

Fluke 433/434 Power & Energy Measurement & Reporting

PowerCET Operational Skills QuickRef #4

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V.051005

Instrument Setup

The 433/434 harmonics function measures and records harmonics and inter-harmonics (434 only) up to the 50th, and related data such as THD, DC offset

- Connect instrument voltage & current probes to circuit to be monitored
- Power On and press the **SETUP** key. Press **FUNCTION PREF (F3)**.
- Arrow down to **POWER & ENERGY** and press the **ENTER** key. Press **F2** to select power calculations based on **FUND**amental (50/60HZ only) or **FULL** (true rms voltage & current...includes harmonic content (USA standard)).
- Leave **AUTO** set to **ON (F4)**
- Using the down arrow key, scroll to **Demand Interval**. Set to local standard (USA: 15 min. typical)
- Press the **MENU** key. Arrow key down to **POWER & ENERGY**, press **ENTER** key to view the power and energy table. This displays instantaneous values for kW, kVA, kVAR, PF, DPF, and VRMS. Symbols indicate if a load is capacitive $\frac{+}{-}$ or inductive $\frac{-}{+}$
- Press **ENERGY (F3)** (434 only) for kWh, kVAh and kVARh popup table
- Now you're ready to record Power and Energy Trends

Starting/Stopping/Saving Power & Energy Trending

- Press **TREND (F4)** to begin recording trends for the chosen selection. Recording continues until memory fills, unless stopped manually
- Press the **HOLD/RUN** key (**F5**) to halt recording
- Press the **MEMORY** key. Press **SAVE (F3)**
- Use the arrow keys to name the file (a "dataset") and press **OK (F5)** You must save the dataset, or it will be lost when you leave the trend screen!

Flukeview: Importing Dataset, Printing P & E Trends

Here you import your monitoring data into your PC and plot trends

- Connect the 434 to your PC and start Flukeview. It should automatically contact the instrument in preparation for data transfer
- Press the **SCOPE** key on the instrument and then **HOLD (F5)**
- Select **Display dataset** from the Instrument menu and then select your data from the datasets on the instrument and click **Start**.
- When the dataset is loaded, select **Save As** from the File menu. Give it a descriptive name and save as a Flukeview (.fvf) file

Plot data from a P & E dataset, paste graphs into Microsoft Word:

- From the **File** menu, open the dataset containing the harmonics trend plots you captured on the 434
- In the window that opens, click on **View** to display the trend in the 434 simulator window
- From the **Instrument** menu, select **Display Trend**
- In the window, check the boxes next to the plots you wish to display. Click **Start** and wait for the trends to be plotted
- Select a trend window. Zoom in/out and drag the cursors to data points
- Select **Copy Graphics** from the **Edit** menu. Start Microsoft Word and **paste** the trend into your word file at the appropriate spot. Repeat with other trends to fill out your report as needed
- In FlukeView, you can **Save** these trend plots with the dataset, or alone as data files (.csv, .txt) for use with Excel or another graphing program

SETUP FUNC. PREF.		FLUKE 433 U01.10	
POWER & ENERGY			
TREND SCALING	PHASE	TOTAL	
...	
PF span	0.10	0.10	
DPF offset	0.80	0.80	
DPF span	0.20	0.20	
Volt offset	79.0 V	79.0 V	
Volt span	140.0 V	140.0 V	
Amp offset	1.40 A	1.40 A	
Amp span	20.0 A	20.0 A	
Demand int.	15 min	15 min	
kWh / π	1.000	1.000	
Pos. θ	FULL	PHASE	AUTO
DPF	FUND.	ON	OFF
		BACK	

POWER & ENERGY				
	L1	L2	L3	Total
kW	26.84	24.35	25.86	77.05
kVA	27.22	25.37	25.93	78.24
kVAR	+ 4.56	+ 7.11	+ 1.90	+ 13.57
PF	0.99	0.96	1.00	0.98
Cos ϕ	0.99	0.97	1.00	
R _{rms}	108.9	104.7	107.7	
U _{rms}	249.9	242.4	240.7	
07/30/04 11:15:50	230V	50Hz	3 ϕ WYE	EN50160
		ENERGY		TREND
		HOLD		RUN

POWER & ENERGY				
	L1	L2	L3	Total
kW	29.04	26.40	27.97	83.41
kVA	29.46	27.49	28.05	84.69
kVAR	+ 4.97	+ 7.69	+ 2.05	+ 14.71
PF	0.99	0.96	1.00	0.98
Cos ϕ	0.99	0.97	1.00	
kWh	1.088	0.988	1.047	3.124
kVAh	1.104	1.029	1.050	3.172
kVARh	0.186	0.287	0.077	0.550
START 07/30/04 11:17:20			0:02:19	
PULSE CNT		CLOSE		RESET
ON OFF		ENERGY		ENERGY

