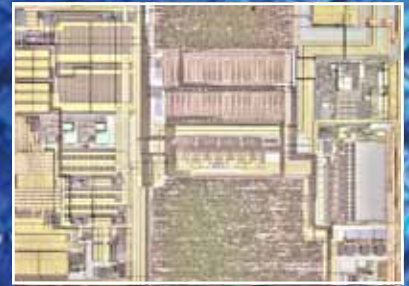


# iC-PMX ENERGY HARVESTING MULTITURN COUNTER/ENCODER



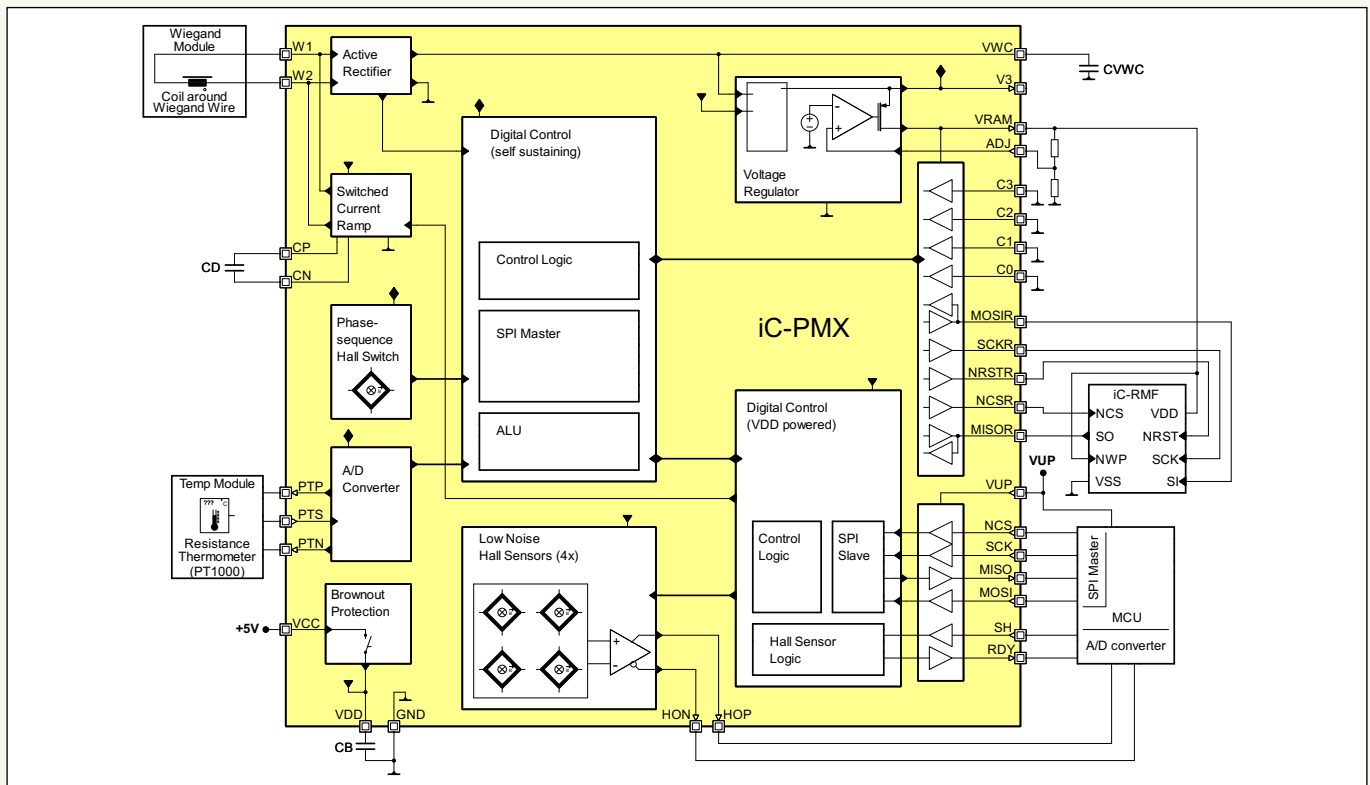
iC-PMX uses a Wiegand wire to generate the electrical energy for acquiring, processing and storing the absolute position of any number of periods of the magnetic field. This energy harvesting capacity is supplemented with a singleturn sensor module for high resolutions and a special placement and electrical processing of the enclosed Hall sensors. Additionally a PT1000 interface is integrated to allow the precise calculation of temperature compensated gas volume in flow meters. The ASIC has an operating temperature range of up to 125 °C and is suitable for measuring at high speed. Typical applications are highly integrated energy autonomous magnetic absolute encoders and metering applications. Those absolute encoders can replace established gear or battery buffered solutions.

