

# STPM32, STPM33, STPM34

## Taking care of every milliwatt



### Smart metering ICs keep electricity bill consistency with high accuracy even down to extremely low current levels

STPM32, STPM33, STPM34 are high accuracy AFE (Analog Front End) for DC and AC energy measurement, offering high accuracy down to extremely low current typical of home appliances in stand-by. A full set of on-board features provides high system integration and enable on-chip power-quality monitoring, reducing smart-meter cost of ownership, and contributing to a fast and easy design to dramatically reduce manufacturing time and cost.

#### KEY FEATURES

##### HIGH ACCURACY

- Applicable to Class 0.2 meters
- < 0.1% active power accuracy over a dynamic range of 5000:1
- 4 kHz Bandwidth
- Single point calibration

##### FLEXIBILITY

- AC and DC components measurement
- Multiple sensors support: Shunt, current transformer, Rogowsky coils
- Multiple host interfaces 5 and 3 wires SPI, UART
- I, V bit stream available to host controller for customer own processing

##### SECURITY AND COMPLIANCY

- Case removal and Neutral Anti-tamper detection
- Exceeds 50-60 Hz EN 50470-x, IEC 62053-2x, ANSI12.2x

#### INTEGRATION

- Up to 4 independent 24 bits  $\Sigma\Delta$  ADC with PGA
- Integrated DSP for “turn-key” energy parameters calculations
- Built-in twin independently temperature compensated voltage references
- Double LED output programmable for active and reactive energy pulses generation

#### KEY APPLICATIONS

- Single, split and poly-phase energy meters up to class 0.2 accuracy
- Smart plugs and appliances
- Industrial instruments
- Servers, lighting and smart power monitoring systems

## HIGHLY INTEGRATED METERING ICS

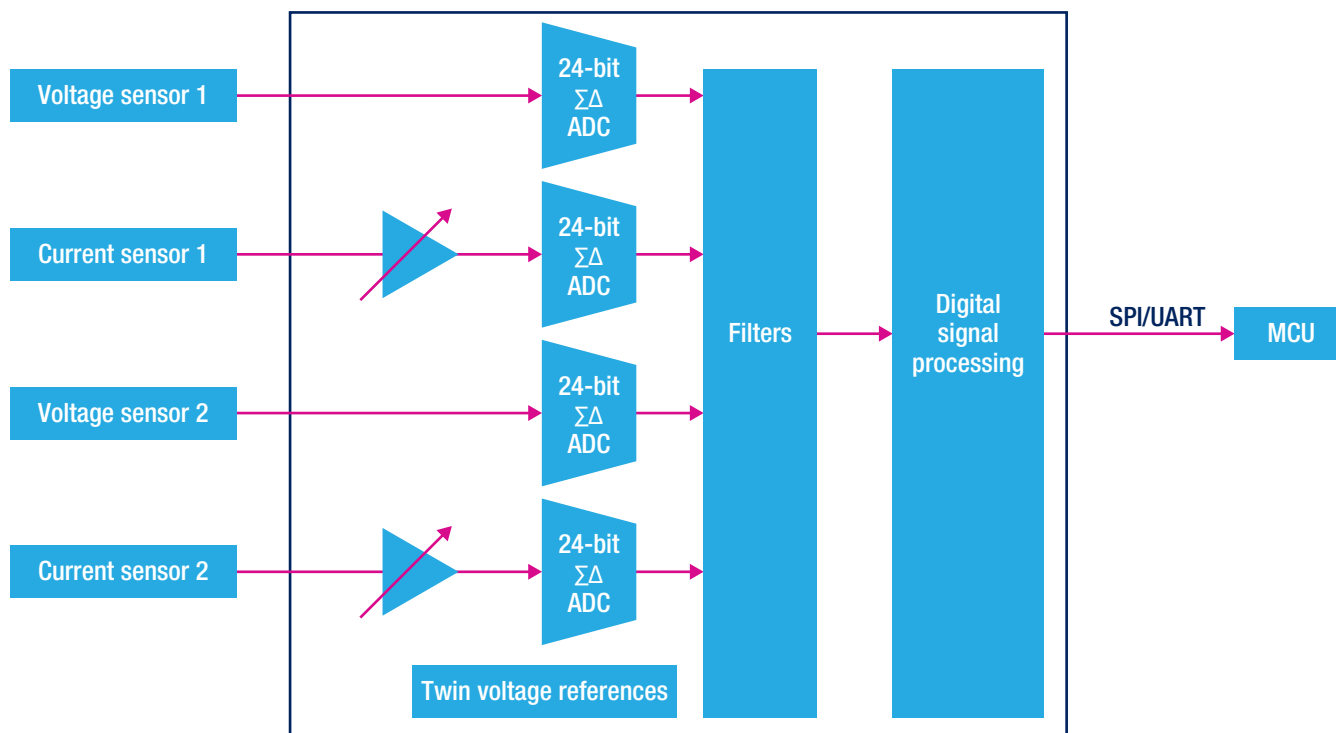
### Enable confident and consistent measuring in the low-energy age

As today's home electronics and appliances offer ever-lower standby power, ST's STPM32, STPM33, STPM34 will help energy utilities to minimize revenue losses and ensure consistent high accuracy billing while measuring even the harmonic content up to a 4 kHz bandwidth. Moreover power-quality assessment is achieved thanks to additional features like voltage line frequency calculation, SAG, SWELL, negative power indication and zero crossing detection.

By performing power-quality calculations on-chip, including RMS voltage and current measurement, apparent-energy computation and under-voltage/over-voltage detection, the IC can offload the meter's host processor thus simplifying computational software and reducing the flash memory size occupation in the host controller.

The STPM32, STPM33 and STPM34 provide two, three or four independent channels respectively, for single, split and poly-phase AC applications. They are fully compliant with applicable International Electrotechnical Commission (IEC), American National Standards Institute (ANSI) standards as adopted by regulatory authorities worldwide, and exceed State Power Grid Corporation of China (SGCC) requirements.

### STPM34: 4 INDEPENDENT CHANNELS BLOCK DIAGRAM



### PRODUCT TABLE

Order codes	Package	Packing	# channels	Evaluation Boards
STPM32TR	QFN24 4x4 0.5p	Tape & Reel	2	EVALSTPM32
STPM33TR	QFN32 5x5 0.5p	Tape & Reel	3	EVALSTPM33
STPM34TR	QFN32 5x5 0.5p	Tape & Reel	4	EVALSTPM34

