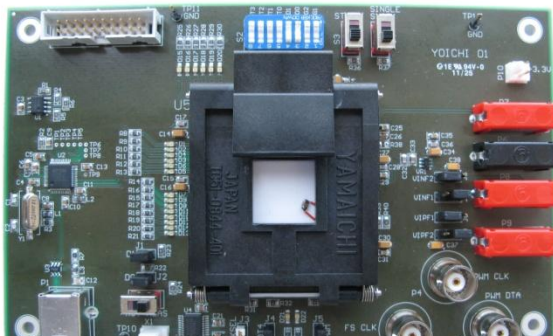


# 16 bit industrial data converter

## Incremental sigma delta modulator

### Features

- High resolution & True 16 bit
  - 16 ENOB @ 8ms output sample rate
  - 125 SPS
- High Linearity
  - INL < 1 LSB  $\pm$ 1000mV
  - Low offset < 1.5 LSB
- Differential input with optional floating common mode
- Low power 2 mW
  - Supply current 800 $\mu$ A
  - Supply voltage +3.3V
- Reference voltage Vref from 0 to 2500mV
- Input voltage range  $\pm$  Vref
- 1x, 10x and 20x gain setting for zoom on voltage ranges



Test board for the ADC IP chip

### Description

The DELTA Microelectronics industrial delta sigma data converter IP provides industrial grade high-performance absolute precision measurements at high output sample rate and very low power consumption. The converter contains an auto-zeroed differential analog modulator and a digital decimator.

The converter IP is scalable for power consumption, resolution and sampling rate.

### Possible application areas

Industrial absolute precision measurements:

- Sensor readings e.g. hall sensor readings
- Temperature measurement e.g. Pt100 readings
- Pressure metering
- Flow metering
- Conductivity metering
- Ultrasound measurements
- Open/close detection

### Technology

SMIC 0.18 $\mu$  MS process

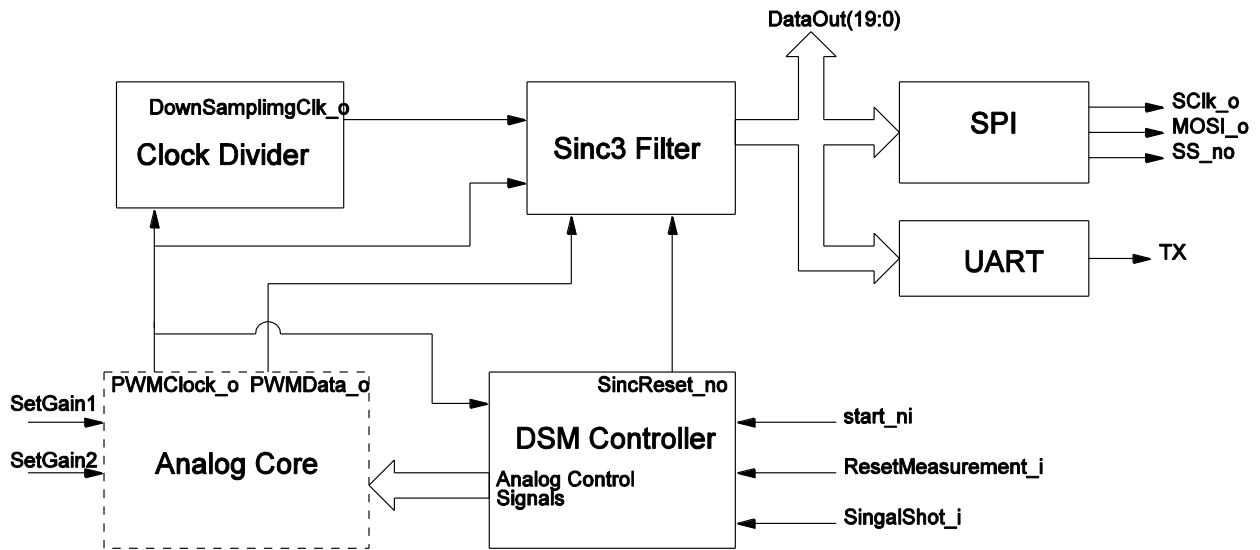
### DELTA

Venlighedsvej 4  
2970 Hørsholm  
Denmark  
Tel. +45 72 19 40 40  
asic@delta.dk  
asic.madebydelta.com



## Selected parameters

Parameter/Symbol	Conditions	Min	Typ	Max	Unit
Sampling clock			250		kHz
Digital PWM data output bit rate			250		Kbit/s
Common mode voltage input range		0		VDDA	
Differential voltage input range	Gain = 1x		±1600		mV
Differential voltage input range	Gain = 10x		±200		mV
Differential voltage input range	Gain = 20x		±100		mV
Absolute measurement resolution	Vref=2.5 V				
Gain setting 1x			76		μV
Gain setting 10x			7.6		μV
Noise, input referred				5	μVrms
Offset temperature drift, calibrated				1	μV/degC
Gain temperature drift, calibrated				15	ppm/degC
Integral Non-Linearity (INL). Differential input voltage range =					
±1000mV		-15		+15	ppm
±250mV		-8		+8	ppm
Differential Non-Linearity (DNL)	Gain = 1x. Differential input voltage range = ±500mV	-0.5		+0.5	LSB
CMMR, dc		80			dB
PSSR, dc to analog input		80	100		dB
50 – 60 mHz		80			



Overview of Digital Core