

# EPT002 Evaluation and Programming Tool for POSIC Encoder Kits

## Product data

## **Contents**

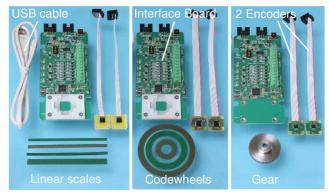


Fig. 1: Evaluation & Programming Tool with linear scales (left), with codewheels (center) or with a gear (right). The exact contents of the EPT is defined in Tables 1 - 3.

## Interface Board

The board contains several LEDs as listed below:

- PWR (red): Interface Board powered via USB
- ENC (red): Encoder active
- SYSTEM (red): Microcontroller active
- PROG (yellow): Programming of encoder's (One Time Programmable) memory is ongoing
- Signal LEDs (red): encoder output signals

The encoder signals are visualized by the signal LEDs and can be measured on the TestPins and the Terminal Block.

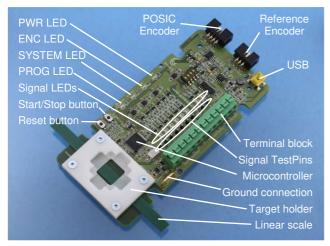


Fig. 2: The Interface Board

#### **Operation without PC/software**

The Interface Board is operated without software by connecting the USB-cable to a mains-USB converter or to a PC. Press "Start/Stop" to toggle the encoder on/off.

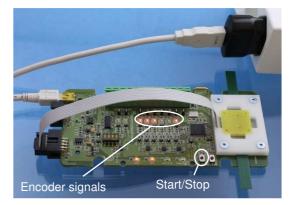


Fig. 3: The Interface Board operated without PC

#### **Operation with ASSIST software**

The Interface Board is operated with a PC using the USB cable and the ASSIST software.



Fig. 4: The Interface Board operated with PC

### ASSIST Software

The ASSIST software allows you to configure, measure and linearize POSIC encoder kits. These three functions are explained below.

## Configuration

The configuration windows allow you to:

- Choose between rotary and linear measurement
- · Define the codewheel or scale of the POSIC encoder
- Define the resolution of the reference encoder (optional)
- Select the resolution, maximum speed and orientation of the POSIC encoder
- Select the LookUp Table
- Program the configuration and LUT in the encoder's OTP (One Time Programmable) memory

For evaluation purposes, the encoder can be operated with ASSIST in any configuration. OTP programming is only required for "standalone" operation without ASSIST.





Configuration		
Encoder configuration o	ode	ID1102-4051015
	A - Orientation	4 - 90 deg 👻
	BB - Maximum speed	5 - 0.250 [m/s] 👻
Config	CC - Resolution	10 - 1.250 [um] 👻
	E - Voltage	5 - 5V 👻
	D - LookUp Table	1 - Standard 🔻

Fig. 5: Configuration of the encoder

#### Measurement

The evaluation window allows to operate the encoder and to visualize the position of the POSIC- and reference-encoder. The encoder-signals can be picked up from the Interface Board for visualization on an oscilloscope or for closed-loop operation. The measured data can be exported as a csv-file.

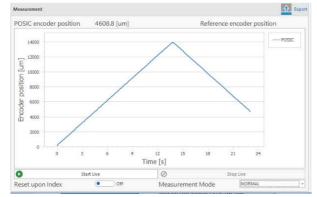


Fig. 5: Measurement window.

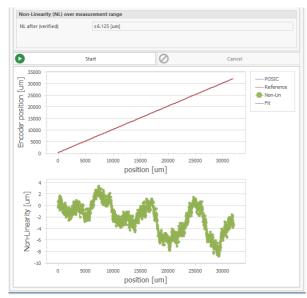


Fig. 6: Linearization window; red line prior to linearization NL 58 um; green line after linearization NL 6 um.

### Linearization

POSIC encoders can be operated with scales, codewheels (PCBs with copper strips) as well as ferromagnetic gears.

Each scale/codewheel/gear has its own specific nonlinearity, which can be compensated by means of a Standard LUT (LookUp Table). Standard LUTs are available in the ASSIST Software, typical accuracy is  $\pm 25$  µm. For higher accuracy, ASSIST Software allows to linearize the POSIC encoder against a reference encoder (e.g. a highaccuracy optical encoder), resulting in custom LUT with typical accuracy  $\pm 10$  µm.

## Encoder Status

The encoder status is checked during startup. Several tests to check e.g. the cable or the supply voltage are available in the Advanced Functions window.

	0	Start	A1	52.08kHz	A2	
Connection Test	0	Stop	B1	52.08kHz	B2	
	0		11	52.08kHz	12	
	0	Start	Si	upply Voltage	5.01	v
Supply Test	$\oslash$	Stop	S	upply Current	9.28	mA
	0	Start		Test Voltage	2.97	v
Leakage Test	0	Stop	Lea	akage Current	0.10	mA

Fig. 7: Encoder tests

#### User manual

The user manual for the Interface Board and the ASSIST software can be downloaded from POSIC's website.

## Ordering information

Evaluation & Programming Tool: EPT002-AAAAAAAB-C

Table 1: Encoder Type

ΑΑΑΑΑΑ	Encoder and scale/codewheel/gear
0000000	No encoder, no scale/codewheel/gear
ID1102L	Encoders + scales TPLS04, TPLS05
ID4501L	Elicodels + scales TFLS04, TFLS05
IT3402L	Encoders + scales TPLD04, TPLD05
IT5602L	Elicodels + scales TFLD04, TFLD05
ID1102C	
ID4501C	Encoders + codewheels TPCD05-064,
IT3402C	TPCD06-128 and TPCD07-180
IT5602C	
ID1102G	Encoders + ferromagnetic gear,
ID4501G	module 0.5, 64 teeth

#### Table 2: Number of encoders

	В	Number of encoders			
	0	No encoder			
	1 - 5	1 up to 5 encoders			
т	able 3: B	lue plastic enclosure			
Т	able 3: B C	lue plastic enclosure Blue plastic enclosure			
Т					



Data subject to change without notice. The information in this document is of preliminary nature, no responsibility is assumed by POSIC for its use, nor for infringements of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of POSIC.