



# Energy Measurement Solutions

As the technology leader in high performance and innovative products, Analog Devices has expertise with the following components to help you solve your energy meter design challenges in every aspect of the system:

## Energy Measurement and Data Management

- Energy measurement ICs (ADE)
- ADCs
- DSP processors (ADSP-21xx, Blackfin®)
- Voltage references
- Temperature sensors
- Amplifiers/switches/multiplexers

## User Interface

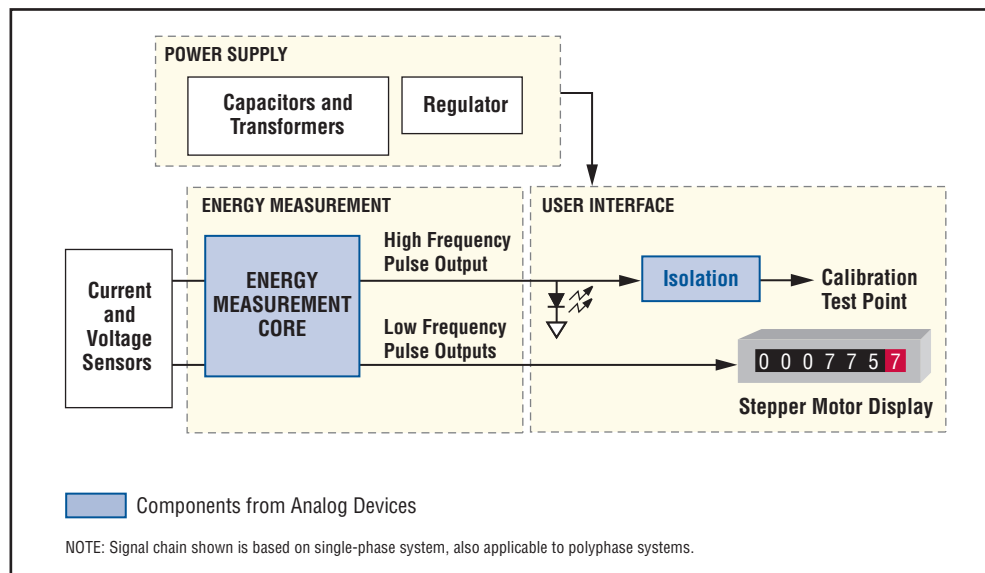
- Digital isolators (*iCoupler*®)
- Transceivers (RS-485, RS-232, RF, PLC, PSTN)

## Power Supply

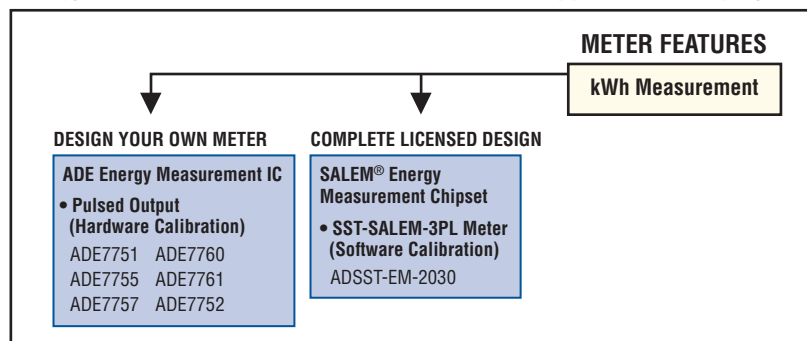
- LDOs
- Supervisory (battery switchover, reset generator)

With over 100 million meters based on our technology deployed worldwide, Analog Devices has delivered more energy measurement solutions than any other semiconductor company. Whether you are building a residential energy meter that displays only watt-hours, or complex polyphase meters with harmonic analysis capabilities, Analog Devices has a solution for you. We provide the critical components that help you design your own meter and also offer complete licensed designs from the SST-SALEM® family.

