

Teacher's demonstration and measurement trolley for communication technology

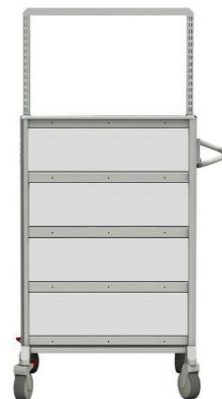


Workstation Frames		
MOBILELAB4	Mobilelab electric trolley, 4 levels	1 x
Equipment Panels		
DEFAULT_MOBILELAB4	Mobilelab default panel	1 x
Modules		
(1) TPS2012B	Digital oscilloscope, 100 MHz, 1 GS/s, 2 isolated channels	1 x
TPS2PBD2	Power bundle for TPS oscilloscope	1 x
TPS2PWR1	Power measurements software for TPS oscilloscope	1 x

(2) TLMB12	Constant DC power supply, 2x12/15V, 1A; 5/3.3V, 3A; 1.5/3/4.5/5/6/9V, 1A	1 x
(3) DCACPX400S	Variable DC power supply, 0-60 V, 20 A, 420 W	1 x
(4) LAN-8	LAN switch, 8 ports	1 x
(5) AFG1062	Arbitrary function generator, 60 MHz	1 x
HZ16	Test leads for function generator	1 x
(6) FLUKE175	Digital multimeter, 3 ¾ digits, TRMS	1 x
(7) FLUKE175	Digital multimeter, 3 ¾ digits, TRMS	1 x
(8) ELPSL3	1-phase schuko socket outlets, 3 pcs	1 x
(9) ACP40	1 phase programmable AC power supply, 0-250 V, 0-4 A	1 x
ACPETHERNET	Ethernet connection and control software for ACP power supply	1 x
(10) SUNET	Supply unit control module	1 x
(11) SU1_ADD	1-phase supply unit	1 x
(12) STRBOX500	Storage box for the device panel, 500 mm	1 x
Accessories		
WSA92735001	Auxiliary top, 560 x 340 mm	1 x
WHL859151	Suspension rail M750, ESD	1 x

MOBILELAB4 Mobilelab trolley

- ESD-painted steel construction
- 4 wheels, diameter 80 mm, two with brakes
- Handle for easy moving of the trolley
- Built-in device panel for integrated electrical equipment
- Device panel is modular: devices can be easily added
- Integrated modules are covered with polyester film to ensure long lifetime for the markings in the front panel
- 4 levels for devices, max. 11 full modules
- 2 pcs sockets at the back
- Perforated upright tubes for fastening accessories to different heights
- Versatile and adjustable accessories enable ergonomic and practical working environment
- Dimensions: 780(W) x 720(D) x 1630(H) mm



TPS2012B Digital oscilloscope

- Channels: 2
- Bandwidth: 100 MHz
- Sample rate: 1 GS/s on all channels
- Record length: 2500 on all channels
- Vertical resolution: 8 bits
- Vertical sensitivity: 2 mV to 5 V/div
- Time base range (s/div): 5 ns to 50 s/div
- Fully isolated and floating channels, plus isolated external trigger
- Optional power application software offers the broadest range of power measurements at its price point
- FFT standard on all models
- Advanced triggers to quickly capture the event of interest
- Easily operate the oscilloscope with traditional, analog-style knobs and multi-language user interface
- Simplify setup and operation with autose menu, autorange, waveform and setup memories, and built-in, context-sensitive help
- Adjust the oscilloscope to your operating environment with backlit menu buttons/display and brightness/contrast controls
- 11 automatic measurements
- Connectivity: RS-232 (USB adapter), Centronics, CompactFlash
- Dimensions: 1½-module, 375(W) x 200(H) mm
- Standard accessories: TPP0101 100 MHz, 10x passive probes (one per channel), battery, user manual, OpenChoice PC communication software, traceable certificate of calibration - NIM/NIS



TPS2PBD2 Power bundle for TPS oscilloscope

- Power Measurement Bundle: TPS2PWR1 Module and Four P5122 Probes
- Software features
 - Power Measurements - True real power in watts, reactive power in VAR, power factor, crest factor, RMS measurements, frequency measurements
 - Cursors - dv/dt and di/dt
 - Phase Angles - CH1 and CH2, CH2 and CH3 (four-channel scopes only), CH1 and CH3 (four-channel scopes only)
 - Harmonics Measurements - Up to the 50th harmonic, THD, individual harmonic levels display, individual harmonic phase to fundamental, RMS values
 - Switching-loss Measurements - Turn-on loss, turn-off loss, conduction loss, total switch loss

