

# SinCosYzer 2 (OVERVIEW)

## Encoder Signal Analysis With Graphical Visualization



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### FEATURES

- ◆ 8 differential input channels for  $\pm 1\text{ V}$  to  $\pm 10\text{ V}$
- ◆ Fast simultaneous signal sampling up to 2 MS/s
- ◆ High ADC resolution of  $30.5\ \mu\text{V}$  at  $\pm 1\text{ V FS}$  (16 bit)
- ◆ Base modes of operation: 8-channel oscilloscope, spectral signal analysis, Lissajous X/Y plotting
- ◆ Optional module 1 (encoder adjuster): sine/cosine encoder error analysis with color bar display of good/bad limit values
- ◆ Optional module 2 (reference analyzer): referenced signal analysis with graphical evaluation
- ◆ Oscilloscope mode with measurement utilities: DC offset and amplitude (AC, AC(RMS), Contrast, Min., Max.), cross screening of 2 channels for amplitude differences and phase deviations, 4 mathematical analysis channels
- ◆ Spectral signal analysis with calculation of harmonics and THD
- ◆ Lissajous X/Y plotting with tolerance and limit indication
- ◆ Robust housing with Probe card for easy wiring to DUTs or housed encoders
- ◆ Stand-alone operation with external Windows 10 PC
- ◆ Delivery: ready-to-operate *SinCosYzer 2* with instrumentation software (GUI), cables
- ◆ Remote controllable, configurable and measurement output via a TCP/IP interface

### APPLICATIONS

- ◆ Accuracy analysis of sine position encoders
- ◆ Factory calibration of sine/cosine signal conditioning circuits
- ◆ Optical and magnetic position sensor calibration
- ◆ Linear and rotary encoders
- ◆ Feasibility studies of position sensing systems
- ◆ Module 2: Referenced accuracy measurements
- ◆ Module 2: Accuracy analysis of AB encoders



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### DESCRIPTION AND FUNCTION

The SinCosYzer 2 has eight fully differential simultaneous scanning channels and thus meets the requirements for measurements on analog position encoders that provide differential as well as single-ended sine and cosine signals.

The high resolution of the 16-bit A/D converter enables precise encoder signal analysis; the fast 2 MS/s simultaneous sampling allows signal frequencies up to 1 MHz. Unique evaluation and measurement tools for waveform and signal errors are available in five different operating modes. The oscilloscope mode, for example, allows the comparison of two channels to identify sine and cosine signal deviations.

The optional signal error analysis module 1 enables encoder analysis in which the primary signal errors are displayed with red, yellow and green bars. The user can edit and store the specific limits in a reference file or via GUI. At the same time the achievable angular accuracy for the interpolation of the sine/cosine signals is predicted and the dominant signal error is identified.

With the optional module 2 it is possible to perform a reference-based encoder measurement and to analyze the resulting signal error curve. Various analysis modes are available (e.g. AB versus sine/cosine, duty cycle, repeatability).

### Screens at a glance

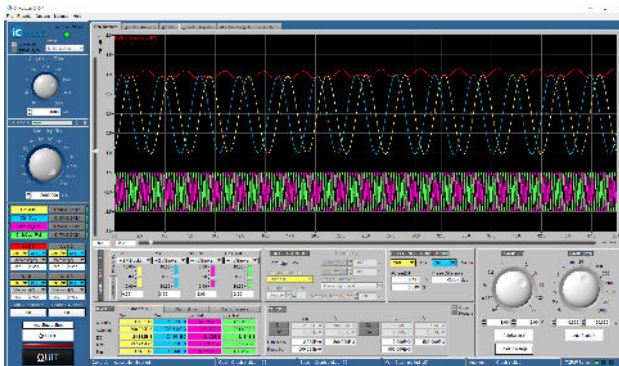


Figure 1: 8-Channel oscilloscope with AC/DC and sine/cosine measurement facilities.

