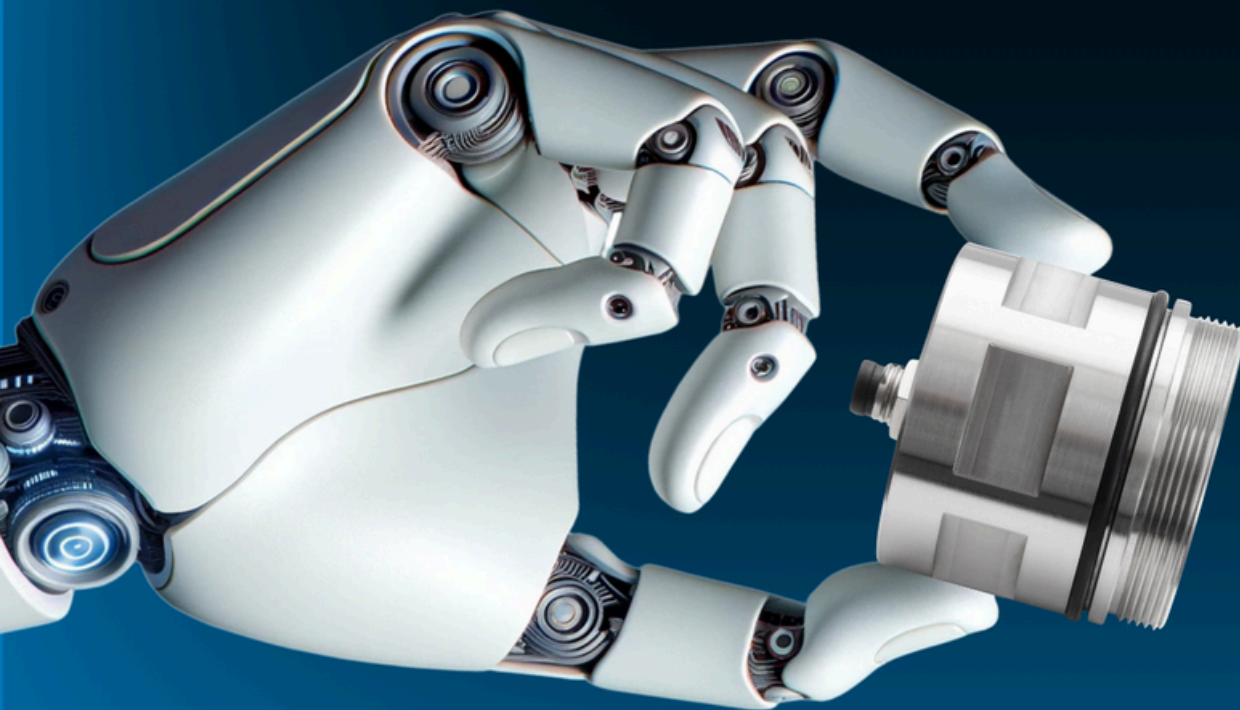


Product Overview

Process Refractometers

2025
2026



The iCS².
Our smallest concentration sensor yet.

SCHMIDT + HAENSCH

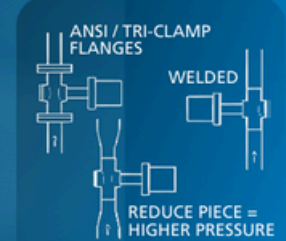
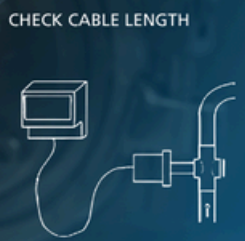
Precision meets Compliance

All our inline process refractometers and sensors perform industrial measurements continuously and in real time. PAT by SCHMIDT + HAENSCH allows you to monitor and control your process without product loss or process divergence – always fully in line with your production. With SCHMIDT + HAENSCH process sensors, refractometers and versatile accessories, quality control and the determination of liquid concentration and mixing ratios becomes easy: Measurements are always reliable and independent of turbidity, color, absorption and viscosity – ensuring maximum precision and better control of your processes.

