LEYBOLD®

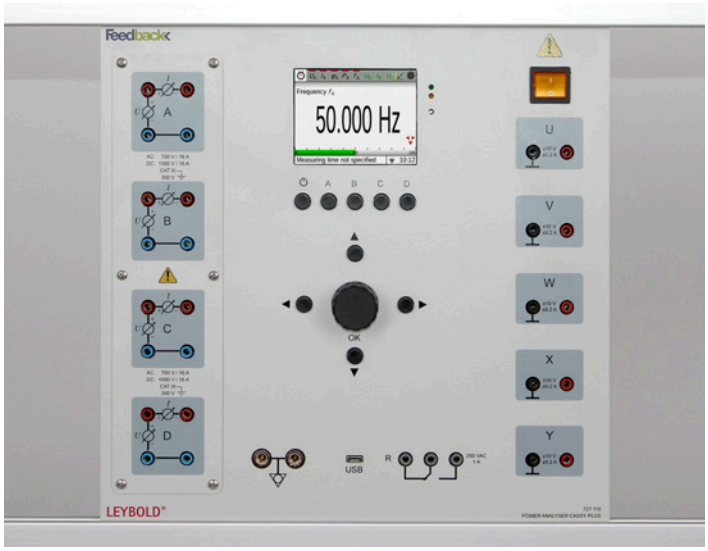
POWER ANALYSER CASSY

THE INNOVATIVE MEASUREMENT SYSTEM FOR ELECTRICAL ENGINEERING

LD DIDACTIC

POWER ANALYSER CASSY
INNOVATIVE MEASUREMENT

LEYBOLD®



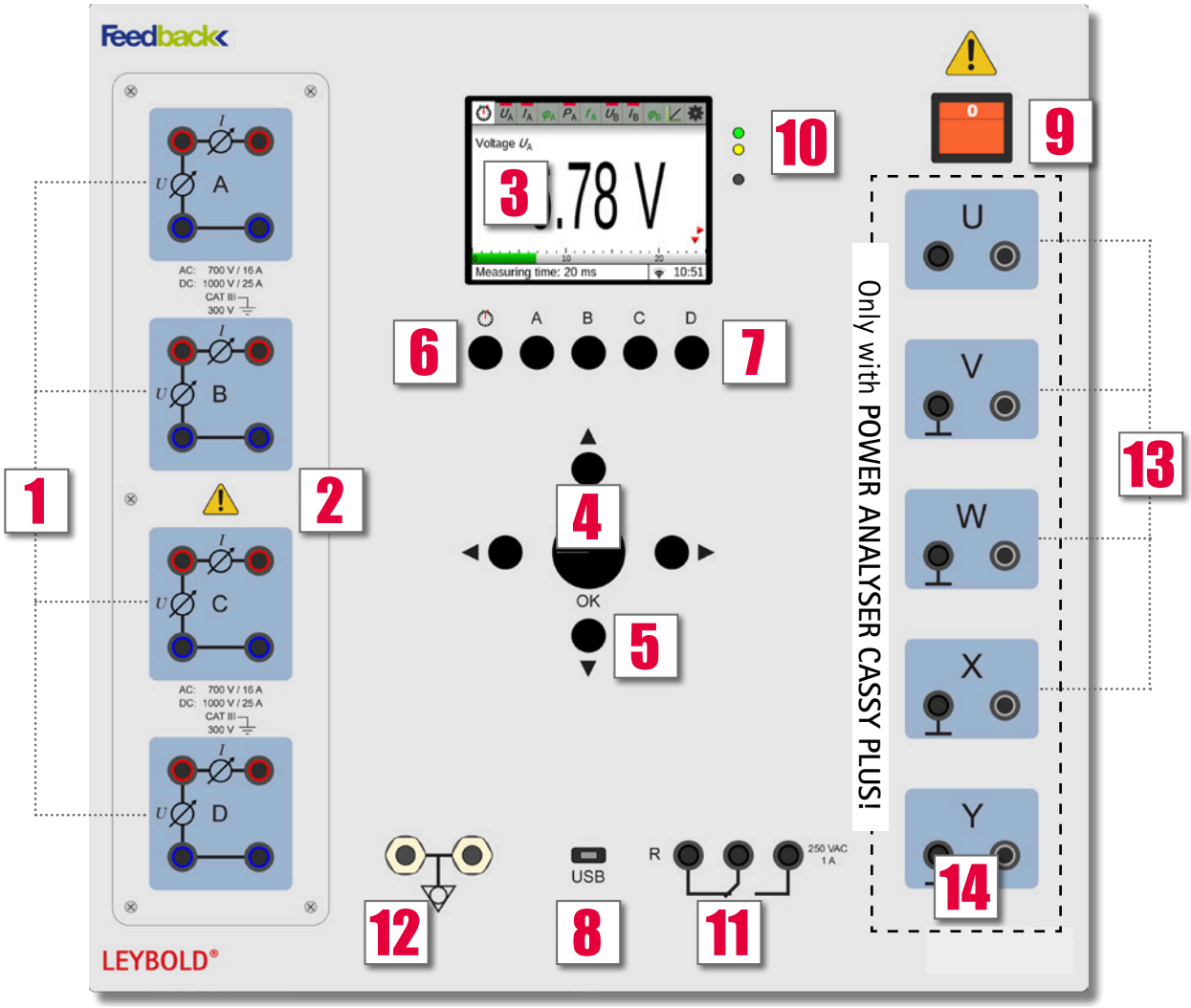
THE NEW GENERATION OF INNOVATIVE MEASUREMENT TECHNOLOGY

With the Power Analyser CASSY, LD DIDACTIC presents, for the first time, an innovative measurement system for electrical engineering designed in-house. The new measuring instruments meet all the requirements of the most modern measurement technology in the areas of drive technology, power electronics, electrical machines and power engineering. Can be used as a table-top device or as part of the TPS - Training Panel System framework system.

POWER ANALYSER CASSY - IN DETAIL

- simultaneous measurement of U, I, φ_U, φ_I, f and P
  - instantaneous values U, I and P
  - averaged values U, I and P
  - RMS values (AC+DC) U and I
  - fundamental wave filter
  - Delta connection adjustment
- universal connection options
  - via USB connection with PC or laptop
  - via WiFi with the school network or setting up an access point
- automatic or manual range selection
- supports the price-winning measurement software CASSY Lab 2 for computer-aided measurements and simple to highly complex evaluations:
  - Electrical power calculation S, P, Q_C and Q_L
  - Electrical work W_S, W and W_Q
  - Resistance calculation R, Z, X_C, X_L, G, Y B_C and B_L
  - Positive sequence component, negative sequence component and zero sequence component in three-phase systems
  - Time derivative, integral over time, FFT analysis, mean value, histogram, and modelling
- Drivers for LabVIEW and MATLAB available
- Possibility of direct manual operation of the device by means of a rotary selector with cursor keys
