

YC600 Night Consumption

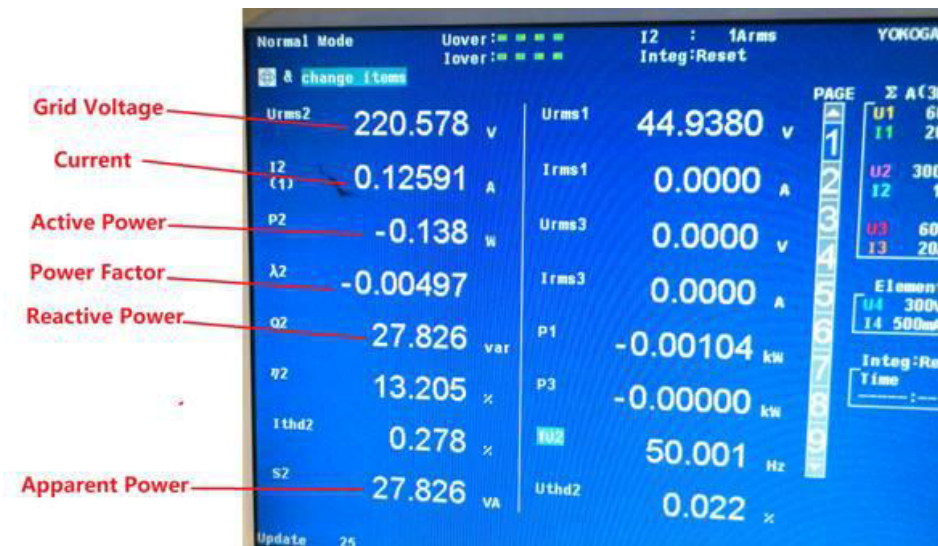
This lab experiment had been requested from the technical supporting team, due to the customer question regarding the YC600 micro-inverter night-time real power consumption is greater than the product datasheet claimed, potentially raising the end user's utility costs.

We use the following terms to describe energy flow in a simulated AC grid-tied system:

- **Active/Real power (P)** or active power: watt [W]
- **Reactive power (Q)**: volt-amperes reactive [var]
- **Apparent Power (S)**, the absolute value of complex power: volt-ampere [VA]
- **Power factor (PF)** = Real power (P)/ Apparent power (S)

The calibrated AC Power Analyzer had been applied into this experiment; one YC600 had been connected into local grid (220v AC) without operating, to simulate night-time consumption situation.

The collected results as below:



V_{mea_rms} = 220.578v
PF = 0.00497

I_{mea_rms} = 0.12591A

Then the real power consumption in the inverter delivered by following calculations:

$$S = V_{mea_rms} * I_{mea_rms} = 220.578 * 0.12591 = 27.8 \text{ VA}$$

$$P = S * PF = 27.8 * 0.00497 = 138mW$$