

Zone Measurements – HVAC Rooftop Unit Equipment

A large percentage of all commercial cooling is provided by packaged roof top units. These units often do not operate as efficiently as expected, and through monitoring the performance of the economizer and compressors, they can be tuned up to operate as efficiently as possible. Economizers can be evaluated by measuring outdoor, mixed, and return temperatures. Supply temperature and whole unit power or current will provide information about run time and overall health of the RTU.

QUESTIONS:

1. Does the unit have an enthalpy economizer? If yes, you will want to include point 6 noted below in your data collection, otherwise it is not needed.
2. How large is the mixed air section? If it is large, it may be beneficial to use more than one temperature sensor for monitoring mixed air temperatures.

Item Description	Qty	Part Number(s)
1. Ambient temperature and humidity	1	See the Ambient Temperature and Humidity equipment listing.
2. Compressor current	# comp	CTS-xxxx-yyy, S-FS-TRMSA module for each
3. Condenser pump current	# pumps	CTS-xxxx-yyy, S-FS-TRMSA module for each
4. Supply air temp	1	S-TMB-Mxxx
5. Return Air temperature	1	S-TMB-Mxxx (or combine with sensor used for point 6)
6. Return air RH	1	S-THB-Mxxx
7. Mixed Air temperature	1 to 4	S-TMB-Mxxx

Zone Measurement Notes:

- CTS-xxxx-yyy refers to Current Transformers where “xxxx” indicates opening size (0750 = 0.75”, 1250 = 1.25”, and 2000 = 2.0”) and “yyy” indicates rated amperage.
- The S-FS-TRMSA module can connect two CTs to the H22-001 data logger, and a total of three modules can be connected to the H22-001 logger at any one time.
- S-TMB-Mxxx refers to Temperature Smart Sensor where “xxx” indicates sensor cable length.
- S-THB-Mxxx refers to the Temperature and Relative Humidity Smart Sensor where “xxx” indicates sensor cable length.
- Points 2 and 3 can be replaced by simply monitoring the entire unit if physically possible; use a CT rated for the unit’s amperage and the S-FS-TRMSA module.

Basic Logger Equipment

The list below consists of the basic equipment that you'll need to do any data logging:

- Energy Logger Pro,
- Serial cable to program the logger and download data, and
- AC power adapters to keep the logger plugged in to an AC outlet, and
- HOBOWare software.

Item Description	Qty	Part Number(s)
Energy Logger Pro	1	H22-001
Serial interface cable	1	CABLE-PC-3.5
AC Power Adapter	1	PAC-1 or ONS-AC-POWER-USA
HOBOWare Pro version 2.2 or Higher	1	BHW-PC or BHW-MAC

NOTE: Reference materials for all equipment used in monitoring applications should be reviewed to ensure proper use and safety precautions are observed.