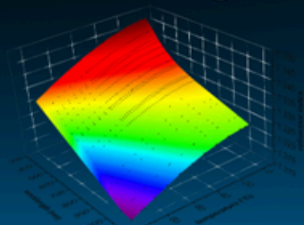
Process Analytical Technology (PAT)

Process Analytical Technology (PAT) is a manufacturing methodology for high value chemicals and pharmaceuticals. Critical parameters (CPPs) and key performance indicators (KPIs) of the process are thoroughly understood, well-defined and continually monitored in order to ensure that the pre-defined critical quality attributes (CQA) of the final product are consistently achieved. PAT measures key quality and performance indicators in raw materials, in-process materials and processes in real-time. A well designed PAT-based process is stable, ensuring that the critical parameters and indicators remain within pre-described limits to ensure product quality and process safety.

Installation Necessities



Engineering & Custom Scales



When implementing a new PAT, it is crucial to get the right results on the first day of installation. Our in-house lab service determines your specific measuring scale for your instrument, which is then provided for your measurements. This will ensure reliable and repeatable process control in the long run.

Application Highlights

Food & Beverage



Quality control | Dilution or evaporation process control | Dealcoholisation process, Oechsle / Brix measurement | Process monitoring | extraction processes | CIP monitoring, product recovery and interface detection

Sugar, Starch & Sweeteners



Brix measurement of all common sugar types | Monitoring of the crystallisation processes | Impurity detection in condensate | Concentration measurement of starch or sweetener

Chemical, Petrochemical & Chemical Fibre



Concentration measurement of solvents | Urea concentration measurements | Ammonia concentration in fertiliser production | Interface detection in the oil phase separation

Pharmaceutical Industry



Monitoring of chemical reactions | Impurity Detection | Quality control of final products | Monitoring of extraction, mixing, preparation, crystallisation and dissolution processes | In accordance with Pharmacopoeia

