

Industrial Field: Power Supply and Surface Treatment Equipment

Business Field: Research, Development, Experimentation, Maintenance

DC Large Current and Power Conversion Efficiency Measurement of Plating System Power Supplies

DC 12000 A (Maximum) High Current Measurement with High Accuracy

■Background

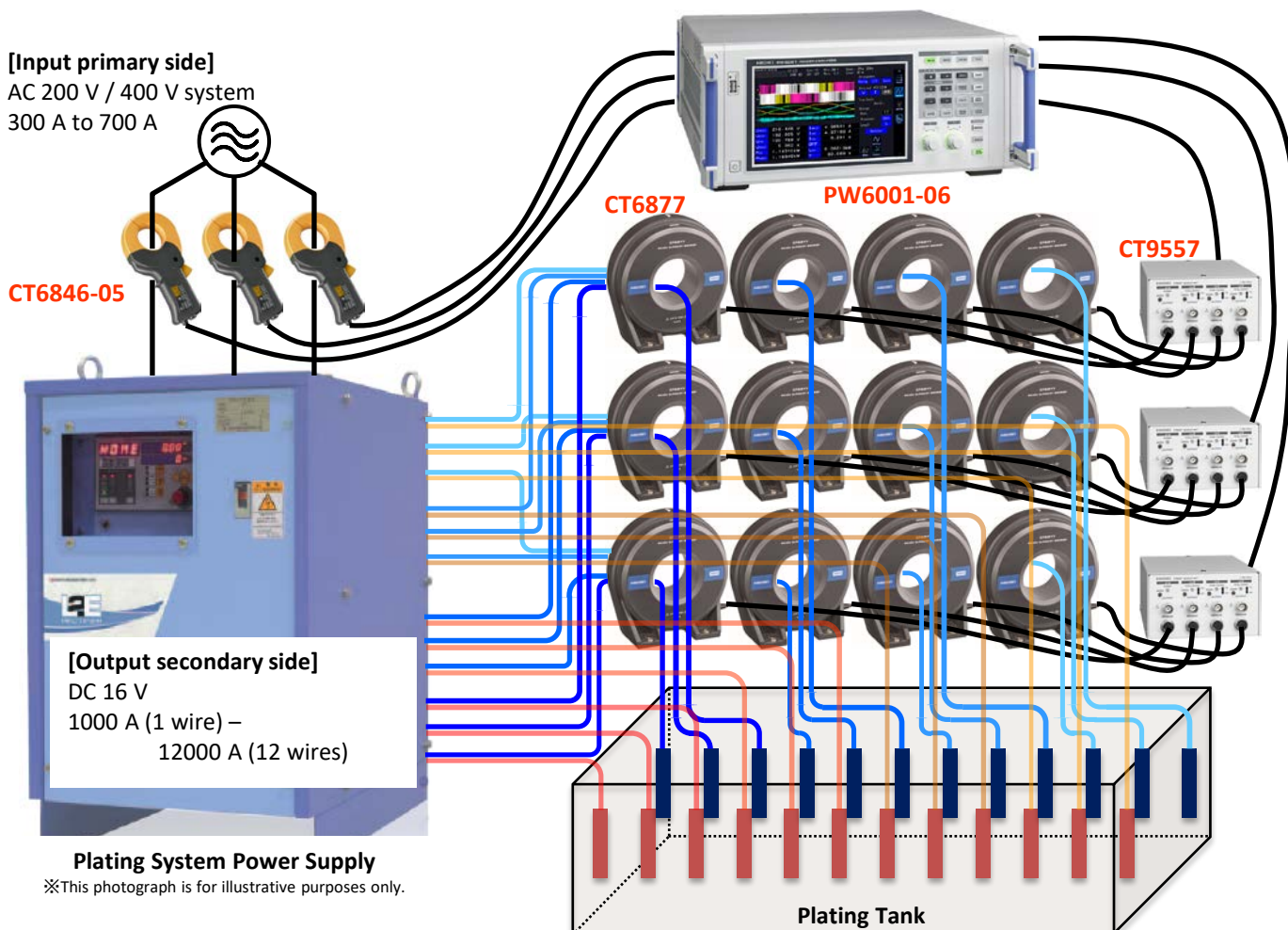
Surface treatment (plating) equipment for parts used in transportation equipment (e.g. automobiles and railroads) and industrial application equipment (e.g. electronic components) requires high-performance DC power supplies with an output capacity of several thousand amperes. Accurately measuring the input/output characteristics of a power supply is very important for the development and maintenance of a high-performance DC power supplies that have the features of low ripple DC output, high efficiency, light weight, quietness, and long life. Generally speaking, the amount of plating film deposited onto a component is proportional to the applied current. In other words, since the plating film thickness is controlled by the amount of the applied current, it is necessary to know, with high-accuracy measurement, just how much current is being applied.

■Recommended Measurement System Example

The following current sensor configuration is ideal for measuring current of a plating equipment system as the one illustrated:

- 3 clamp type current sensors (CT6846-05) on the input primary side of the power supply
- 12 pass-through type current sensors (CT6877) on the output secondary side
- 3 sensor units (CT9557) that can each add up to 4 sensor outputs

By inputting the current from the sensors and the voltage to the power analyzer PW6001-06, the added current value and input/output conversion efficiency can be obtained.



Used Equipment

- Power Analyzer: PW6001-06 × 1 unit
- AC/DC Current Sensor: CT6846-05 (rated 1000 A, AC accuracy $\pm 0.3\%$ rdg. $\pm 0.01\%$ f.s.) × 3 units
- AC/DC Current Sensor: CT6877 (rated 2000 A, DC accuracy $\pm 0.04\%$ rdg. $\pm 0.008\%$ f.s.) × 12 units
- Sensor Units: CT9557 (aggregate output in 4ch multi-cable circuits) × 3 units

This information is valid as of June 2020 and specifications are subject to revision.