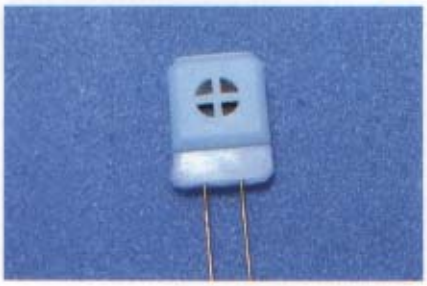
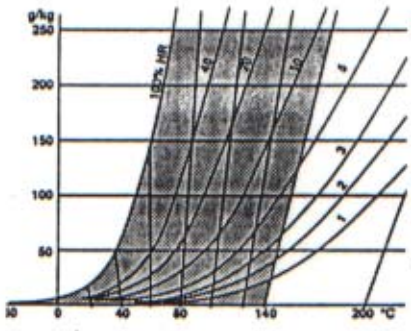
RENSE
INSTRUMENTS

DEVELOPMENT AND MANUFACTURING OF ELECTRONIC INSTRUMENTS

H-type sensor for Relative Humidity



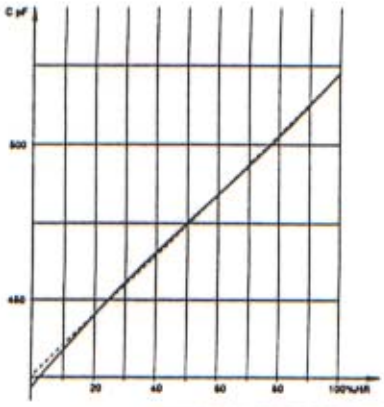
■ Nominal field of metrological use



- **Measurement range :** 0 to 100 % RH *
- **Operating temperature range :** -30 to +140 °C (-22 to 284 °F)
- **Temperature limits :** -40 to 140 °C (-40 to 284 °F). Performance specifications are not guaranteed within these extended limits.
- **Pressure :** .04 to 30 Bar (.56 to 421.5 PSI)
- **Maximum water/air ratio :** 250 g water/kg of air (.250 lb water/lb air).

■ Typical response curve

(stabilization time before measurement : 15 mn)

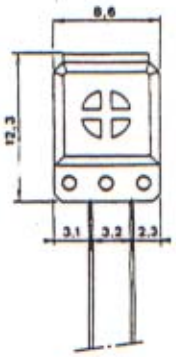


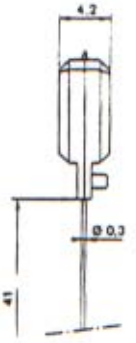
■ Characteristics

Parameter	Conditions	Mini	Typical	Maxi	Unit
Capacitance	@ 25 °C (77 °F) 75 % RH and 10 KHz	450	500	550	pF
D Factor (loss angle)	@ 25 °C (77 °F) 75 % RH and 10 KHz		120.10⁻⁴	200.10⁻⁴	
Sensitivity	between 11 and 75 % RH		0. 8		pF / % RH
Response time	between 11 and 75 % RH for 90 % of the change		10		sec
Linearity deviation	between 11 and 90 % RH		± 2.5		% RH
Hysteresis			0. 5		% RH
Reversible drift	1 day @ 97 % RH 1 week @ 97 % RH			3 2	% RH % RH
Operating frequency		30		300	KHz
Power supply voltage	No DC component			5	Vdc

■ Dimensions

(mm)





■ Measurement conditions

- **Capacitance measurement**
  Taken with a capacitance meter (accuracy ± 1pF) with the sensor in a saturated salt solution, then corrected to 75 % by calculation.
- **Average sensitivity**
  C75-C11 / (75 -11 % RH). The sensor linearity deviation is not included.
- **Response time**
  Measured for a step between 11 and 75 % RH.
- **Typical response curve**
  Shown with humidity levels increasing by 20 %, then decreasing by the same rate. Measured value stabilized for 15 minutes at each RH level.
  Typical linearity drift and hysteresis values are shown on the curve.
- **Reversible drift**
  This is the variation in capacitance between the stabilized value (15 minutes), and one day or one week.
- **General remark**
  All types of humidity generators can be used for short-time calibrations or tests (less than 24 hours).
  In return, saturated salt solutions cannot be used for long-term tests, especially in high-level humidity environments.