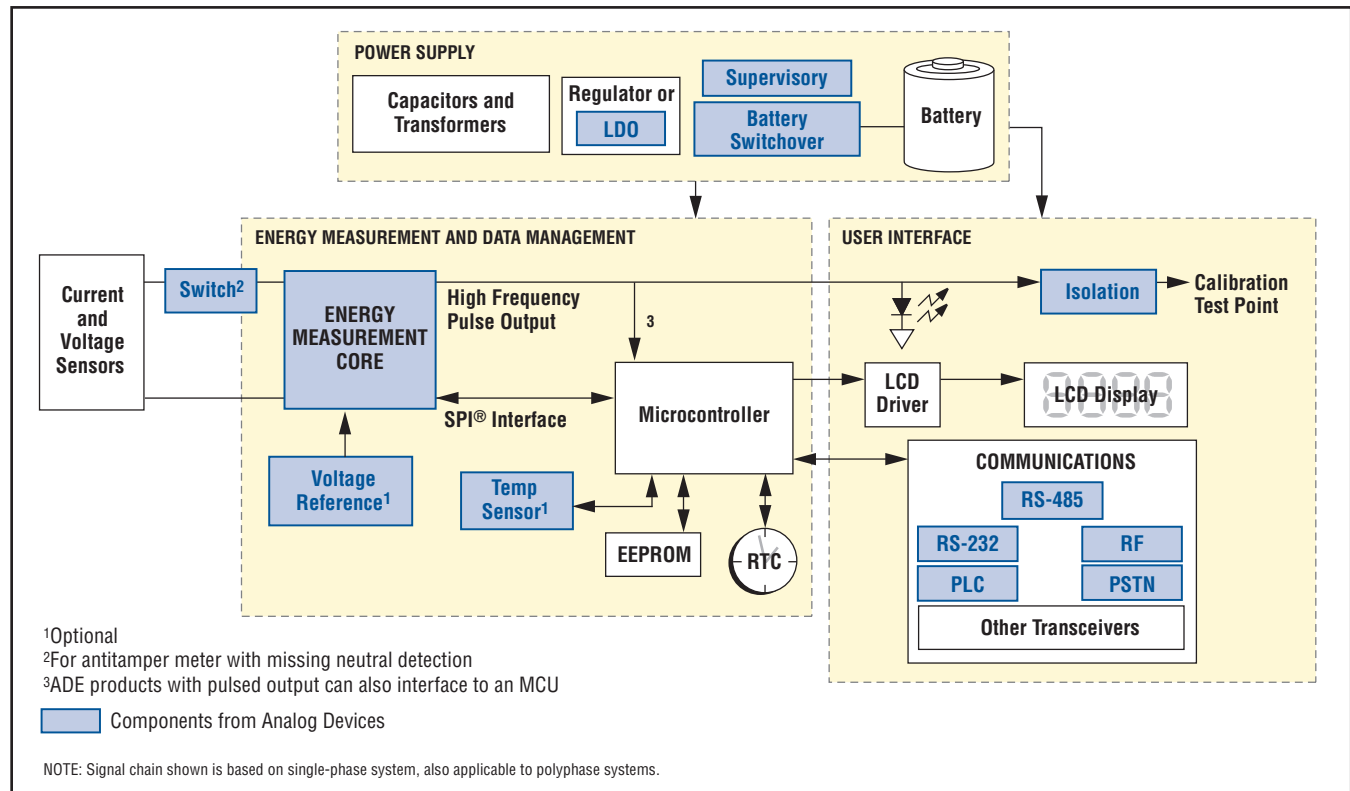
## kWh Meter with Stepper Motor Display



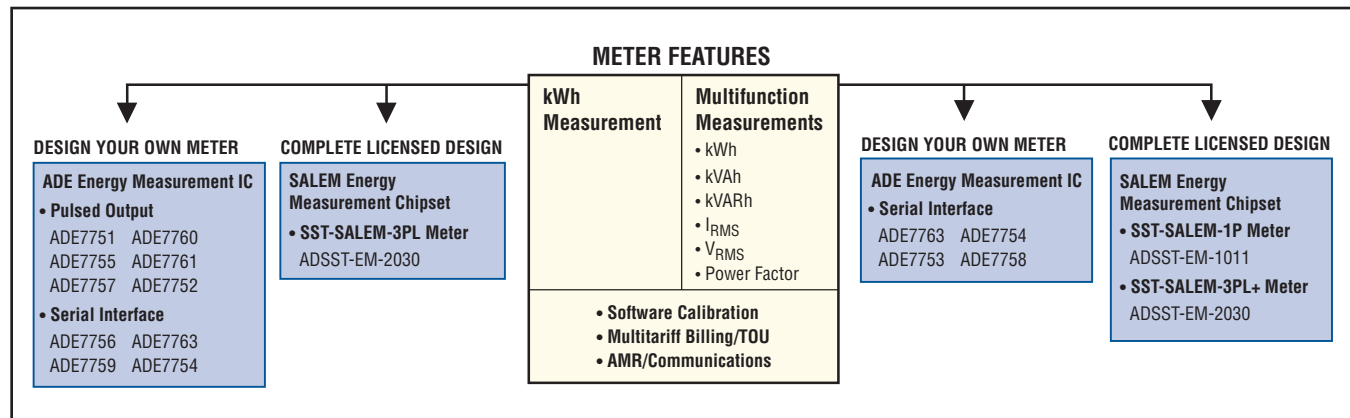
