



- high class digital relative humidity and temperature sensor with a protective filter (ABS material as a standard, mesh: 1 mm)
- probe integrated with the enclosure, external on a wire or a stainless steel pipe
- temperature compensation of relative humidity measurement
- programmable digital filter smoothing and stabilizing measurements
- 3 independent outputs of on/off type (ON-OFF, control 2- and 3-position):
  - output 1 (main): ON-OFF with hysteresis, PID, AUTOTUNING PID
  - output 2, 3 (auxiliary/alarm): ON-OFF with hysteresis
  - performance characteristics: heating/humidification, cooling/drying, relative alarms
- analogue output 0/4÷20mA (standard) or 0/2÷10V (optional), constant-control, retransmission
- calculation of dew/frost point (°C) and absolute humidity (g/m<sup>3</sup>)
- possibility to choose control signal for outputs (humidity or temperature)
- manual mode (open control loop) available for binary and analogue outputs, setting the value of the output signal in the range of 0 ÷ 100%
- programmable BIN digital input and function button "F" for changing the operational mode of the controller: control start/stop mode, manual mode for outputs, two-position switching of the set value (day/night), keypad lock etc.
- two-line digital LED readout with adjustable brightness
- access to configuration parameters protected by a user password or no password required
- configuration of parameters from keyboard, through the RS485 or AR956 (AR955) programmer and ARSOFT-WZ1 software for quick copy all configuration parameters
- available accessory filter with metal mesh to increase sensor protection
- optional RS485 interface, galvanically insulated, MODBUS-RTU protocol
- universal power supply 15-350 Vdc, 20-250 Vac / 50-60Hz
- IP65 degree of protection provided by the industrial housing which improves its reliability due to high resistance to water, dust and condensation inside the unit

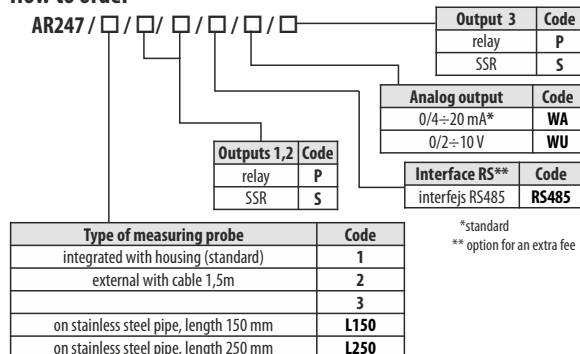
#### Contents of set:

- controller
- user manual
- warranty card

#### Available accessories:

- filter with metal mesh (mesh~25 µm)
- programmer AR956 (or AR955)
- RS485 to USB converter
- measuring probes AR281/282/283/284

#### How to order



For example: AR247 / 1 / P / P / RS485 / WA / P  
 probe integrated with housing, 3 relay outputs, interface RS485, output 0/4÷20mA