- direct value readings on 9 cm backlit display
  - Display of up to 24 measured values on one display
  - Display of all values for each channel
  - Display of all values in tabular form
  - Display of measured values in a diagram
  - Display of a vector diagram
- wireless connection to the CASSY app via WiFi for experimentation with tablets and smartphones (iOS, Android and Windows)
- Measuring instrument category CATIII 300: allows the use of the measuring instrument for tests with safety extra-low voltage (SELV) via three-phase systems with or without neutral conductor, up to testing in power electronics, e.g. DC link voltage of 700 V DC
- Real-time processing in the device enables comprehensive network analysis in three-phase systems, which are displayed directly on the device in the vector diagram
- The Power Analyser CASSY Plus provides measurements for the instantaneous values of U, I and P in measurement channels A-D from the ±10 V outputs U-X. The amplification depends on the measuring ranges.

POWER ANALYSER CASSY
CONNECTION POSSIBILITIES



1 4 ISOLATED MEASUREMENT CHANNELS
input of voltages *U* and/or current *I*

2 MASK
fuse protection cover

3 DISPLAY
shows measured values, diagrams, tables etc.

4 ROTARY SELECTOR & OK BUTTON
by pressing the "OK" button, the selection is activated

5 CURSOR KEYS
can move forward and back in the display menu

6 START BUTTON
starts and stops the measurement

7 CHANNEL SELECTION
A-D selection of the individual measurement channels

8 USB-C CONNECTOR
port for USB cables or USB sticks

9 POWER SWITCH

10 STATUS-LEDS

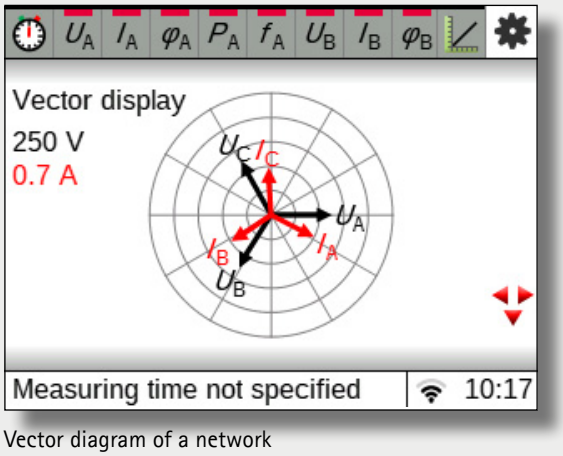
11 RELAY / CHANGER
makes it possible to turn another device on and off during measuring

