

## For Residential Meters, 0.5% Accuracy



### Description

The Teridian 71M6521DE/FE is a highly integrated SOC with an MPU core, RTC, FLASH and LCD driver. Teridian's patented Single Converter Technology® with a 22-bit delta-sigma ADC, four analog inputs, digital temperature compensation, precision voltage reference, battery voltage monitor, and 32-bit computation engine (CE) supports a wide range of residential metering applications with very few low-cost external components. A 32kHz crystal time base for the entire system and internal battery backup support for RAM and RTC further reduce system cost. The IC supports 2-wire, 3-wire and 4-wire single-phase and dual-phase residential metering along with tamper-detection mechanisms.

Maximum design flexibility is provided by multiple UARTs, I<sup>2</sup>C, μWire, up to 18 DIO pins and in-system programmable FLASH memory, which can be updated with data or application code in operation.

A complete array of ICE and development tools, programming libraries and reference designs enable rapid development and certification of TOU, AMR and Prepay meters that comply with worldwide electricity metering standards.

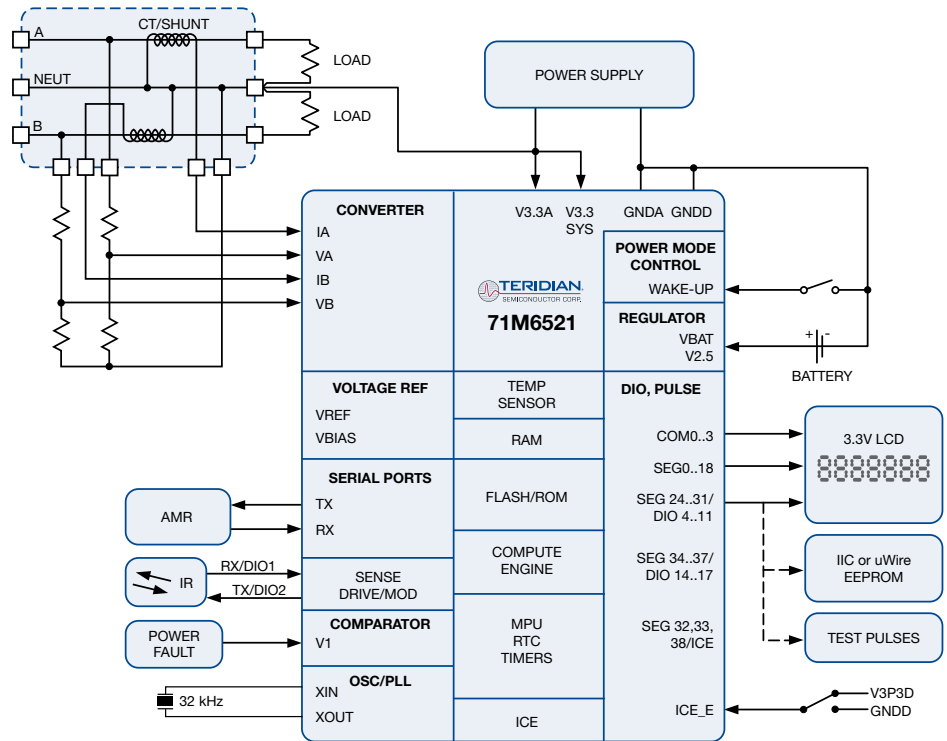
KEY FEATURES	KEY FEATURES
> < 0.4% Wh accuracy over 2000:1 current range and over temperature	> 8-bit MPU (80515), 1 clock cycle per instruction w/ integrated ICE for MPU debug
> Exceeds IEC62053 / ANSI C12.20 standards	> 16KB (6521DE) or 32KB (6521FE) Flash with security
> Voltage reference < 40ppm/°C	> 2KB MPU XRAM
> Four sensor inputs – VDD referenced	> Energy display on main power failure
> Low jitter Wh and VARh pulse test outputs (10kHz max)	> Wake-up with push-button
> Pulse count for pulse outputs	> 22-bit delta-sigma ADC
> Four-quadrant metering	> RTC with temperature compensation
> Tamper detection – Neutral current with CT or shunt	> Auto-Calibration
> Line frequency count for RTC	> Hardware watchdog timer, power fail monitor
> Digital temperature compensation	> LCD driver (upto 152 pixel)
> Sag detection for phase A and B	> Up to 18 general purpose I/O pins
> Independent 32-bit compute engine	> 32kHz time base
> 46-64Hz line frequency range with same calibration	> Two UARTs for IR and AMR
> Phase compensation (±7°)	> Digital I/O pins compatible with 5V inputs
> Battery back-up modes for RTC and battery monitor	> 64-pin LQFP or 68-pin QFN package
> Three battery modes w/ wake-up on push-button or timer: Brownout mode (48uA), LCD mode (5.7uA) and Sleep mode (2.9uA)	



### Applications

- > Residential meters, 0.5% accuracy

### 71M6521DE, 71M6521FE Block Diagram



### Ordering Information

PART DESCRIPTION	ORDERING NUMBER
<b>71M6521DE</b> 64-pin LQFP, Lead Free, 16KB Flash,	<b>71M6521DE-IGT/F</b>
<b>71M6521DE</b> 64-pin LQFP, Lead Free, 16KB Flash, Tape & Reel	<b>71M6521DE-IGTR/F</b>
<b>71M6521FE</b> 64-pin LQFP, Lead Free, 32KB Flash,	<b>71M6521FE-IGT/F</b>
<b>71M6521FE</b> 64-pin LQFP, Lead Free, 32KB Flash, Tape & Reel	<b>71M6521FE-IGTR/F</b>
<b>71M6521DE</b> 68-pin QFN, Lead Free, 16KB Flash,	<b>71M6521DE-IMF</b>
<b>71M6521DE</b> 68-pin QFN, Lead Free, 16KB Flash, Tape & Reel	<b>71M6521DE-IMR/F</b>
<b>71M6521FE</b> 68-pin QFN, Lead Free, 32KB Flash,	<b>71M6521FE-IM/F</b>
<b>71M6521FE</b> 68-pin QFN, Lead Free, 32KB Flash, Tape & Reel	<b>71M6521FE-IMR/F</b>