## Energy Measurement Core for kWh Meter with Stepper Motor Display



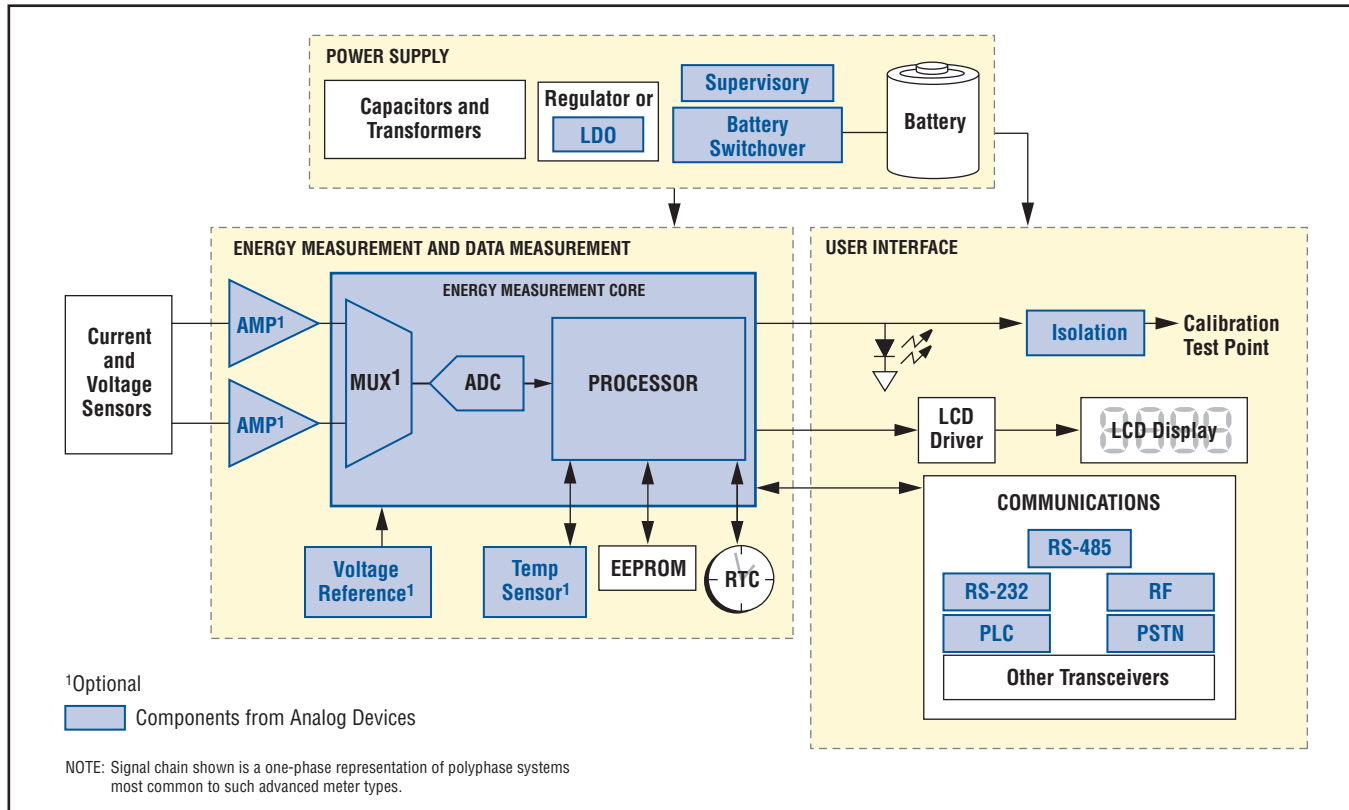
## kWh or Multifunction Meter with LCD Display



