



# ATR-Series

## Laboratory - Refractometer

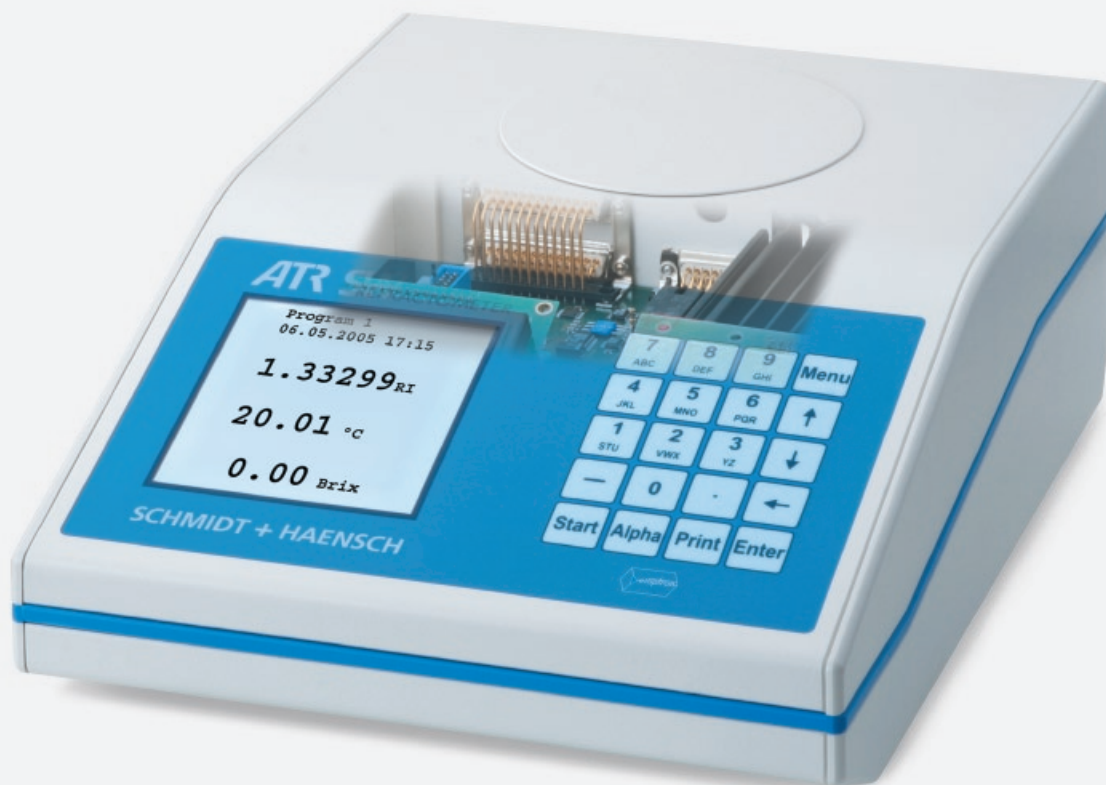


**SCHMIDT + HAENSCH**

Opto-electronic measuring device since 1864

# ATR-Controller

## innovation under cover



### Laboratory Refractometer ATR-Series

Modular concept of the new ATR Refractometer series is just one of the innovative features, allowing the selection of instruments according to the customers needs.

Depending on the application the measuring head can be integrated in the controller (ATR ST) or is housed in a separate stainless steel water proofed body (ATR SW/W1/W2). Additional advantage is the intuitive, user friendly operation. Same menu structure of the software allows easy comprehension of all Refractometer models.

Unique software features of the instrument software perform important statistical evaluation of results, individual programming of method's and selection of predefined scales with speed and ease.

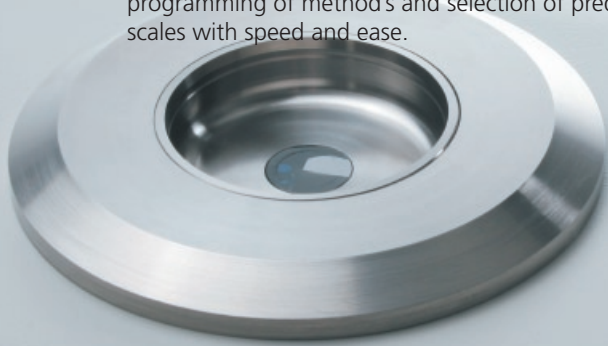
Incorporating the GLP requirements, the software meets the particular needs of laboratories in chemical and pharmaceutical industries.

Built-in temperature control features of the ATR SW and ATR W1/W2 refractometer ensures correct measurements even in case of external temperature variation.

The separate stainless steel housing is extremely robust, chemically resistant against most aggressive media and external temperature variation. It is water resistant and air-tight (ATR SW).

For more than 140 years SCHMIDT+HAENSCH is committed to high performance and exceptional quality.

A unique new development is the DSR- $\lambda$ , a multiple wavelength Refractometer for the automatic dispersion measurement and measuring the ABBE number simultaneously. Please, ask for special leaflet **DSR- $\lambda$** .