## Features

- Gearless and batteryless revolution counter
- Energy harvesting through Wiegand pulses\*
- Integrated Hall switch for direction detection
- Pt1000 sensor interface for gas meter applications
- SPI interface to external FRAM
- Independent SPI interface to microcontroller (configuration and data exchange)
- 4 low-noise Hall sensors with differential analog output
- Electrical Wiegand wire excitation for synchronization with singleturn
- Runt pulse tolerant counting algorithm
- iC-RMF = SPI FRAM MB85RDP16LX (Fujitsu)

## Applications

- Period counters
- Gas and liquid flow meters
- Multiturn encoders
- Absolute end-of-shaft encoders
- Absolute hollow shaft encoders
- Absolute linear encoders



\*Devices and processes for energy harvesting by Wiegand-Wire within position encoders are protected by several worldwide patents (such as WO 2004/046735 A1) and require licensing by the inventors and applicants.

# iC-PMX

## ENERGY HARVESTING MULTITURN COUNTER/ENCODER

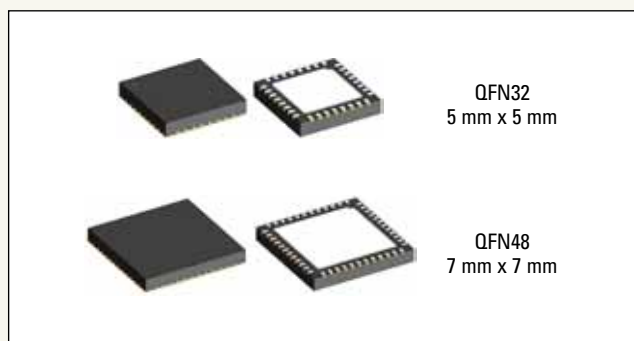
### Pin Functions

Name	Function
W1, W2	Wiegand Module Pin 1, Pin 2
VDD	Supply Voltage for Singleturn Hall
VCC	Supply Voltage (5V)
CP	Cap CD Pin P
CN	Cap CD Pin N
GND	Ground
CO...C3	Configuration
MISOR	FRAM Interface, Master Data Input
NCSR	FRAM Interface, Chip Select
NRSTR	FRAM Interface, Reset
SCKR	FRAM Interface, Clock
MOSIR	FRAM Interface, Master Data Output
ADJ	Feedback Voltage for VRAM
VRAM	Voltage for FRAM (internally provided)
V3	Core Voltage (internally provided)
PTP	Thermometer Positive Supply
PTS	Thermometer Sense Pin
PTN	Thermometer Negative Supply
HOP	Hall Output positive (Singleturn Hall)
HON	Hall Output negative (Singleturn Hall)
SH	Switch Hall MCU (Singleturn Hall)
NCS	Serial Interface MCU, Chip Select
SCK	Serial Interface MCU, Clock
MOSI	Serial Interface MCU, Slave Data Input
MISO	Serial Interface MCU, Slave Data Output
RDY	Data Ready MCU
VUP	Supply Voltage for MCU I/O
VWC	Cap CVWC

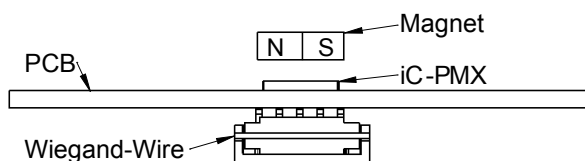
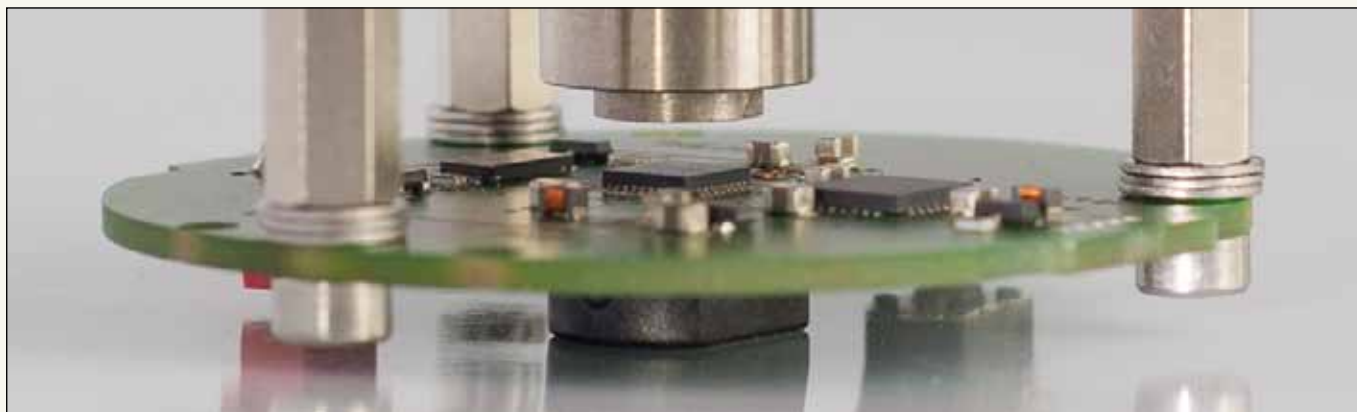
### Key Specifications

General	
Permissible Core Voltage (VCC)	4.5 to 5.5 V
Permissible Voltage MCU I/O	3.0 to 5.5 V
Max. Rotation Speed	30,000 rpm
Operational Temperature Range	-40 to +125 °C

### Packages



### Application Example



This preliminary information is not a guarantee of device characteristics or performance. All rights to technical changes reserved.