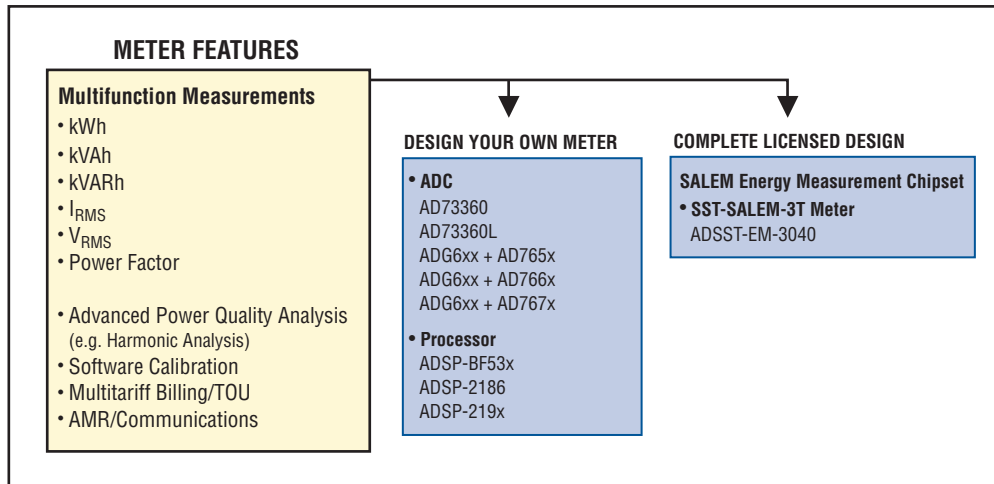
## Energy Measurement Core for kWh or Multifunction Meter with LCD Display