Biofuels & Fermentation



Pulp & Paper Industry



Electronics Industry



Mechanical Processing



Tobacco Industry

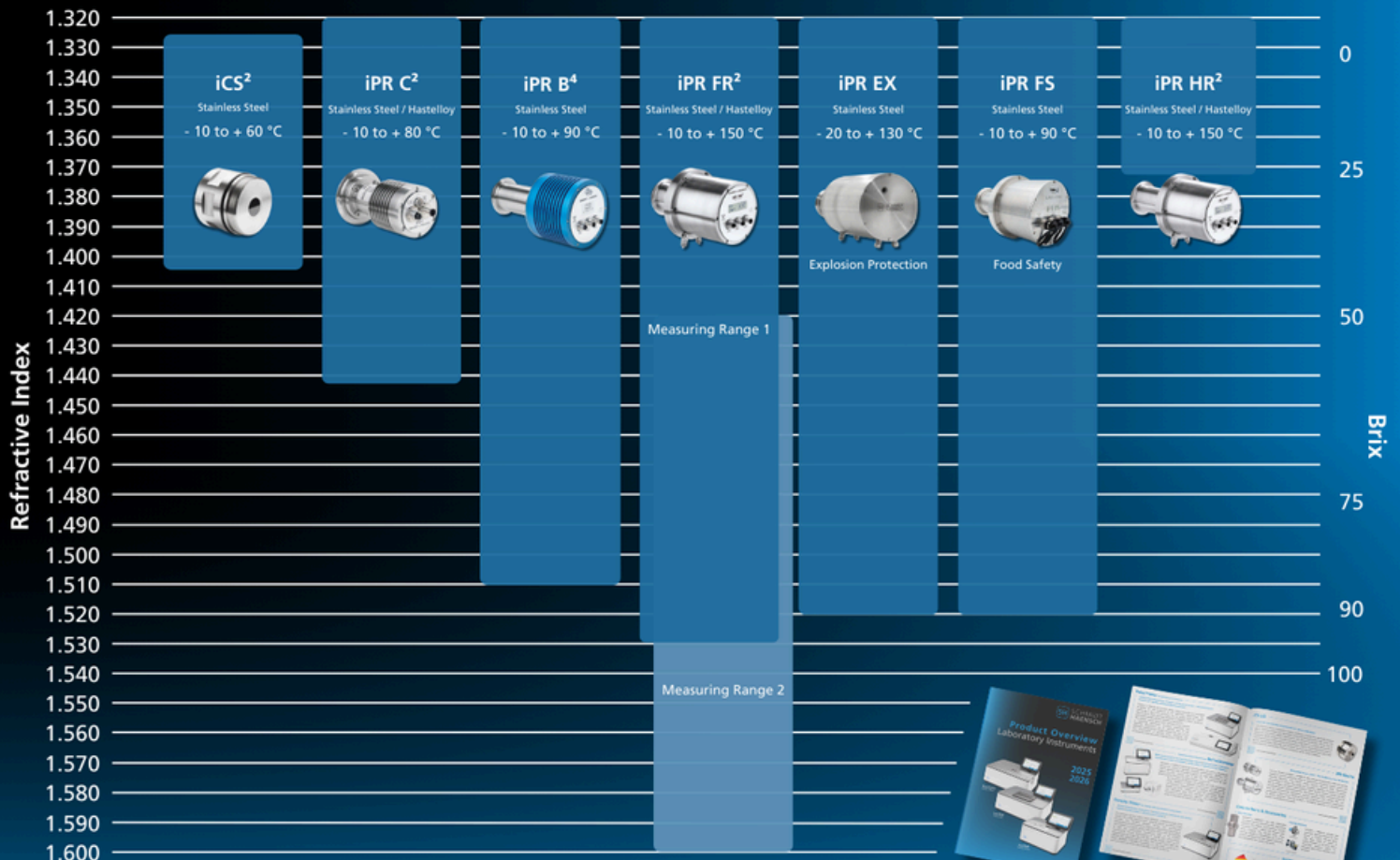


Electricity and Energy Industry



Process Refractometer Overview

Resolution nD / Brix	0.00007 / 0.05	0.00007 / 0.05	0.00001 / 0.01	0.00001 / 0.01	0.00001 / 0.01	0.00001 / 0.01	0.000002 / 0.001
Accuracy nD / Brix	0.0002 / 0.15	0.0002 / 0.15	0.00011 / 0.08	0.00007 / 0.05	0.00014 / 0.1	0.00014 / 0.1	0.00003 / 0.02



Scan for PDF

Take a look at our laboratory instruments brochure



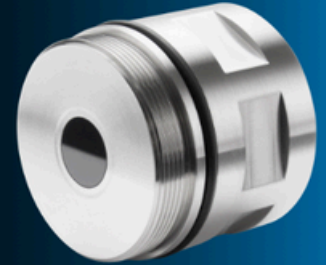
Our Inline Process Instruments

iCS²

Small in size, big in effect: size concentration measurement for various applications

The iCS² inline process sensor stands for reliable and continuous concentration measurement in the smallest of spaces – ideal for use in ongoing processes with cooling lubricants, antifreeze and many other substances. Thanks to its robust insensitivity to ambient light and dirt and virtually maintenance-free functionality, the sensor continuously delivers precise measurement results without any cleaning.

Measuring range	1.3270 - 1.4036 RI / 0 - 40 Brix (up to 50 Brix on request)
Accuracy	± 0.0002 RI / ± 0.15 Brix
Temperature range	- 10 to + 60 °C



iPR-Series

Entering Process Control - iPR C²

For over 35 years, SCHMIDT + HAENSCH's Inline Process Refractometers (iPR) have set the standard in process monitoring. The iPR C², the smallest of all iPR's, is an ideal all-round instrument for measuring concentration in a wide range of industrial applications. Thanks to its excellent price-performance ratio, it is also a great entry-level process refractometer.

Measuring range	1.3200 - 1.4420 RI / 0 - 60 Brix
Accuracy	± 0.0002 RI / ± 0.15 Brix
Temperature range	- 10 to + 80 °C



Standard Process Control - iPR B⁴

Our second entry-level process refractometer offers an extended measuring range, higher accuracy, and a blue anodized air cooling jacket for real-time quality control. It enables monitoring of sugar concentrations in liquids and other applications in the sugar, pharmaceutical, and chemical industries, and is CIP-capable for easy cleaning.

