



## 2:1 Temperature and Relative Humidity Monitoring Options

### Exhibit Conservation Guidelines

TYPE OF SYSTEM	DESCRIPTION	USE/COMMENTS <sup>1</sup>	APPROXIMATE COST	MANUFACTURER / SUPPLIER
remote sensor chart recorders	probe with cable connected to a chart recorder	Accuracy $\pm 1^{\circ}\text{F}$ and $\pm 3\% \text{RH}$ ; 1-6' cable; some have alarms for high or low levels; can have multiple recording channels.	\$640-\$2000	Omega Engineering, Inc. or various other firms
hand-held electronic hygrometers and thermometers	probe or sensor connected to a hand-held unit with digital display	accuracy $\pm 2^{\circ}\text{F}$ and $\pm 3\% \text{RH}$ ; operates on batteries; portable; some can be connected to remote recorders.	\$250 and up	Cole-Parmer
psychrometer	readings from a wet and dry thermometer are referenced on a chart to give humidity	accuracy dependent on operator; use distilled water; wick must be clean.	\$150 and up	Cole-Parmer
indicator cards	a combination of cobalt and other inorganic salts that change color in response to relative humidity	accuracy $\pm 10\%$ ; cheap; useful as a visual indicator of a problem when dataloggers are used.	\$1 per card	Humidial Corp.
data loggers	sensor with a memory chip that records data for future downloading	accuracy $\pm 4\% \text{RH}$ ; can be left in place for up to one year; no visual reading from the unit itself so problems may go undetected until downloading.	price from around \$1,000	SmartReader 2 TRAK-R Logger or equivalent Hanwell Wireless
recording hygrothermographs	sensors are connected to pens that simultaneously record data on a chart connected to a revolving drum or disk	accuracy $\pm 2^{\circ}\text{F}$ and $\pm 2\% \text{RH}$ ; allows on the spot reading of data; some units record up to three months; are already available in many institutions.	\$250 and up	Cole-Parmer Dickson
hygrometers and thermometers	small unit that displays either temperature, humidity, or both on a dial or digital display	accuracy $\pm 2^{\circ}\text{F}$ and $\pm 3\% \text{RH}$ ; calibration must be checked frequently; small enough to be easily hidden.	\$50 and up	Cole-Parmer

<sup>1</sup> Accuracy may vary between units. The best published accuracy is given in this chart.