

# REFRIGERATION AND COLD CHAIN



# ABOUT US



For more than 45 years, Sauermann Group has designed, manufactured and sold products and services dedicated to the industrial and HVACR markets. The Group specifically focuses on the detection, measurement and control of indoor air quality (IAQ).

HIGH ACCURACY  
UNMATCHED RELIABILITY  
MULTIPLE APPLICATIONS

**Measurement instruments:** Sauermann measurement instruments monitor a broad spectrum of indoor air quality parameters and serve a wide range of applications, from building ventilation (heating and air conditioning) systems, to cold-chain installations and combustion gas analysis. Backed by our testing laboratories and in-house research and development program, Sauermann instruments deliver the accuracy and reliability that HVACR engineers need.

LOW SOUND LEVEL  
LOW FAIL RATE  
HIGH PERFORMANCE

**Condensate management solutions:** Safe and effective condensate management for air quality systems can be a challenge. Sauermann pumps are designed to look good, while our patented piston technology delivers whisper-quiet operation and unrivalled reliability.

Sauermann Industrie,  
Laboratories, located  
in Montpon (FR),  
accredited to standard  
NF EN ISO/IEC 17025



TEMPERATURE



HUMIDITY

# SUMMARY

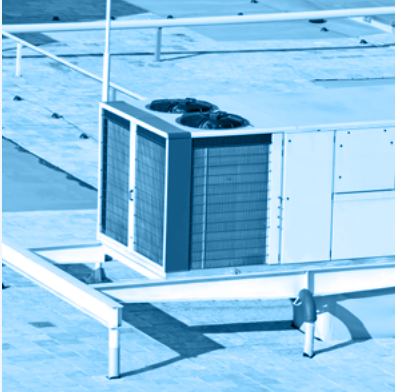


TEMPERATURE AND  
PRESSURE

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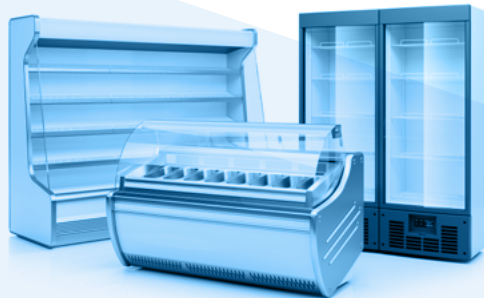
# REFRIGERATION AND COLD CHAIN

Refrigeration is among the most essential industries worldwide: it stands at the very foundation of our food supply due to the importance of the cold chain, it is also at the basis of the production processes for countless sensitive and vital products, such as drugs, vaccines and other pharmaceuticals.

Refrigeration is also at the crossroads of major concerns: food safety on a large scale, as well as the preservation of our environment. That's why manufacturers and operators of refrigerators and freezers face increasing demands on operational safety and environmental protection. Pressure, temperature, su-

perheating and subcooling of a refrigeration system must be regularly checked to ensure it functions smoothly, safely and efficiently.

The extensive international standards and regulations on the tightness of refrigerant systems are continually being revised. As the most used refrigerants are greenhouse gases with high global warming potential (commonly known as GWP), the regulations are becoming stricter. That's why every part of the cold chain must be frequently tested: production installations, refrigeration plants, freezers, refrigerators, refrigeration units, etc.



# Temperature and pressure

The two most important parameters for the maintenance of refrigeration systems are temperature and pressure, as they are the key to verifying the proper functioning of the cooling process.

The advent of digital technology means huge quality improvements when it comes to the adjustment of refrigeration systems or heat pumps. Digital manifolds provide high-precision temperature and pressure measurements, determine subcooling and superheating, but also enable reliable evacuation of the system through accurate vacuum measurement.



Commission or maintain a refrigeration system, check the refrigerant circuit tightness, fill gas and check differential pressure and subcooling / superheating temperatures simultaneously.

## Solution

Si-RM13 Combined manifold with smart wireless probes and 2-channel by-pass and Si-RV3 Smart wireless vacuum probe with dual valves

Calculate superheating and subcooling of a phase change cooling system with a dual-input thermometer, when using analog manifolds.