Measuring range	1.32000 - 1.51000 RI / 0 - 85 Brix
Accuracy	± 0.00011 RI / ± 0.08 Brix
Temperature range	- 10 to + 90 °C



High Temperature Applications - iPR FR²

Our flagship process refractometer is an all-rounder, designed to provide high resolution in two distinct measuring ranges. The integrated water cooling circuit allows for very high process temperatures. It is for example suitable to measure dry substance content in order to calculate the supersaturation of the mother liquid to monitor the pan crystallization.

Measuring range 1	1.3200 - 1.5300 RI / 0 - 100 Brix
Measuring range 2	1.4200 - 1.6000 RI / 50 - 100 Brix
Accuracy	± 0.00007 RI / ± 0.05 Brix
Temperature range	- 10 to + 150 °C (with water cooling)



Your eye in the pipe

iPR-Series

Condensate Monitoring - iPR HR²

The world's most precise process refractometer is the best choice for any application where inline measurements need to be as precise as laboratory analysis. It is designed for monitoring very low concentrations, making it ideal for monitoring potential sucrose carryover in condensate tanks, which is a critical safety issue.

Measuring range	1.3200 - 1.3720 RI / 0 - 25 Brix
Accuracy	± 0.00003 RI / ± 0.02 Brix
Temperature range	- 10 to + 150 °C (with water cooling)



Process Control with Hygienic Design - iPR FS

The EHEDG-certified iPR is suitable for almost all applications in food and beverage production. Its hygienic design with rounded surfaces and adapted screws prevents residue build-up, while full CIP capability ensures safe and effortless cleaning at prescribed process temperatures.

Measuring range	1.32000 - 1.52000 RI / 0 - 90 Brix
Accuracy	± 0.00014 RI / ± 0.1 Brix
Temperature range	- 10 to + 150 °C



Explosion Protected Process Control - iPR EX

The ATEX certified process refractometer is specifically designed for installation in hazardous, explosion-prone areas. It enables precise measurement of dissolved solids and reliable process control under demanding conditions. With its robust explosion protection, the iPR EX is ideally suited for use in the aerospace, petrochemical, and refinery industries.

Measuring range	1.32000 - 1.52000 RI / 0 - 90 Brix
Accuracy	± 0.00014 RI / ± 0.1 Brix
Temperature range	- 20 to + 130 °C



Connections & Accessories

Cleaning Solutions

SCHMIDT + HAENSCH provides two automatic cleaning solutions for their devices: a versatile cleaning device using water, steam, or solvent to remove residues on the prism, and a proprietary ultrasonic system for processes where liquid cleaning is not an option. Discover our full range of versatile accessories on our website.



Ultrasonic

Liquid / Steam

Inline Housings

SCHMIDT + HAENSCH's GEA VARINLINE® housings for process instruments offer unparalleled flexibility and hygiene, accommodating multiple instruments within a design that prevents dead spaces, oxidation, and cleaning issues. These housings are tailored to match your pipeline diameters, ensuring optimal flow without separation.



SCHMIDT + HAENSCH has developed from a rich history of engineering and scientific research. The family-run company was founded by Franz Schmidt and Herrmann Haensch in 1864 and has been part of innovative German technology from the beginning.

*Franz
Schmidt*



*Herrmann
Haensch*

SCHMIDT + HAENSCH founded by Franz Schmidt and Herrmann Haensch in Berlin	1864	1864	Developing quartz wedge polarimeter in cooperation with Karl Ventzke
Manufacturing microscopes for Rudolph Virchow	1879	1881	Manufacturing interferometer for Michelson-Morley experiment
Manufacturing of Abbe refractometer with Pulfrich-principle	1895	1905	Manufacturing circle polarimeter for Swiss Nobel Prize winner Alfred Werner
Manufacturing color mixing apparatus according to Helmholtz-König	1921	1963	Developing and manufacturing of world's first fully automatic sugar polarimeter with digital display and printer
First fully-automatic table refractometer with measuring range up to 1.72000 and a resolution of 10-5 Brix	1986	1992	Developing first refractometers for process control
Introduction of patented multi-wavelength refractometer	2005	2018	Launch of the VariFamily - refractometer, polarimeter and density meter
Development of the SpectroPol - multi-wavelength scanning polarimeter	2022	2023	Introduction of the iCS - the world's smallest process refractometer
SCHMIDT + HAENSCH celebrates 160-year anniversary	2024		



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