## Multifunction Meter with Advanced Power Quality Analysis



## Energy Measurement Core for Multifunction Meter with Advanced Quality Analysis



Meter Function	Product Category		Product Number/Family	Product Description
Energy Measurement and Data Management	Energy Measurement IC with Pulse Output	Analog Devices' Energy IC (ADE)	ADE7755	kWh single-phase IC
			ADE7757	kWh single-phase IC with integrated oscillator
			ADE7751	kWh single-phase IC with on-chip fault detection
			ADE7760	kWh single-phase with on-chip fault detection and integrated oscillator
			ADE7761	kWh single-phase IC with on-chip fault and missing neutral detection and integrated oscillator
			ADE7752	kWh polyphase IC
		SST-SALEM Licensed Design Chipset	ADSST-EM-2030	kWh polyphase meter chipset
	Energy Measurement IC with Serial Interface	Analog Devices' Energy IC (ADE)	ADE7756	kWh single-phase IC
			ADE7759	kWh single-phase IC with di/dt sensor interface
			ADE7763	Multifunction single-phase IC with di/dt sensor interface (kWh, kVAh, $V_{RMS}$ , $I_{RMS}$ )
			ADE7753	Multifunction single-phase IC with di/dt sensor interface (kWh, kVAh, kVARh, $V_{RMS}$ , $I_{RMS}$ )
			ADE7754	Multifunction polyphase IC (kWh, kVAh, $V_{RMS}$ , $I_{RMS}$ )
			ADE7758	Per phase multifunction polyphase IC with di/dt sensor interface (kWh, kVAh, kVARh, $V_{RMS}$ , $I_{RMS}$ )
		SST-SALEM Licensed Design Chipset	ADSST-EM-1011	Multifunction single-phase meter chipset
			ADSST-EM-2030	Multifunction polyphase meter chipset
			ADSST-EM-3040	Advanced multifunction polyphase meter chipset
			AD73360	Six 16-bit A/D converters with built-in PGA
	Analog-to-Digital Converters (ADC)		AD73360L	Six 16-bit A/D converters with built-in PGA (lower power)
			AD765x	16-bit, 100k to 1 MSPS PulSAR® A/D converter (single-/multi-channel, single-ended/differential)
			AD766x	16-bit, 100k to 1 MSPS PulSAR A/D converter (single-channel, single-ended, unipolar/bipolar)
			AD767x	16-/18-bit, 100k to 1 MSPS PulSAR A/D converter (single-channel, single-ended/differential, unipolar/bipolar)
	Processors		ADSP-BF531/ADSP-BF532/ADSP-BF533	400/500/600 MHz low cost Blackfin processor
			ADSP-2186	16-bit DSP microcomputer (40 MIPS, 5 V, 2 serial ports, host port, 40 kB RAM)
			ADSP-219x	16-bit fixed-point DSP for multichannel applications
	Voltage References		ADR39x	High precision, micropower series references (for low power systems)
			ADROx	Ultracompact, high precision voltage references (for high voltage systems)
	Temperature Sensors		TMP05/TMP06	PWM interface temperature sensor
			ADT7301/ADT7302	SPI temperature sensor
			AD7414/AD7416	I <sup>2</sup> C® temperature sensor
	Amplifiers		AD8544	General-purpose CMOS rail-to-rail amplifier
			OP484	Precision rail-to-rail input and output operational amplifier
	Switches/Multiplexers		ADG333	±15 V quad SPDT switch
			ADG6xx	±5 V analog switches/multiplexers
User Interface	Digital Isolators (iCoupler)		ADUM120x	Dual-channel digital isolator
			ADUM130x	Triple-channel digital isolator
			ADUM140x	Quad-channel digital isolator
	Communications	RS-485 Transceiver	ADM483E	±15 kV ESD protected, EMC compliant slew rate limited, EIA RS-485 transceiver
			ADM232	High speed, 5 V, 0.1 $\mu$ F CMOS RS-232 drivers/receivers
		RS-232 Transceiver	ADM208E	EMI/EMC compliant, ±15 kV protected, RS-232, 230 kbps transceiver with 4 drivers and 4 receivers
			ADF7010	902 MHz to 928 MHz ISM band ASK/FSK/GFSK transmitter IC
		RF Transmitter/Transceiver	ADF7011	433 MHz to 435 MHz and 866 MHz to 870 MHz ISM band ASK/FSK/GFSK transmitter IC
			ADF7012	300 MHz to 1,000 MHz ISM band ASK/FSK/GFSK transmitter IC
			ADF7020	433/868/915 MHz ISM band ASK/FSK transceiver IC
		SST-PLC Modem Licensed Design Chipset	ADSST-PLC-01	PLC modem chipset
		SST-PSTN Modem Licensed Design Chipset	ADSST-V32-ATS03	Chipset for 14.4 kbps PSTN modem with parallel phone sensing
Power Supply	LDOs		ADP3300	3.3 V or 5 V low dropout voltage regulator
			ADM8xx/ADM18xx	Power supply supervisory circuit/reset generator for microprocessor
	Supervisory		ADM8690-ADM8695	Power supply supervisory circuit/reset generator for microprocessor and battery switchover

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