

AN\_651X\_056

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### Operation with Batteries

This document describes the proper production sequence when using the electricity metering ICs of the 71M651X family (71M6511, 71M6513, 71M6515H) in conjunction with a battery.

### Background on Battery Operation

Some types of meters are equipped with batteries, mostly to support TOU (time-of-use) functions. In these meters the battery maintains the oscillator circuit and the RTC, when board power is not present.

### Recommended Manufacturing Sequence

Many meter manufacturers assemble the meter PCB with the 71M651X IC and the other electronic components first and then join the meter PCB with the meter enclosure, sensors and other main components separately at a later production step. Typically, programming, final test (ATE), and calibration is performed after this second step.

The following production sequence is strongly recommended:

- 1) During board (PCB) assembly, when adding/inserting the battery, the board supply voltage (V3P3A, V3P3D) should be active (i.e. at 3.3 VDC), which can be achieved by briefly connecting the battery to V3P3A/V3P3D through a jumper wire. After the battery is inserted with the board power active, the jumper wire should be removed.
- 2) The battery should then remain connected through factory test (ATE), time on the shelf and shipment.

In cases where it is not feasible to power V3P3A/V3P3D via the battery or other means while inserting the battery, it is recommended to isolate the battery in its holder using a removable piece of Kapton tape or other isolating material. This isolation should then be removed once the meter is fully powered during the calibration and test process.

## Revision History

Revision	Date	Description
Rev. 1.0	10/08/2008	First publication.
Rev. 1.1	10/09/2008	Reworded text under "Background on Battery Operation".
Rev. 1.2	10/17/2008	Renamed to AN_651X_056. Removed all references to 71M652X and 71M653X ICs.

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