

Interpolation Circuit GC-IP200

Features:

The GC-IP200 interpolation IC has been designed for connection to incremental position and angular measurement systems with sine-shaped output signals with a 90° phase shift. It can be operated at a large number of transducer systems working according to the most varied measuring principles. With a maximum interpolation rate of 200 the IC is capable to slit the input signal period into up to 200 segments. An internal counter provides a counting value which can be output via a serial



Figure 1: GC-IP200

or a parallel interface. Furthermore there is the possibility to output the data as a pair of square waves for processing externally.

The GC-IP200 is ideal for single chip interpolation systems, micro-computer based measuring devices, as well as multi channel systems. Proprietary automatic gain and offset regulation, as well as the possibility of an analogue phase correction ensure a high measuring precision under industrial conditions. Two integrated two-level measuring value trigger and the additional parallel high speed output make the IC suitable for use in real-time applications.

Block diagram:

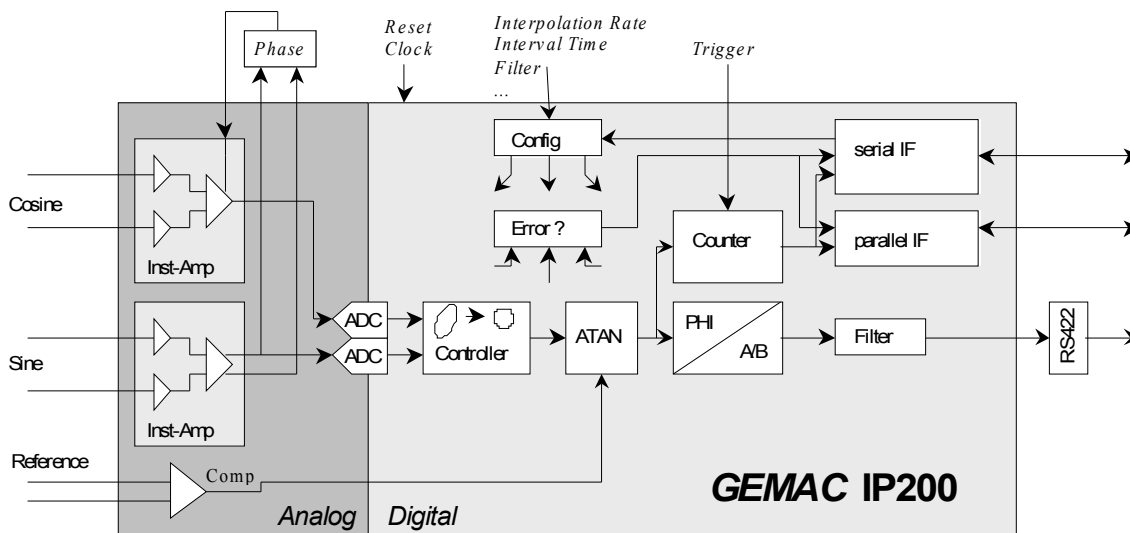


Figure 2: Block Diagram

Technical Specifications*:

Analog Part	
Analog input	3 differential channels (sine, cosine, reference) Voltage input 1V _{PP} (differential) Single-ended input 2,4V _{PP} Maximum input frequency 400kHz
AD-Converter	Internal converter max. 1,25MS/s
Signal correction	Patented gain- and offset regulation Phase correction static via external potentiometer
Digital Part	
Interpolation rate	20, 25, 40, 50, 80, 100, 160, 200
Output signals	28-Bit counting value 90° phase offset square wave signals Error signal
Possibilities of configuration	Configuration pins, serial interface (SPI)
Serial interface	For configuration and measuring value output 16 Bit synchronous / asynchronous mode Not required for trivial systems
Parallel output	For measuring value output 16-Bit wide Up to 40MBit/s
Miscellaneous	
Glitch filter	Filter for suppressing the edge distance noise at low input frequencies
Interval time	Programmable for adjusting the IC to slower counters
Trigger	Two level edge controlled measuring trigger
Error output	Programmable sensor failure response
Housing	
TQFP64	10mm x 10mm x 1,4mm

* A complete and more detailed description of the technical specifications is available at the data sheet at www.gemac-chemnitz.de.

Ordering Information:

Product Type	Description	Item No.
GC-IP200	Interpolation IC GC-IP200, TQFP 64	PR-00026-50