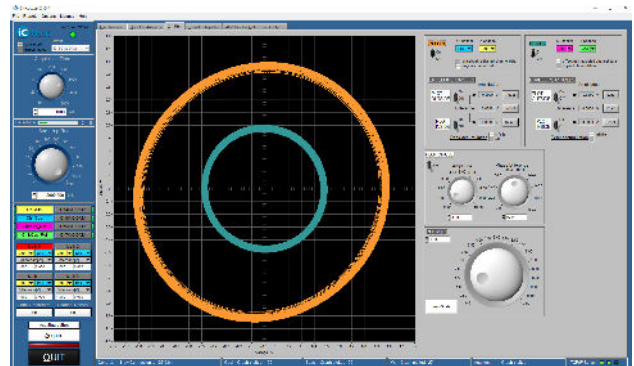


Figure 3: Lissajous X/Y plot with tolerance and limit indication.

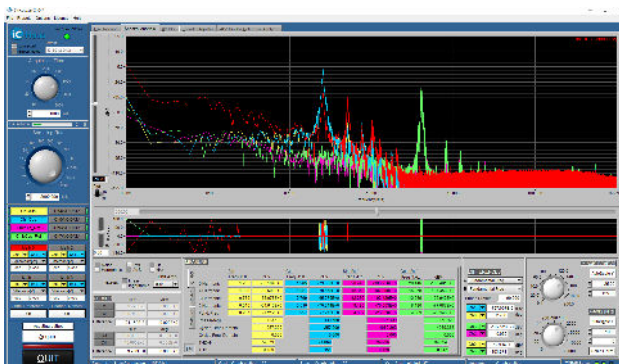


Figure 2: Spectral signal analysis (FFT) with calculation of harmonics and THD.

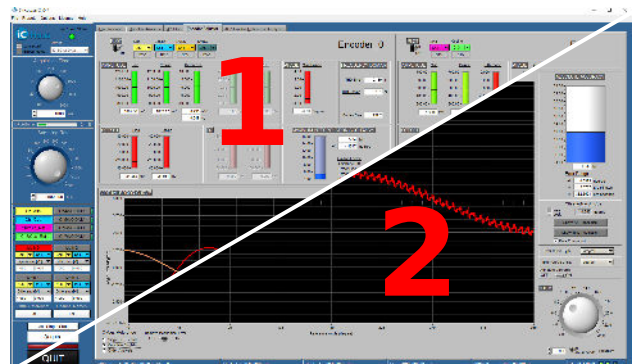


Figure 4: Optional modules 1 and 2 for signal balancing and error analysis.

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## GETTING STARTED

### CHECKING THE SCOPE OF DELIVERY

Package 1: iC-Haus Box



• SCY2 USB BOX

• Switching power supply



• USB cable with locking screw

• Power cord





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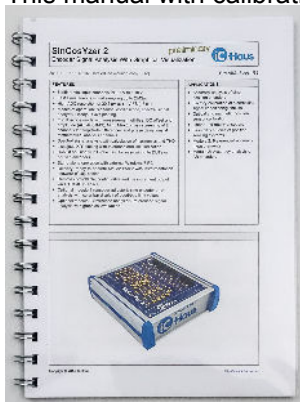
- EMI suppression ferrite toroid
- 10 jumpers with handle



- System recovery USB-Flash-Drive



- This manual with calibration certificate



### Package 2: DELL PC

- Dell XE4 SFF PC
- US keyboard
- Mouse
- Power cord

### Package 3: DELL Monitor

- Dell UltraSharp 24" Full HD Monitor
- Power cord

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## ORDERING INFORMATION

Type	Package	Options	Order Designation
SinCosYzer 2	1x iC-Haus Box 1x DELL PC 1x DELL Monitor	power cord options are xxx = <b>EUR</b> - middle European standard <b>USA</b> - American standard <b>UK</b> - UK standard <b>SUI</b> - Swiss standard <b>CN</b> - Chinese standard	iC-SCY2 Base-xxx
Module Encoder Adjuster	Optional software module 1	mandatory for ECW usage	iC-SCY2 EncAdj
Module ABZ Reference Analyzer	Optional software module 2		iC-SCY2 RefAna
Module ECW Interface	Optional software module 3	mandatory for ECW usage	iC-SCY2 EcwIf
Calibration Service		Factory calibration service at iC-Haus GmbH Germany, recommended every 2 years	iC-SCY2 CalService

Please send your purchase orders to our order handling team:

**Fax: +49 (0) 61 35 - 92 92 - 692**

**E-Mail: [dispo@ichaus.com](mailto:dispo@ichaus.com)**

For technical support, information about prices and terms of delivery please contact:

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