Application Solution

MEASURING EQUIPMENT WITH MIXED VOLTAGES AND CURRENTS WITH A SINGLE METER

CHALLENGES WITH METERING LARGE HVAC EQUIPMENT

Large equipment, like commercial air conditioning units or high-volume air handlers, have mixed loads with different voltages, current levels, and physical sizes). Traditional meters require individual meters and current transducers at each different load type (per voltage or current size). This can make metering costly, offsetting some of the benefits of meaurement, control, and optimization that are critical in todays buildings.

Key Points

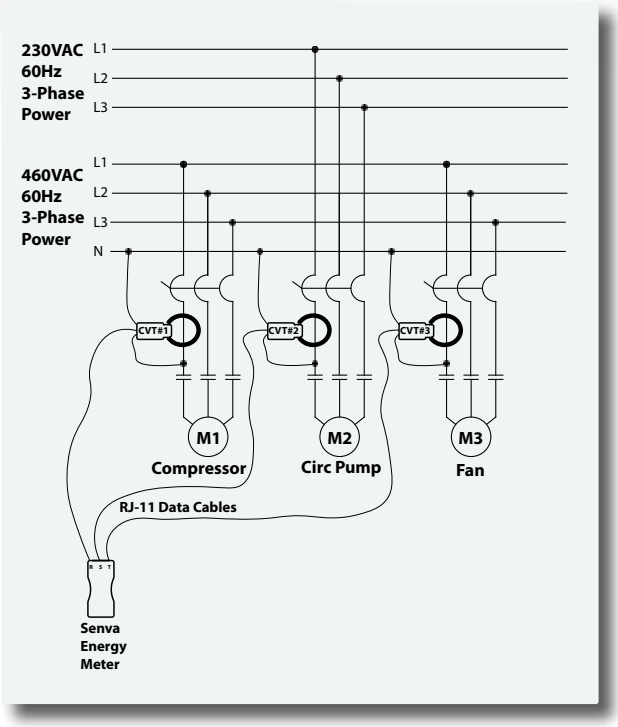
- Large equipment typically has motors and other loads with varying voltages, currents, and physical sizes.
- Most meters cannot handle voltage and current independent loads, so a different meter is required for each voltage and current input.

SOLUTION

To best monitor mixed loads, considering using a true ***three-channel meter*** as opposed to a ***three-phase meter.*** A three channel meter, such as the Senva EM series, can have three different current levels, as well as voltage levels. The meter calculates power for each channel, which is communicated via modbus or BACnet to the energy management system.

The Senva metering solution allows the installer to use a single meter and measure various loads with independent CVTs (currrent/voltage transducers). This mix and match approach means any kind of current, voltage, and sized load can be measured.

An additional benefit can be found on balanced loads, such as three-phase motors. An economical solution is to use one Senva CVT per motor—on just a single phase. By setting the BACnet analog variable AV1162 (the power multiplier), you scale raw input power to a reported power. Thus, set this to three on a balanced load to infer the total load—while measuring just one phase.



A true three channel meter allowing for measurement of various ampacities and voltages can reduce installation costs dramatically. Additionally, scaling the BACnet analog variable to "3" will scale the output for a balanced motor load.

Senvas EM Series measures different voltages and currents simultaneously.

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