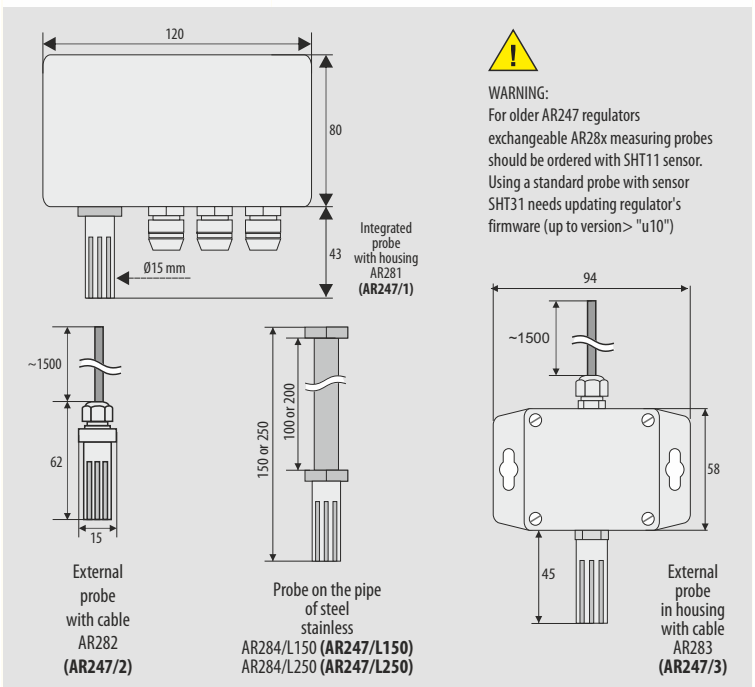
#### TECHNICAL DATA

|  |  |
|--|--|
| <b>Measurement range for the probe</b>       | 0÷100 %RH, -30÷80 °C, <b>do not pour water on the measuring probe</b>                              |
| <b>Measurement accuracy</b>                  | same as for the SHT31 sensor made by Sension*  |
| humidity                                     | typically ± 2% RH over the measuring range transmitter*  |
| temperature                                  | typically ±0,3 °C over the measuring range transmitter*  |
| <b>Hysteresis and stability</b>              | ±0,8 %RH, long-term stability <0,25 %RH/year*  |
| <b>Measurement period and filtration</b>     | 1s, delay of programmable digital filter: 0÷5s   |
| <b>Response time (63%) for a step change</b> | 8s ( for air flow >3,6km/h, and switched off program filtration)*                                  |
| <b>Readout measurement resolution</b>        | programmable: 0.1 or 1 %RH, °C, g/m <sup>3</sup>   |
| <b>LED display and indicators</b>            | 2 x 3 digits 14 mm, indication of status of outputs and measuring units                            |
| <b>Outputs</b>                               | relay (P) 1 x SPDT (8A/250 Vac dla obciążeni rezystancyjnych), 2 x SPST-NO (5A)                    |
| for SSR (option)                             | transistor type NPN OC, 11 V, internal resistance 440 Ω  |
| analog current                               | 0/4÷20 mA, output load capacity Ro R <sub>o</sub> <500 Ω, resolution 12bit                         |
| analog voltage                               | 0/2÷10 V, output load capacity Ro I <sub>o</sub> <4 mA (R <sub>o</sub> > 2,5 kΩ), resolution 12bit |
| RS485 galvanically separated (option), PRG   | protocol MODBUS-RTU slave, bitrate 2,4÷57,6 kb/s, format 8N1                                       |
| <b>Binary input BIN (bistable)</b>           | contact or voltage < 24V, active when: short circuit or < 0,8 V                                    |
| <b>Supply (Usup)</b>                         | universal, compatible to standard 24Vdc and 230Vac   |
|  | 15-350 Vdc / 3VA   |
|  | 20-250 Vac / 3VA / 50-60Hz   |
| <b>Rated operating conditions</b>            | -20÷60 °C, <100 %RH (non-condensing), air and neutral gases  |
| <b>Electromagnetic compatibility (EMC)</b>   | immunity: acc. to PN-EN 61000-6-2  |
|  | emission: acc. to PN-EN 61000-6-4  |

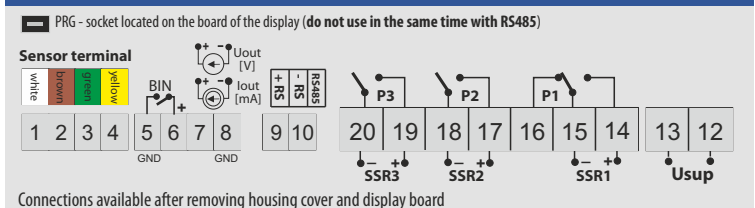
\*for controllers with software version below "u11", measurement accuracy is in accordance with documentation attached with purchase (± 3 ÷ 5% RH, ± 0.5 ÷ 1.8° C, hysteresis ± 1% RH, long-term stability <0.5% RH / year)

#### DIMENSIONS, INSTALLATION DATA

|                                     |  |
|-------------------------------------|--|
| <b>Dimensions, weight, material</b> | 120 x 80 x 55 mm, ~340g ( AR247/1 version), polycarbonate          |
| <b>Fixing methods</b>               | 4 holes Ø4,3mm, distance 108x50 mm when the front cover is removed |



#### TERMINAL STRIPS, ELECTRICAL CONNECTIONS



# Calibration Certification

**Product:** SHT1x / SHT2x / SHT7x Series

**Description:** Digital Humidity and Temperature Sensors

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).

Staeфа, August 2010



Dr. Felix Mayer  
Co-CEO, Sensirion AG



Andreas Kaatz  
Quality Manager, Sensirion AG

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