

FÖHR

ES4000

Advanced Three-Phase Power Quality Analyzer



Overview

The FÖHR ES4000 is an advanced three-phase power quality analyzer, designed to monitor, record, and diagnose critical electrical parameters in industrial, commercial, and research systems. With its 5.6" color display, long-term logging capabilities, and harmonic analysis down to the order of 50, it is ideal for energy audits, transient detection, fault diagnosis, and electrical efficiency verification.

Technical Specifications

Parameter	Value / Range
Ambient Temperature (Operation)	-10°C~40°C
Room temperature (base)	(23 ± 2) °C
Relative humidity	<80% (work); 40%~60% (base)
Phase-neutral voltage	1.0 V ~ 1000 V
Phase-phase voltage	1.0 V ~ 2000 V
Current (according to clamp)	10 mA ~ 6000 A
Frequency	40 Hz ~ 70 Hz
Phase change	Cosφ: 0.2 ~ 1.0 / Sinφ: 0.2 ~ 1.0
Harmonics	0.0% ~ 100% / up to order 50
Tension imbalance	0.0% ~ 100%
Working voltage of the device	DC9.5 V ~ 10.5 V
Power Supply	Rechargeable 9.6 V Li-ion battery
Battery indicator	Yes, automatic shutdown if low voltage
Energy consumption	490 mA; 10 hours of continuous work
Screen	5.6" color LCD 640×480 px
Clamp Size	FR008, FR020, FR050, FR300R
Equipment dimensions	277.2 × 227.5 × 153 mm
Number of channels	4U / 4I
Electrical parameters	W, VA, VAR, PF, DPF, COSΦ, TANΦ
Recorded energy	Wh, Varh, Vah
Total Harmonic Distortion	Per phase, order 0 to 50
Expert mode	Yes
Transient Registration	150 sets
Flicker tension	Yes
Starting current	100 seconds
Three-phase imbalance	Yes
Continuous Registration	300 days (every 5 sec, 20 parameters)
Min/max registration	Yes
Alarms	40 types, 12,800 events
Screenshot	60 snapshots
Language Menu	English / Chinese
Communication	USB
Automatic shutdown	Yes, depending on activity or recording
Backlight	Yes
Total weight (with case)	≈10.8 kg
Cable Length	Voltage: 3 m / Current: 2 m
Storage temperature	-10°C~60°C; <70% RH
Input Impedance	1 MΩ
Dielectric Strength	3700 V / 1 min
Isolation	≥10 MΩ
Structure	Double insulated, vibration resistant
Safety Standards	IEC61010 CAT III 1000V / CAT IV 600V

Main Functions

- Capture of up to 60 screens, 150 transient events and 300 days of trends.- Configurable alarms for 40 parameters with registration of up to 12,800 events.- Real-time analysis of waveforms, phasors, harmonic histograms.- 2 GB SD memory and download via USB for analysis on PC.- Recording of starting current by cycles up to 100 s.- Automatic calculations: THD, power factor, K-factor, $\cos \varphi$, energies.

The FÖHR ES4000 includes a full range of components and accessories to ensure accurate measurement, power quality recording and analysis of three-phase systems. Below I detail what this model includes according to the manufacturer's technical data sheet and sources:

General Specifications

• Display: 5.6" color LCD, 640×480 px• Power: 9.6 V Li-ion rechargeable battery• Channels: 4 voltages / 4 currents• Logging: Up to 300 days• Standard: IEC61010 CAT III 1000 V / CAT IV 600 V

Basic Operation

1. Connect the current clamps and voltage wires to terminals U1-U4 and I1-I4.2. Insert the SD card and turn on the computer.3. Set language, date, and time from the main menu.4. Enter the measurement mode: select parameters and range.5. Use the keys to navigate between views: waveform, phasors, harmonics, numeric data.6. To save data, press the capture button or turn on continuous recording.

Main Functions

- RMS measurement of voltage and current (phase-phase and phase-neutral)- Analysis of harmonics up to order 50- Recording of voltage events (drops, peaks, interruptions)- Flicker detection and three-phase imbalance- Recording of starting current (inrush current)- Recording of trends for up to 300 days- Configurable alarms (up to 40 parameters)- Automatic/manual screen capture (60 captures possible)

Communication and Data Download

The computer connects to PC via the USB port. From the included software, you can:- Monitor in real-time- Download historical logs- Generate trend charts- Export in supported formats (Excel, CSV, PDF)

Safety and Maintenance

- Do not use in humid environments or with the presence of intense magnetic fields.- Avoid excessive shocks or vibrations.- Check the condition of cables, connectors and battery regularly.- Store between -10 °C and 60 °C with humidity <70% RH.- Clean with a dry and soft cloth. Do not use solvents.

Auto Power Off and Battery

The machine goes into standby mode after 15 minutes of inactivity and automatically shuts down if there are no pulses for 1 minute. The battery lasts approximately 10 hours in continuous use.

Package contents of the FÖHR ES4000

- FÖHR ES4000 Portable Analyzer
- 5.6-inch color LCD display, 640×480 px
- English interface
- Rechargeable 9.6V lithium-ion battery
- Battery indicator, auto shut-off and backlight
 - Includes a combination of 4 current clamps, depending on configuration:
- FR008: Mini Clamp (10mA~10A)
- FR020: Medium Circular Clamp (0.10 A ~ 100 A)
- FR050: Large circular clamp (1.0 A ~ 1000 A)
- FR300R: Rogowski type flexible sensor (10 A ~ 6000 A, with integrator)
- Voltage measurement cables: approximate length 3 m
- Power cables (for clamps): length approx. 2 m
- 2GB SD card included (allows up to 300-day registration)
- USB cable for data download and monitoring from PC
- Visualization and analysis software included (on CD or USB)
- Operation Manual
- Calibration Certificate
- CD with software and drivers
- Padded carrying case
- Total weight with all accessories: approximately 10.8 kg

Warranty and Support

This equipment comes with a 1-year warranty against manufacturing defects. For technical support or after-sales service, contact your authorized dealer.

Contact Information

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FÖHR Mexico

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