




TIME LOAD CHECK & HANDS ON ELECTRONIC METERS

SCOTT SUTTON
SNOHOMISH COUNTY PUD #1



TIME LOAD DEFINITION

- **Known as a time load check, load calculation, or watt load check.**
 - **Provides *instantaneous* watt load**
 - **Does not show *what* a customer is using, rather gives an indication as to the amount of load (watts) that is being used at the time the calculation is done**
 - **Useful to help explain to customer how they might be using their power at that particular moment, most often used for high bill complaints**
 - **Can be done on any meter, solid state or electromechanical**
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TIME LOAD DEFINITION (CONTINUED)

- **Necessary requirements/equipment:**

- **Stop watch**
- **Name plate information**
 - **Kh**
 - **Register constant (if applicable)**
 - **CT and/or VT Ratio**
- **Disk or disk simulator**
- **Calculator**

FORMULA

$$\text{Watts} = \frac{K_h \times 3600 \times \text{CTR} \times \text{VTR} \times n}{t}$$

Kh = Disk Constant

3600 = Number Seconds in an Hour

CTR/VTR = CT or VT ratio if applicable

n = Number of Revolutions

t = Time in Seconds

CALCULATIONS

First Example

- A meter with a $K_h = 12$ makes 5 revolutions in 16 seconds. No CT's or VT's are used. Calculate the load in KW (kilowatts).

$$\text{Watts} = \frac{K_h \times 3600 \times \text{CTR} \times \text{VTR} \times n}{t}$$

†

$$\text{Watts} = \frac{12 \times 3600 \times 1 \times 1 \times 5}{16} = 13,500$$

16

$$\text{Kilowatts} = \text{Watts} / 1,000$$

Therefore answer in KW is 13.5 KW

CALCULATIONS

Next Example with Instruments

- A meter with a $K_h = 1.8$ makes 1 revolution in 15 seconds. CT is 50:5, VT is 60:1

$$\text{Watts} = \frac{K_h \times 3600 \times \text{CTR} \times \text{VTR} \times n}{t}$$

†

$$\text{Watts} = \frac{1.8 \times 3600 \times 10 \times 60 \times 1}{15} = 259,200$$

15

$$259,200 \text{ Watts} = 259.2 \text{ Kilowatts}$$

EXAMPLES

- Electromechanical
 - Disk revolutions
- Solid state
 - Disk simulator

HANDS ON

- **Demonstration**
- **Questions**