12 POTENTIAL EQUALISATION SOCKET
enables integration into potential equalisation

13 ANALOGUE OUTPUTS *U, V, W, X*
for example connecting an oscilloscope

14 FUNCTION GENERATOR

POWER ANALYSER CASSY
TECHNICAL DATA



Vector diagram of a network

HIGH CONTRAST DISPLAY IN ORIGINAL SIZE AND RESOLUTION

The current possible measurement channels are displayed and selected above.

The display shows a vector representation of a three-phase network with symmetrical inductive load.

PRODUCTS

Cat.-No	Description
727 100	Power Analyser CASSY
727 110	Power Analyser CASSY Plus
524 220	CASSY Lab 2

More details about our products & equipment can be found at:
WWW.LEYBOLD-SHOP.COM

DISPLAY & OPERATION

Graphic display:	9 cm (3,5"), QVGA, colour, light (adjustable up to 400 cd/m²)
Operation:	Button and incremental encoder with button

INPUTS & OUTPUTS

Inputs:	4 isolated measurement channels CATIII 300, each with *I* and *U* measurement (max. 8 usable simultaneously)
Input A-D:	*U* and *I* connection via 4-mm safety sockets
Measurement range *U*:	25/70/250/700 VAC ±36/±100/±360/±1000 VDC
Measurement range *I*:	0.7/1.6/7/16 AAC ±1/±2.5/±10/±16 ADC
Sampling rate:	max. 1,000,000 samples per channel for *U*, max. 500,000 samples for *I*
Analogue outputs:	U-Y ±10 V, max. 200 mA
Resolution:	16 Bit

FUNCTION GENERATOR

Frequency range:	10 mHz ... 20 kHz
Amplitude:	±10 V, max. 200 mA
Signal type:	Sine, rectangle, triangle and freely definable function

GENERAL

Data storage:	integrated micro SD card (4 GB) for more than a thousand measurement files and screenshots
Remote access:	full remote access and distribution of measurement data
WLAN:	as access point or client
USB port:	Type C
Dimensions:	300 mm x 300 mm x 180 mm

POWER ANALYSER CASSY IN COMPARISON

POWER ANALYSER CASSY (727 100)

The Power Analyser CASSY is a combination of an isolated and differential oscilloscope, multimeter, wattmeter, energy analyser and recorder. It is designed for demonstration and laboratory experiments.

POWER ANALYSER CASSY PLUS (727 110)

The Power Analyser CASSY Plus offers all the capabilities of the Power Analyser CASSY with the addition of a 4-channel isolation amplifier. The analogue outputs enable the connection of, for example, an oscilloscope. In addition, one output can be used as a function generator.

Additional functions of the Power Analyser CASSY Plus:

- Up to 4 safe and isolated analogue signal outputs for e.g. oscilloscopes and/or control equipment
- Real-time mathematical functions of signals
- Function generator and reference value generator

Both devices are suited to the following areas of application:

- Energy networks
  - Voltage and frequency stability
  - Load behaviour of networks
  - Effect of harmonics
- Electrical machines
  - Inrush current from transformers and machines
  - Transformation ratio of transformers
  - Efficiency of machines
- Power electronics
  - Rectifier
  - DC/DC converter
  - DC/AC converter
  - Frequency converter
  - Filter
- Drive technology
  - Measurement in drive systems
  - Measurement of discharge current
  - Efficiency of drives
- Installation technology
  - RCD currents
  - Feedback from LED and gas discharge lamps
  - Automatic circuit breakers and fuses

CASSY LAB 2 (524 220)

Further measurements and analyses can be carried out with the CASSY Lab 2 software and the Power Analyser CASSY or the Power Analyser CASSY Plus.