## Solution

TK 62 thermocouple thermometer



# Data logging

Data logging is an essential activity when monitoring the operation of a cooling system over an extended period of time and the temperature behavior within a cold store. Therefore, it is the main tool to ensure that the cold chain has not been broken during storage and transportation.

The recording of temperature and humidity data within a refrigeration or freezing area makes it possible to certify that the cold chain has been maintained throughout its most sensitive sections, primarily the transport of thermal sensitive goods like vaccines.

Given the massive health hazard involved in breaking the cold chain, data loggers enable the food and pharmaceutical industries to guarantee compliance with the strict quality requirements set out in international standards.



Record temperature along the mobile parts of the cold chain, such as transportation and storage.

**Solution**  
KT 50 temperature data logger

# Leak Detection

Refrigeration systems can severely suffer from refrigerant gas leaks. Also, most refrigerants are powerful greenhouse gases and can seriously harm the environment. For this reason, it is extremely important to be able to easily locate any leak in order to quickly fix the impacted portion of the gas circuit.

Searching for and finding gas leaks can be very difficult. Fast professional leak detectors are essential to precisely locate the smallest leaks in a refrigerant circuit.



In every part of the refrigeration circuit, detect refrigerant leaks such as all HCFC and HFC refrigerants, R1234yf, R1234ze, R290, R600a, and 5% hydrogen–95% nitrogen mixtures (Nidron 5 and Trace-A-Gas).




## **Solution**

Si-RD3 refrigerant gas leak detector




# Portable instruments

All Refrigeration & Cold Chain products


Temperature and pressure

PRODUCT	ITEM	REF.	MEASURED PARAMETERS						DESCRIPTION
			Pa	°C/°F	%RH	m/s	m <sup>3</sup> /h	ppm	
	Si-RM13	25558	✓	✓	-	-	-	-	<p><b>Si-RM13</b> Wireless manifold</p> <ul style="list-style-type: none"> <li>• Set made of two pressure probes and two temperature probes. Pressure probe in ABS-PC with elastomer overmoulding. Connection to facilities: 1/4" FFL with depressor.</li> <li>• Fluid load and evacuation: 1/4" MFL with Shrader® valve. Relative pressure range from -1 to 60 bar. Wireless connection low energy communication.</li> <li>• NTC temperature clamps, range from -40 °C to +150°C</li> <li>• Cable of 2 m with reinforced jack connector.</li> <li>• Blind manifold with hanging hook and three 'Y' 1/4" MFL connections including one with Shrader® valve. Probes supplied in a robust transport case with red and blue identification rings, six AAA batteries, adjustment certificate and a set of three charging lines with flow ball valves.</li> <li>• Measurements reading on free Si-Manifold application.</li> </ul>
	Si-RM3	25555	✓	✓	-	-	-	-	<p><b>Si-RM3</b> Wireless manifold</p> <ul style="list-style-type: none"> <li>• Set made of two pressure probes and two temperature probes. Pressure probe in ABS-PC with elastomer overmoulding. Connection to facilities: 1/4" FFL with depressor.</li> <li>• Fluid load and evacuation: 1/4" MFL with Shrader® valve. Relative pressure range from -1 to 60 bar.</li> <li>• Wireless connection low energy communication. NTC temperature clamps, range from -40°C to +150°C. Cable of 2 m with reinforced jack connector. Probes supplied in soft case with red and blue identification rings, six AAA batteries and adjustment certificate.</li> <li>• Measurements reading on free Si-Manifold application.</li> </ul>
	Si-RV3	25554	✓	-	-	-	-	-	<p><b>Si-RV3</b> Wireless probe for vacuum measurement</p> <ul style="list-style-type: none"> <li>• Housing in ABS-PC with elastomer overmoulding. 1/4" FFL connector with depressor for connection to facilities. 1/4" MFL connector with Shrader® valve for charge and vacuum.</li> <li>• Range from 25 000 to 5 microns. Wireless connection low energy communication.</li> <li>• Supplied in blister pack, with three AAA batteries and adjustment certificate.</li> <li>• Measurements reading on free Si-Manifold application.</li> </ul>







