# Constant Current / Constant Voltage (CI/CV) characteristic

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Figure 1: CI/CV characteristic (Left). Simplified application schematic for CI/CV operation (Right)

The usual way to accomplish this is to use two error amplifiers, one compares the output current against the constant current regulation setpoint and the other compares the output voltage against the constant voltage regulation setpoint. If the system is in CI mode, the voltage error amplifier is saturated high because Vo is below the voltage regulation setpoint, if the system is in CV mode the current error amplifier saturates high because the current is below the current regulation setpoint. The outputs from the two error amplifiers are diode ored and the lower of the two errors is fed into the controller. Note that the error amplifier in the UCC28951 is configured as a voltage follower and other than this it plays no part in the control loop. The on-board reference of the UCC28951 may not be accurate enough for Li Ion battery charging in particular so an external LM4132 reference is used. There is a reference design using this approach at <http://www.ti.com/tool/PMP9622> and more information in the design review at <https://www.ti.com/seclit/ml/slup348/slup348.pdf> .