Analysis of energy networks:

- Power factor λ, apparent power S, power P, reactive power Q_L and Q_C, apparent work W_S, electric work W, reactive work W_Q
- Network frequency; zero sequence system: i_0, u_0 or p_0; positive sequence system i_m, u_m or p_m, negative sequence system: i_0, u_0 oder p_0

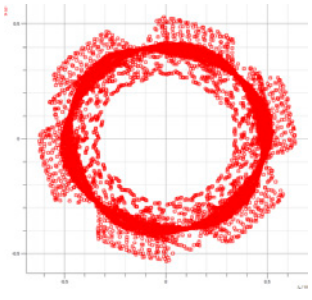
Analysis in power electronics, e.g. frequency converter:

- U/f ratio, modulation modes
- Network feedback from B4 and B6 rectifier bridges, FFT analysis of current and voltage, power factor λ; shift reactive power D

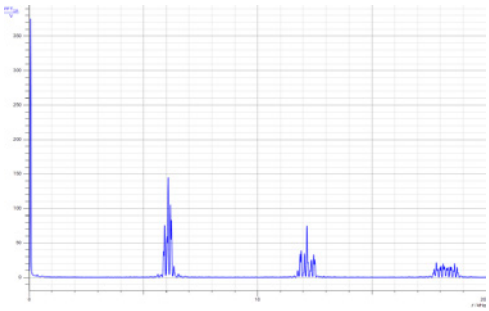
Basis of the AC and three-phase technology:

- Ohm's law, Kirschhoff's law, impedance Z, resistance R, reactance X_L and X_C efficiency

Vector diagram of a network



Current components of a frequency converter with a basic wave filter



FFT analysis of frequency converter voltage

PHYSICS
CHEMISTRY
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ENGINEERING

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Technical details subject to change without notice.

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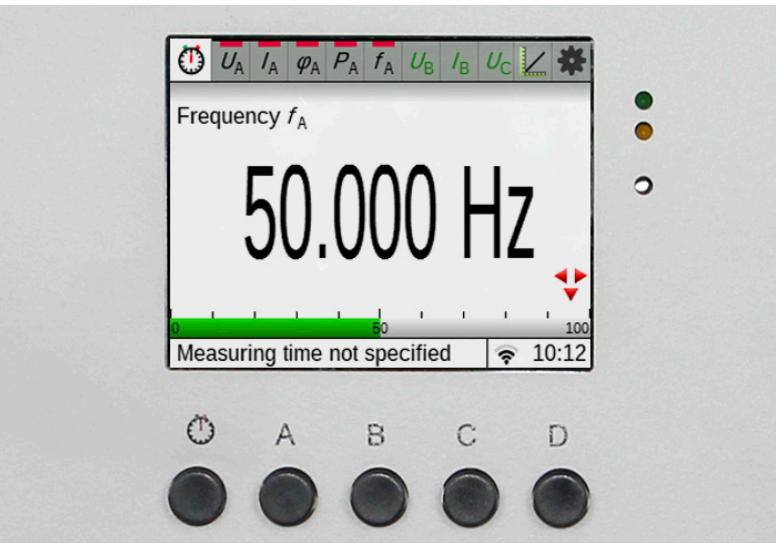

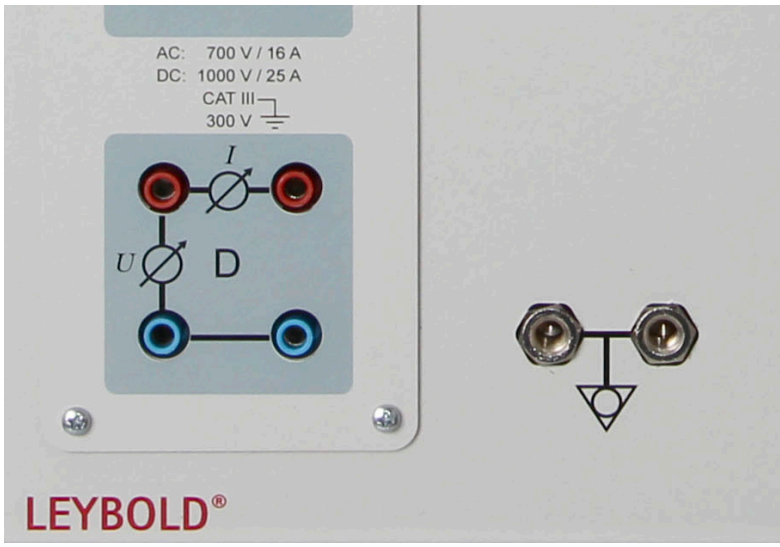

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