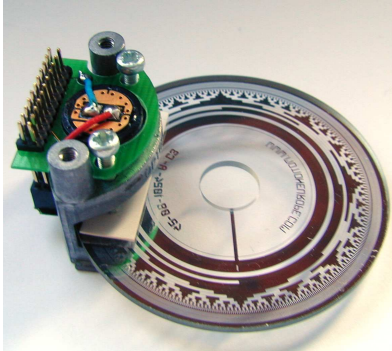
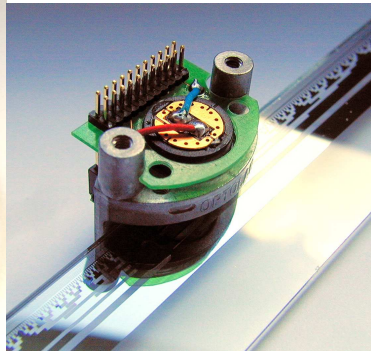


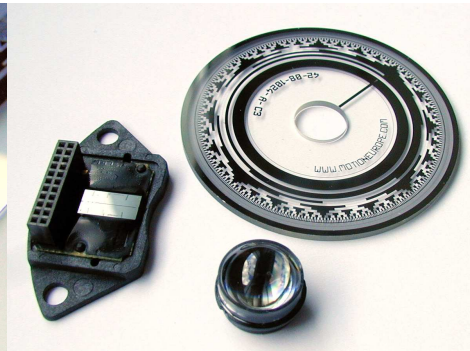
Low Cost Absolute Encoder (Product Information)



Read Head Rotary Kit



Linear Application



Super Flat Module Kit

Features

- Sine and Cosine true differential outputs with 1024 periods with amplitude and offset error compensation
- Integrated highly collimated illumination system
- 11 digital tracks and two sin/cos tracks generate precise 16bit gray code
- Ultra fast 1 μ s cycle for serial data output word (16MHz serial clock)
- On-chip interpolation and code correction for +/- 1 LSB compensate for mounting tolerances
- MSB can be inverted for changing the counting direction
- On-Chip probe mux addresses every digital and analog channel for engineering purpose
- On-chip EEPROM stores calibration and configuration data
- Monitor track for tracking the light level of the LED and to drive an external current source
- Watch dog with alarm output
- High temp. plastic code disc available

General description

NEMO3 exists of 13 signal channels plus 1 monitor channel and is used for the optical reading of rotary or linear code carriers (i.e. discs or scales). The 14 channels are sensed by on chip photo diodes with precision amplifiers plus additional circuitry. The monitor channel is used for driving an external constant current source for the highly collimated illumination system.

Applications

- Rotary encoder with analog / digital / incremental and up to 16Bit/360° absolute position output
- Linear encoder with analog / digital / incremental and 2 μ m absolute position output
- Rotary encoder with analog / digital / incremental and up to 11 bit user defined code patterns
- Very inexpensive solution for direct integration into OEM systems

Characteristics

	Min	Max
Supply Voltage	4,75V	5,25V
Resolution		16bit
Optical Resolution		12bit
Code Disc Dia.	28mm	42mm *)
Serial Clock	0	16MHz
Operating Range	-25°C	85°C

*) up to 115 mm on request

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The 13 signal channels are set up as :

2 precision defining signals (A0, A09), which are two 90° electrical shifted Cosine/Sine signals. These signals are conditioned to be compensated for offset- and gain errors. After conditioning they are on chip interpolated (4 Bit) and computed to an absolute 6 bit Gray-Code. Additionally these Sin/Cos signals can be found at two true-differential analog outputs to be used at the system designers choice.

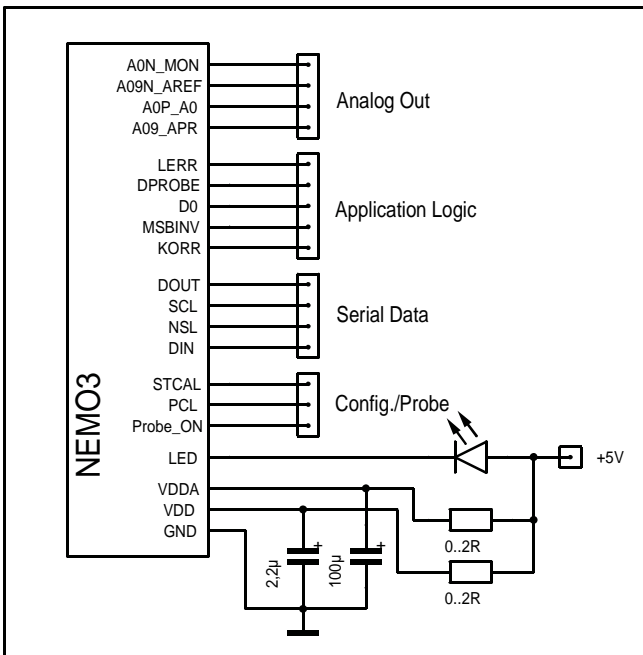
11 channels (A1-A11), which are directly digitized by precision comparators with hysteresis tracking.

Preferably the channels A1-A11 will be used with a gray code pattern as well. An internal correction and synchronization module allows the composition of a true 16 bit gray code by merging the data bits out of all 13 channels by still keeping the code monotony.

The gray code correction can be disabled/enabled by the external KORR-bit. This is especially helpful for engineering to check the mechanical properties of the encoder or the code disc at the manufacturing site.

The codes are sent out by an programmable shift register (14bit or 16 bit word length).

To store the configuration plus, if wanted, some analog tweaking of gain and offset of the sine / cosine outputs, there is an EEPROM on chip.



Application example and dimensions for the Nemo3-SF Module