### Refractometer ATR- ST / ST plus / ST S plus

Automatic critical angle Refractometer in a single box design. The spacious sample room allows the measurement of fluid or solid substances. For aggressive samples or samples with a low density we recommend the PTFE insert (see picture). The shown Brix result is temperature corrected. The measuring prism is aligned with the sample room for easy cleaning and application of solid samples.

**Example for application:** A soft drink company wants to measure the Brix concentration in syrups or its final product. A Refractometer with a precision of  $\pm 0.05$  Brix is needed. The budget is limited.

**Advantages:** The customer gets a very compact designed instrument with an exceptional price performance ratio. The user participates in the high level of quality and easy operation of SCHMIDT+HAENSCH instruments.

**Alternative:** In case a higher precision or extended measuring range is needed choice of models like the ATR ST plus or ATR ST S plus.



### Refractometer ATR SW / ATR SW plus

Automatic critical angle Refractometer with a very high precision and a separated measuring head for liquid samples. For individual measurement or continuous measurement different sample chambers are available. The measuring head can be turned around to be used in continuous or single measurement mode.

**Example for application:** A company processing citrus fruits and wants to control the production by taking samples regularly. A Refractometer is needed for the fast measurement of similar samples with a high precision of  $\pm 0.02$  Brix.

**Advantages:** The ATR SW is an instrument which allows a very high throughput of samples with high precision. The sample room is designed to flush out the previous sample completely. No intermediate cleaning of the prism is needed. The programming of up to 10 scales allows the direct read out of concentrations of different products. In addition a separate thermostat can be attached. The high thermal mass of the sample room will lead to a fast temperature adaptation of the sample.

**Alternative:** In case a higher precision or extended measuring range is needed choice of models like the ATR SW plus.



### Refractometer ATR- W1 / W2 / W1 plus / W2 plus

Automatic critical angle Refractometer with a very high precision, separate measuring head for liquid and solid media with integrated Peltier thermostatisation.

**Example of application:** The test lab wants to analyse the constituents of cosmetics. The temperature needed must be exactly  $70^{\circ}\text{C}$  because the substance will become solid below  $65^{\circ}\text{C}$ . No additional thermostat is needed.

The customer wants to be sure that the temperature of the sample remains stable within a very small variation ( $0.01^{\circ}\text{C}$ ). The determination of the melting point is additional information by automatically running a temperature ramp.

**Advantages:** The ATR W1 / W2 is a Refractometer of highest precision with Peltier driven temperature control in the range of  $10^{\circ}\text{C}$  to  $80^{\circ}\text{C}$  over the whole ABBE range (only W2). Also 10 individual scales can be programmed.

**Alternative:** If a higher precision needed our modular concept of instruments offers the plus models.



## Refractometer SCHMIDT+HAENSCH

Model: ATR-	ST	ST plus	ST S plus	SW	SW plus	W1/W2	W1 plus/W2 plus
<b>Measuring range</b>	1.3320-1.5320 RI 0 - 95 Brix	1.3300-1.5500 RI 0 - 100 Brix	1.2800-1.5500 RI 0 - 100 Brix	1.3320-1.5320 RI 0 - 95 Brix	1.3000-1.5500 RI 0 - 100 Brix	1.3320-1.5320 RI 0 - 95 Brix (W1) 1.3320-1.7000 RI 0 - 95 Brix (W2)	1.3320-1.5320 RI 0 - 95 Brix (W1+) 1.3320-1.7000 RI 0 - 100 Brix (W2+)
<b>Resolution</b>	0.0001 RI 0.05 Brix	0.00002 RI 0.02 Brix	0.00001 RI 0.01 Brix	0.00002 RI 0.02 Brix	0.00001 RI 0.01 Brix	0.00002 RI 0.02 Brix	0.00001 RI 0.01 Brix
<b>Precision</b>	±0.0001 RI ±0.05 Brix	±0.00005 nRI ±0.03 Brix	±0.00003 RI ±0.02 Brix	±0.00004 RI ±0.04 Brix	±0.00002 RI ±0.02 Brix	±0.00004 RI ±0.04 Brix	±0.00002 RI ±0.02 Brix
<b>Working temperature</b>	+5 to +50°C	+5 to +50°C	+5 to +50°C	+5 to +50°C	+5 to +50°C	+10 to +80°C	+10 to +80°C
<b>Thermostatisat. of sample</b>	no	no	no	external water circulator (opt.)	external water circulator (opt.)	internal Peltier thermostat	internal Peltier thermostat
<b>Flow through measurement</b>	no	no	no	Flow through compartment door (opt.)	Flow through compartment door (opt.)	no	no



## Refractometer applications

The application of Refractometers is very versatile.  
Application often used:

- Determination of refractive index
- Determination of dry substance
- Determination of mass percent
- Brix measurement
- Standard scales (Oechsle, Zeiss, Fat, Honey) are implemented
- Standard methods according to ASTM 1218, 1747 and others
- Qualitative analysis - identification of samples
- Quantitative analysis of dissolved solids in water or other solvents
- Quantitative analysis of sugars, solves, glycol, fat, oechsle...

Refractometrie is used in:

- Food industry
- Medicine / pharmaceutical industry
- Cosmetic industry
- Chemical- and petrochemical industry

For monitoring liquids in production with inline Refractometer please see our leaflet on Process Refractometer **IPR**.

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