Temperature

	TK 61	25513	-	✓	-	-	-	-	<p><b>TK 61</b> 1-channel portable thermometer</p> <ul style="list-style-type: none"> <li>• Measuring range: -200 to +1760°C. K/J/T/S thermocouple. 2-line display.</li> <li>• Functions: hold, min, max, backlit display, alarm, change of unit, configurable auto switch-off and selection of thermocouple type.</li> <li>• Supplied with batteries and adjustment certificate.</li> </ul>
	TK 62	25514	-	✓	-	-	-	-	<p><b>TK 62</b> 2-channel portable thermometer</p> <ul style="list-style-type: none"> <li>• Measuring range: -200 to +1760 °C. K/J/T/S thermocouple. 2-line display.</li> <li>• Functions: hold, min, max, delta T, backlit display, alarm, change of unit, configurable auto switch-off and selection of thermocouple type.</li> <li>• Supplied with batteries and adjustment certificate.</li> </ul>
	KIRAY 100	21664	-	✓	-	-	-	-	<p><b>KIRAY 100</b> infrared thermometer, double laser sighting</p> <ul style="list-style-type: none"> <li>• Measuring range: -50 to +800°C. D:S = 20:1.</li> <li>• Functions: backlit display, audible alarm (high and low), adjustable emissivity.</li> <li>• Supplied with transport cover and user manual.</li> </ul>



PRODUCT	ITEM	REF.	MEASURED PARAMETERS							DESCRIPTION
			Pa	°C/°F	%RH	m/s	m³/h	ppm		
	Si-RD3	27867	-	-	-	-	-	-	✓	<b>Si-RD3 Refrigerant gas leak detector</b> <ul style="list-style-type: none"> <li>• Detects the most common refrigerants: all HFCF and HFC refrigerants, HFO-1234yf, HFO-1234ze, R290, R600a. Detection of mixtures: 5% hydrogen - 95% nitrogen, Nidron 5 / Trace Gas, etc.</li> <li>• 300 mm flexible probe.</li> <li>• Instrument meets EN14624 standard.</li> <li>• Manual and automatic auto-zero, draft pump, heat-system sensor, visual and audible alarm, battery-level indicator.</li> </ul>

## Accessories

ACCESSORIES	ITEM	REF.	MEASURED PARAMETERS							DESCRIPTION
			Pa	°C/°F	%RH	m/s	m³/h	ppm		
	SKV 150	17156	-	✓	-	-	-	-	-	<b>SKV150 Class 1 K thermocouple hook and loop fastener contact probe (-20 to +90°C)</b> <ul style="list-style-type: none"> <li>• Hook and loop fastener fixing for duct Ø 100 mm (maximum), with 1.50 m cable and compensated miniature male connector.</li> </ul>
	SCLK 150	24648	-	✓	-	-	-	-	-	<b>SCLK150 Class 1 K thermocouple lamella contact probe (-50 to +250°C)</b> <ul style="list-style-type: none"> <li>• Stainless steel probe Ø 6 mm, length 150 mm with handle, retractable cable and miniature male compensated connector.</li> </ul>
	SAK-2	24818	-	✓	-	-	-	-	-	<b>SAK-2 Class 1 K thermocouple wire probe (-40 to +250°C)</b> <ul style="list-style-type: none"> <li>• Visible welding, isolated PTFE cable length 2 m, output on miniature male compensated connector (Tr 99%: 3 s).</li> </ul>
	SAK 150	24646	-	✓	-	-	-	-	-	<b>SAK-150 Class 1 K thermocouple ambient probe (-40 to +250°C)</b> <ul style="list-style-type: none"> <li>• Stainless steel perforated probe Ø 4.5 mm, length 150 mm with handle, retractable cable and miniature male compensated connector (Tr 99%: 50 s).</li> </ul>
	ST 110	24635	-	-	-	-	-	-	-	<b>ST110 Soft case with handle</b> <ul style="list-style-type: none"> <li>• For class 60 and 110 instruments (supplied with all class 110 / can be ordered separately).</li> </ul>
	CQ 15	24633	-	-	-	-	-	-	-	<b>CQ15 Protective cover with integrated magnets</b> <ul style="list-style-type: none"> <li>• For class 50 and 110 instruments.</li> </ul>








