

## Compressor and Condenser Measurement

Compressors are used in HVAC and refrigeration applications. Their energy consumption can be inexpensively monitored with CTs, or more accurately with WattNodes. Knowing how much energy they consume can help determine if they are consuming excessive amounts of electricity.

**Compressors and Condensers** – Compressors and condensers can be used to support a refrigeration system, or a compressed air system. Typically, the current or power to each unit is monitored, along with some other possible measurements:

### Refrigeration

1. Temperature and humidity in individual units.

### Compressed Air

1. Temperature and humidity in the lines.
2. Air pressure in the lines, although a 150 psi range transducer is the one most likely to be used in this application, a range of units is stocked. Unstocked ranges can be special ordered as well.

*Although leaks in a line system can be identified as existing in the system, they cannot be located specifically with this monitoring equipment. The use of an ultrasonic hand-held meter can help in this matter.*

Equipment for use in compressor and condenser applications appears in the table on the following page.

Item Description	Qty	Part Number(s)
1. Compressor current	# comps	CTS-xxxx-yyy and S-FS-TRMSA module for each
2. Condenser current	# conds	CTS-xxxx-yyy and S-FS-TRMSA module for each
3. Refrigeration temperature	# units	S-TMB-Mxxx (or combine with sensor for point 4)
4. Refrigeration Humidity	1	S-THB-Mxxx
5. Supply line Temperature/RH	1	Third-party sensor* of your choice, likely using S-FS-CVIA module.
6. Line pressure	1	Pressure Transducer** and S-FS-CVIA module

## Compressor and Condenser 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.
- S-TMB-Mxxx refers to Temperature SmartSensor where “xxx” indicates sensor cable length.
- S-THB-Mxxx refers to the Temperature/Humidity SmartSensor where “xxx” indicates the sensor cable length.
- Additional steps may need to be taken to ensure that your data logger is not exposed to humidity, temperature, or condensation conditions outside of its operating parameters.

\*Third-party sensors for monitoring temperature and humidity in a compressed air system are best acquired by the end user to ensure the sensor(s) best meet application needs. The sensor’s output signal(s) will need to be known in order to connect the sensor to the Energy Logger Pro unit.

\*\*Pressure transducers are stocked in an array of ranges and models. We highly recommend that the pressure range of the system be reflected in the full-scale range of the pressure transducer to ensure the best accuracy of readings.

## Basic Logging 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.