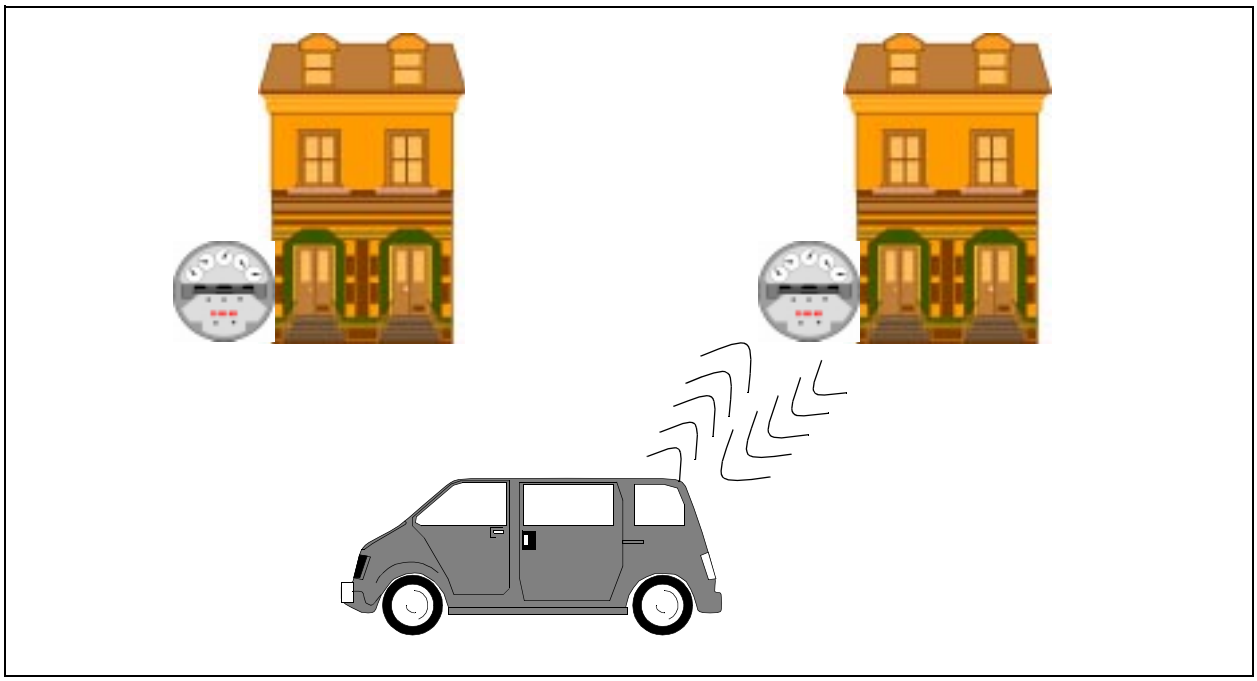
Power Meter Reader Application Brief



APPLICATION DESCRIPTION

A Meter Reader is an electronic device which attaches to a currently existing utility meter, reads the dials and stores this information electronically. The person wishing to read the meter communicates with the meter reader via RF signal to gather the stored data. Since the reader may attach to utility meters that do not have a power source (such as a water meter), it needs to be battery powered.

The PIC17C756A is an ideal microcontroller for use in a meter reader. The 10-bit A/D yields high resolution so that a sensor can properly determine the reading. The A/D settling time (time from turning on A/D to when the sampling starts), the sample time (time for holding capacitor to be charged to input voltage level) and the conversion time (time from setting the GO bit until the conversion is complete) is short so as to minimize the time that the device is not in sleep.

The I/O is used to generate/receive the RF signals to communicate with the person who reads the meter. This RF portion determines how close the person needs to get to the meter (i.e., it would be possible for the person to drive past the locations and have downloaded the new values).

The low power consumption and speed of operation are also very important for this application and delivered by the PIC17C756A.

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System Requirements

System Requirements	PICmicro™ MCU Applicability
Battery application	• Low power consumption
Fast settling time, Fast sampling time, Fast conversion time	• Fast A/D results
Flexibility	• OTP
Fast bit manipulation (for RF conversion)	• Manipulate I/O in a single instruction cycle
Accuracy	• High resolution A/D (10 bit)

Related Applications

- Utility Meters

PIC17C756A Features

Performance	Peripherals	Power	Package
✔ DC - 33 MHz	4 Captures (16 bit)	BOR	✔ DIE
✔ Program Memory: 16K internal, 64K external	3 PWM (10 bit)	✔ < 1 μA Standby Current	64/68 pin
✔ Data Memory: 902 bytes	4 Timers	✔ Low Voltage Capability - see the PIC17C75X Data Sheet for details (DS30264A)	
✔ Single Cycle Instructions	2 USARTs		
✔ 8 x 8 Single Cycle Multiply in 121 ns	✔ 10-bit A/D (12 channel), < ± 1LSb error		
	SPI™		
	I^2C™ Master		
	✔ Watchdog Timer		
✔ Key features utilized in this application.			

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