

# AR253 Atmospheric pressure, humidity and temperature transducer



- high-end digital sensor for atmospheric pressure (P) and humidity (RH) and air temperature (T) with protective filter (ABS material, 1mm gap width and 0.15mm stainless steel mesh)
- probe integrated into the housing, on the wire or on the stainless steel tube
- 2 current outputs 4÷20mA (2-wire with current loop power supply) or 2 voltage outputs 0÷10V (3-wire) or RS485 interface
- for analog outputs, possible connection with any measured value
- programmable ranges of processing measured values
- LCD display with keyboard (optional) for viewing measurements and configuration of parameters
- parameters configuration from the keyboard via RS485 or PR port (AR956 or AR955 programmer) and a free ARsoft-CFG computer program that allows to quickly set and copy all configuration parameters
- high stability of measurements
- Protection level IP65 ensured by the housing, increasing work reliability thanks to high resistance to the penetration of water and dust as well as surface condensation of water vapor inside the device, IP40 probe (the measuring probe is not resistant to flooding or condensation of water vapor inside it)
- calculation of dew/frost point [°C], absolute humidity [g/m<sup>3</sup>] (calculation for atmospheric pressure 1013 hPa) with the possibility of linking the calculated values to an analog output
- for the transducer with RS485 all measurements and calculated values available for reading in the register map MODBUS

## Contents of the set:

- transducer
- user manual

## Available accessories:

- an AR956 (or AR955) programmer
- RS485/USB converter

## Ordering method

AR253 / □ / □ / □ / □

Probe installation method		Kod
radial (standard)		-
back (to pipe, canal)		T

Measurement probe type		Kod
integrated with the enclosure (standard)		-
external with a 1,5m wire*		2
external in an enclosure with a 1,5m wire*		3
on a stainless steel pipe, 140mm long*		L150
on a stainless steel pipe, 240mm long*		L250

## Order example:

Note: for the standard design, only the output must be stated, e.g.:

AR253 / I

AR253 w/o display, outputs 4÷20mA, radially mounted probe and integrated with the enclosure

AR253 / LCD / U / L150 / T

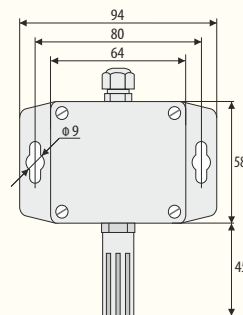
AR253 with a display, analog outputs 0÷10V, probe on a stainless steel pipe, 140mm long, installed in the back of the enclosure (for channel installations)

## TECHNICAL DATA (the detailed data can be found in the user's manual)

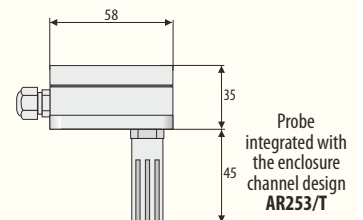
<b>Sensor</b>	digital (Sensirion, Bosch), ABS cover (slot width 1mm) and a stainless steel wire mesh (slot width 0.15mm)
<b>Measurement range</b>	0÷100 %RH, -30÷80 °C, 300÷1100 hPa
<b>Measurement accuracy</b>	humidity typically ±2%RH in whole range, max ±2.5%RH in 0÷90%RH range (1) temperature typically ±0.3°C, max ±0.4°C in the whole measurement range (1)
	atmospheric pressure typically ±1hPa, max. ±2hPa in the whole measurement range
<b>Hysteresis and stability</b>	±0,8%RH, long-term stability <0.25%RH/year
<b>Measurement period</b>	1s
<b>Response time (63%)</b>	8s (for air flow > 3,6km/h)
<b>Display (optional)</b>	LCD, 4 digits 10 mm
<b>Outputs</b>	current (I <sub>1RH</sub> , I <sub>2T</sub> ) 2 x 4÷20 mA (2P), load R <sub>0</sub> < (U <sub>sup</sub> - 12) / 22mA voltage (U <sub>1RH</sub> , U <sub>2T</sub> ) 2 x 0÷10V (3P), load I <sub>0</sub> < 4.5 mA (R <sub>0</sub> > 2.5kΩ) digital (not separated) RS485, MODBUS-RTU (slave)
<b>Power supply</b>	for the 4÷20 mA 12÷36 Vdc (2-wire, 2P) supply from the current loop for the 0÷10 V 18÷30 Vdc, current consumption: ~8mA (with and without LCD) RS485 version 9÷28 Vac or 9÷36 Vdc, current consumption: ~6mA (with or w/o LCD)
<b>Operating conditions</b>	air and neutral gases, <b>do not pour water on measurement probe</b> standard -30÷80 °C, < 95 %RH (no condensation) with an LCD display -20÷70 °C, < 95 %RH (no condensation)

