

A16.2 Standard of Practice - Electrical Power Metering

GENERAL

Designers shall verify that all applicable portions of these standards are incorporated into the project's design, drawings, specifications and final construction. Requests for variances from these standards shall be submitted in writing to the DCM Project Manager, using the KU Standards Variance Request Form found in [Appendix A1.1](#), for review and written approval or rejection as indicated on the form.

OBJECTIVE OF STANDARD

- To acquaint Designers and other interested parties with the University's provisions for metering electrical power usage at individual buildings on the main campus.
- To insure consistent specifications for, and installation of, electrical metering hardware and software within campus buildings and for the campus-wide BACS network interface between building systems.
- To extend the University's capabilities for remotely monitoring the energy usage of all campus buildings.

BACKGROUND

The University electrical service provider is Kansas Power and Light (KPL) (corporate headquarters at Western Resources, Inc.). The utility delivers 12,470-Volt power to the Lawrence main campus at two distribution substations. Electrical metering for billing purposes is accomplished at these two master meter locations. All campus distribution conductors and building service entrance equipment on the load side of these substations are owned and maintained by the University. It is the University's policy to meter individual building switchgear loads for administrative and management purposes.

A campus-wide network of building automated controls equipment, commonly known as the campus BACS system, provides the capability of remotely monitoring and controlling mechanical/electrical utility functions on campus. To facilitate campus-wide electrical usage metering, a panel-mounted electronic digital power meter should be installed at all new switchgear installations.

SPECIFICATIONS

To insure that the installed metering device is compatible with the existing Johnson Controls Inc. network operating system protocol, and that it monitors and logs data of value to

University Facilities Operations personnel, the Designer should use the following information in developing the electrical metering specifications. The Designer should clearly indicate in the construction documents that Johnson Controls Inc. should furnish and install the meter device through the existing State procurement contract.

- Manufacturer and model to be determined
- Input Primary Voltage - 208 to 480 VAC rms.
- Maximum Primary Current - 2400 amps cont. per phase
- Accuracy - +/- 1.0% (ANSI C12.1)
- Data for Output.
- BI-1 - kWh, Consumption (Accumulator)
- AI-12 - kW, Demand phase B
- AI-13 - kW, Demand phase C
- AI-14 - Power Factor, phase A
- AI-15 - Power Factor, phase B
- AI-16 - Power Factor, phase C
- AI-17 - Voltage, phase A to phase B
- AI-18 - Voltage, phase B to phase C
- AI-19 - Voltage, phase A to phase C
- AI-20 - Voltage, phase A to Neutral
- AI-21 - Voltage, phase B to Neutral
- AI-22 - Voltage, phase C to Neutral
- AI-23 - Amps, Current phase A
- AI-24 - Amps, Current phase B
- AI-25 - Amps, Current phase C

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