### Customized Products







If you cannot find the product (instrument, probe, accessory) that suits your specific needs in this list, we can also deliver a large range of products that are available with longer delivery lead times.

# Data Loggers

All Refrigeration & Cold Chain products

Temperature and humidity

PRODUCT	ITEM	REF.	MEASURED PARAMETERS						DESCRIPTION
			Pa	°C/°F	%RH	m/s	m³/h	ppm	
	KT-320	25248	-	✓	✓	-	-	-	<b>KT-320</b> Temperature data logger with internal sensor (-40 +70 °C) <ul style="list-style-type: none"> <li>2-line display, IP65 protection housing with magnet fixing and anti-theft wall-mount support.</li> <li>2 external inputs for temperature/hygrometry/current/voltage/impulse probe. Wireless connection for mobile and tablets (Android and iOS).</li> <li>Memory capacity: 2,000,000 measuring points.</li> </ul>
	KT220-O	25234	-	✓	✓	-	-	-	<b>KT220-O</b> Temperature data logger with internal sensor (-40 +70 °C) <ul style="list-style-type: none"> <li>2-line display, IP65 protection housing, magnet fixing.</li> <li>1 external input for temperature/hygrometry/current/voltage/impulse and water pressure probe.</li> <li>Memory capacity: 1,000,000 measuring points.</li> </ul>
	KTT-220-O	25236	-	✓	-	-	-	-	<b>KTT-220-O</b> Temperature data logger <ul style="list-style-type: none"> <li>With 2 K Thermocouple inputs (-200 to +1300 °C), J (-100 to +750 °C), T (-200 to 400 °C), N (-200 to +1300 °C) and S (0 to 1760 °C), 2-line display, IP54 protection housing, magnet fixing.</li> <li>Memory capacity: 1,000,000 measuring points.</li> </ul>
	KT-120	25230	-	✓	-	-	-	-	<b>KT-120</b> Temperature datalogger with internal sensor (-40 +70 °C) <ul style="list-style-type: none"> <li>1-line display, IP65 protection housing with magnet fixing. Built-in USB connector, integrated function for automatic report printing and for configuration via PDF. Memory capacity: 50,000 measuring points. As per 12830 standard</li> <li>Compatible with Kilog 2015 dataprocessing software, coming in option)</li> </ul>
	KT-50	24911	-	✓	-	-	-	-	<b>KT-50</b> Temperature datalogger with internal sensor (-40 to +70 °C) <ul style="list-style-type: none"> <li>With 1-line display.</li> <li>IP65 housing with magnet fixing.</li> <li>Memory capacity 16,000 points.</li> <li>Compliant with norm NF EN 12830.</li> </ul>

