector female with molded cable, 2 m, PVC	DOL-1204-G02M	6009382
Cable, M12, 4-pin, straight connector female with molded cable, 2 m, PUR halogen free	DOL-1204-G02MC	6025900
Cable, M12, 4-pin, straight connector female with molded cable, 5 m, PVC	DOL-1204-G05M	6009866
Cable, M12, 4-pin, straight connector female with molded cable, 5 m, PUR halogen free	DOL-1204-G05MC	6025901
Cable, M12, 4-pin, straight connector female with molded cable, 10 m, PVC	DOL-1204-G10M	6010543
Cable, M12, 4-pin, straight connector female with molded cable, 10 m, PUR halogen free	DOL-1204-G10MC	6025902
Cable, M12, 4-pin, straight connector female with molded cable, 15 m, PVC	DOL-1204-G15M	6010753
Cable, M12, 4-pin, angled connector female with molded cable, 2 m, PVC	DOL-1204-W02M	6009383
Cable, M12, 4-pin, angled connector female with molded cable, 2 m, PUR halogen free	DOL-1204-W02MC	6025903
Cable, M12, 4-pin, angled connector female with molded cable, 5 m, PVC	DOL-1204-W05M	6009867
Cable, M12, 4-pin, angled connector female with molded cable, 5 m, PUR halogen free	DOL-1204-W05MC	6025904
Cable, M12, 4-pin, angled connector female with molded cable, 10 m, PVC	DOL-1204-W10M	6010541
Cable, M12, 4-pin, angled connector female with molded cable, 10 m, PUR halogen free	DOL-1204-W10MC	6025905

Notes

Worldwide presence with subsidiaries in the following countries:

Australia
Belgium/Luxembourg
Brasil
Ceská Republika
China
Danmark
Deutschland
España
France
Great Britain
India
Israel
Italia
Japan
Nederland
Norge

Österreich
Polska
Republic of Korea
Republika Slovenija
România
Russia
Schweiz
Singapore
Suomi
Sverige
Taiwan
Türkiye
United Arab Emirates
USA/Canada/México

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Handed over by:

Our Business Segment Expertise

Factory automation

With its intelligent sensors, safety systems, and automatic identification applications, SICK provides comprehensive solutions for factory automation.



- Non-contact detecting, counting, classifying, and positioning of any type of object
- Accident protection and personal safety using sensors, as well as safety software and services

Logistics automation

Sensors made by SICK form the basis for automating material flows and the optimization of sorting and warehousing processes.



- Automated identification with barcode and RFID reading devices for the purpose of sorting and target control in industrial material flow
- Detecting volume, position, and contours of objects and surroundings with laser measurement systems

Process automation

Optimized system solutions from SICK ensure efficient acquisition of environmental and process data in many industrial processes.



- Precise measurement of gases, liquids and dust concentrations for continuous monitoring of emissions and the acquisition of process data in production processes
- Gas flow measurements with maximum accuracy thanks to compact gas meters