## INSTALLATION DATA

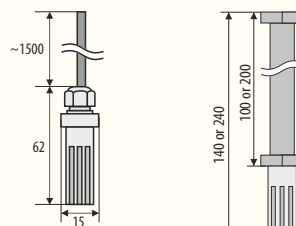
<b>Dimensions</b>	58x94x35 mm (for standard configuration)
<b>Material</b>	polycarbonate (probe cover: ABS)



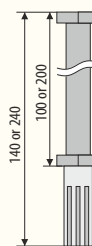
Probe integrated with the enclosure AR253



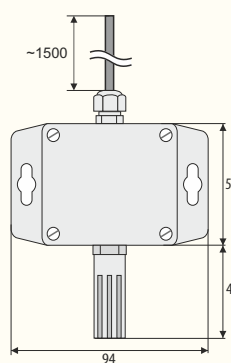
Probe integrated with the enclosure channel design AR253/T



External probe with a wire AR253/2



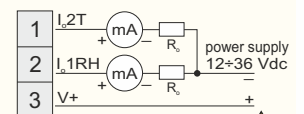
Probe on a stainless steel pipe AR253/L150 AR253/L250



External probe in an enclosure with a wire AR253/3

## TERMINAL

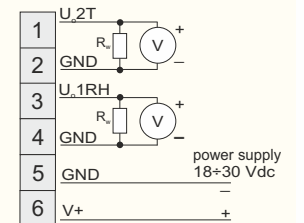
### AR253/I



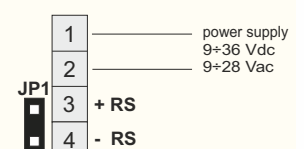
### UWAGA:

The current loop I<sub>1RH</sub> must ALWAYS be closed even when it is not in use

### AR253/U



### AR253/R485



Version 1.0.1 2023-01-13

CALIBRATION CERTIFICATE - DIGITAL HUMIDITY AND TEMPERATURE SENSORS  
MADE BY SENSIRION

Calibration Certification – Digital Humidity- and Temperature Sensors



## Calibration Certification

**Name and address of the manufacturer:** Sensirion AG  
Laubisruetistrasse 50  
CH-8712 Switzerland

**Description:** Digital Humidity- and Temperature Sensors

- SHT1x
- SHT2x
- SHT3x
- SHT7x
- SHTC1
- SHTW1
- STS21
- STSC1

The above mentioned products are calibrated to meet the specifications according to the corresponding Sensirion data sheet. Each device is individually tested after its calibration.

Sensirion uses transfer standards for the calibration. These transfer standards are themselves subject to a scheduled calibration procedure. The calibration of the reference itself used for the calibration of the transfer standards is performed by an ISO/IEC 17025 accredited laboratory.

The accreditation body is full member of the International Laboratory Accreditation Cooperation ([www.ilac.org](http://www.ilac.org)). Calibration certificates issued by facilities accredited by a signatory to the ILAC Mutual Recognition Arrangement (MRA) are accepted by all signatories to the ILAC MRA.

This provides traceability of measurement to recognized national standards and to units of measurement realized at the "National Physical Laboratory" (NPL) or other recognized national standards laboratories like "Physikalisch-Technische Bundesanstalt" (PTB) or "National Institute of Standards and Technology" (NIST).

Staeafa, November 2015

Stephan Weber,  
Director,  
Head of Quality Management, Sensirion AG

Volker Born  
Manager,  
Head of Quality Engineering, SensirionAG