ACCESSORIES	ITEM	REF	MEASURED PARAMETERS						DESCRIPTION
			Pa	°C/°F	%RH	m/s	m³/h	ppm	
	KIRV-320	25349	-	✓	-	-	-	-	<b>KIRV-320</b> Hook and loop fastene wire Pt100 temperature probe <ul style="list-style-type: none"> <li>Length 200 mm, output on PVC cable length 2 m.</li> <li>With mini-DIN connector (-20 to +90 °C).</li> <li>For class 320 Kistock.</li> </ul>
	KSI-150	25291	-	✓	-	-	-	-	<b>KSI-150</b> NTC immersion temperature probe <ul style="list-style-type: none"> <li>Stainless steel probe length 150 mm, Ø 6 mm.</li> <li>Output on PVC cable length 2 m, with mini-DIN connector (-40 to +120 °C).</li> </ul>
	KIRGA-50	25257	-	✓	-	-	-	-	<b>KIRGA-50</b> Pt100 smart immersion probe, class A, IP65 protection <ul style="list-style-type: none"> <li>Class A, IP65 protection.</li> <li>Stainless steel probe length 50 mm, Ø 6 mm. Output on PVC cable length 2 m. With mini-DIN connector (-40 to +120 °C).</li> <li>For class 320 Kistock.</li> </ul>
	KICA-320	27911	-	✓	-	-	-	-	<b>KICA-320</b> Adapter cable for other Pt 100 temperature probes <ul style="list-style-type: none"> <li>3 wires including a terminal block and a male Mini-DIN connector, for Kistock KT 320 and KT TrackLog. To be mounted on already delivered probes (must be ordered alone - without probe).</li> </ul>
	KIC3-N	25244	-	-	-	-	-	-	<b>KIC3-N</b> Configuration and dataprocessing software (Kilog 2015) <ul style="list-style-type: none"> <li>Supplied with CK-50 USB cable for Kistock (except KT-20 and class 120).</li> </ul>
	KBL-AA	25240	-	-	-	-	-	-	<b>KBL-AA</b> battery <ul style="list-style-type: none"> <li>AA Lithium 3.6 V.</li> <li>For Kistock class 220, 320 (2 batteries required on class 320).</li> </ul>

# OUR EXPERTISE

## ACCREDITED MEASUREMENT LABORATORIES, IN-HOUSE RESEARCH AND DEVELOPMENT

Sauermann products and services are backed by cutting-edge facilities and expertise: a team of over 20 experts working at multiple testing and calibration laboratories worldwide, and production lines in France, the United States and China.

Our in-house research and development program – spearheaded by a young, forward-looking group of 20 engineers and 10 technicians - has three aims: to push the boundaries of innovation in ergonomic design, digital technology and connected objects, to patent our technologies, and to consistently set new standards for electronic and mechanical performance in our products.



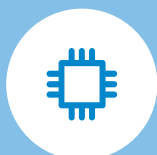
### Over 800 m<sup>2</sup> of laboratory space

Our experts provide maintenance, adjustment and calibration services for our measurement instruments.



### Customer service staff trained by our experts

Our team is here to advise and quote you for the service you need.



### After-sales service

Our technicians maintain and repair your devices right where they're made.



### Over 20 patents

Including our oscillating piston pump technology and the foldable frame system found on our DBM 620 air flow meter.



### Our measurement expertise covers a wide range of fields:

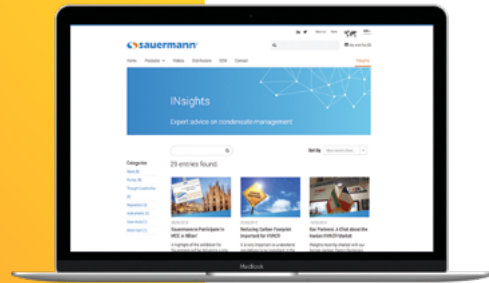
Pressure	Air velocity
Temperature	Air flow
Humidity	Gas analysis
Weight	Light measurement
Radiometry	Electrical current
Tachometry	Acoustics

# Professional solutions for condensate management and indoor air quality measurement

## INsights

Case studies, useful information and practical advice for HVACR and indoor air quality professionals.

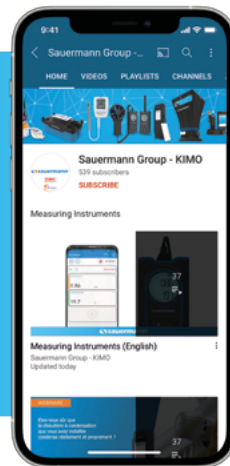
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## Sauermann on YouTube

Head to our YouTube channel for tutorials, webinars and product guides.

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[sauermanngroup.com](http://sauermanngroup.com)



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