TPS2PWR1 Power measurement software for TPS oscilloscope

- Software features
 - Power Measurements - True real power in watts, reactive

power in VAR, power factor, crest factor, RMS measurements, frequency measurements

- Cursors - dv/dt and di/dt
- Phase Angles - CH1 and CH2, CH2 and CH3 (four-channel scopes only), CH1 and CH3 (four-channel scopes only)
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- Switching-loss Measurements - Turn-on loss, turn-off loss, conduction loss, total switch loss

TLMB12 Fixed DC power supply

- Linear power supply
- 4 outputs, floating with respect to each other
- Outputs can be connected in series or in parallel
- Output values:
 - Output 1: 1.5 V / 3 V / 4.5 V / 5 V / 6 V / 9 V, 1 A
 - Output 2: 5 V / 3.3 V, 3 A
 - Output 3: 12 V / 15 V, 1 A
 - Output 4: 12 V / 15 V, 1 A
- Current limitation indicated by a LED
- Ripple: < 10 mVpp
- All outputs are short-circuit protected
- Voltage accuracy better than 100 mV
- Output from 4 mm safety terminals
- Dimensions: 1/2-module, 125(W) x 200(H) mm



DCACPX400S Adjustable DC power supply

- Output values: 0-60 V, 0-20 A, 420 W
- PowerFlex design gives variable voltage and current combinations within a maximum power range
- PowerFlex or fixed-range operation plus custom limits
- Constant voltage or constant current operation
- Variable OVP trips
- True analogue controls
- Voltage Setting: By coarse and fine controls
- Current Setting: By single logarithmic control
- Settings locking
- Independent digital voltage and current meters for each output with 4 digit resolution
- Voltage meter:
 - Resolution: 10 mV
 - Accuracy: 0.1 % of reading \pm 2 digits
- Current Meter:
 - Resolution: 10 mA
 - Accuracy: 0.3 % of reading \pm 20 mA
- Ripple & noise: Typically < 3 mV rms (CV mode)
- Switchable local or remote sensing
- View Settings
- LED indication of Output On, V/I Limits, CV, CI, Power Limit
- Silent fan-free cooling



- DC output on/off switch
- All outputs are intrinsically short circuit proof, and are protected against external voltages and reverse currents
- Output terminals: Universal 4mm safety binding posts on 19mm (0.75") spacing. Terminals can accept fixed shroud 4 mm plugs, standard 4 mm plugs, fork terminals and bare wires
- AC Input: 110 to 240 volts \pm 10 % 50/60Hz
- Dimensions: ½ module, 125(W) x 200(H) mm

LAN-8 Ethernet switch

- 8-port 1 G Ethernet switch
- 1 x RJ45 at the front panel for an optional device
- 1 x RJ45 at the table frame for laboratory network connection
- 6 x RJ45 inside the module for panel equipment
- Dimensions: 62.5(W) x 200(H) mm



AFG1062 Arbitrary function generator

- Dual-channel, 60 MHz sine waveforms, 30 MHz square waveforms
- 14 bits, 300 MS/s arbitrary waveforms with 1 M points record length
- Display: 3.95-inch, resolution 480 by 320, colors 65,536
- Waveforms Sine, Square, Pulse, Ramp, Noise, and 45 frequently used arbitrary waveforms
- Amplitude 1 mVp-p to 10 Vp-p into 50 Ω loads
- Continuous, sweeping, burst, and modulation modes (AM, FM, PM, ASK, FSK, PSK, PWM)
- Frequency setting resolution: 1 μ Hz or 12 digits
- Arbitrary waveform vertical resolution: 14 bits
- 64-MByte internal non-volatile memory for arbitrary waveform storage
- Standard USB host/device for memory expansion and remote control
- Free ArbExpress makes user defined waveforms editing extremely easy through an external USB memory stick
- Standard accessories: Safety and Compliance Instructions, Documentation CD, Certificate of calibration; USB cable x 1, Type A to Type B, BNC cable x 2, Fuse, cartridge (5 x 20 mm, 0.5 A, 250V, time-delay) Fuse, cartridge (5 x 20 mm, 1 A, 250 V, time-delay)
- Dimensions: full module, 250(W) x 200(H) mm



HZ16 Test leads for function generator

- Silicone-test lead with BNC plug to miniature clamp probe

FLUKE175 Digital multimeter



- 3 $\frac{3}{4}$ digit display, max. reading 6000
- True-rms AC voltage and current for accurate readings on all waveforms
- Audible continuity and diode test
- Automatic / manual selection of range
- Display hold and autohold
- Max / min / average -recording mode with min / max -alert
- Smoothing mode for filtering rapid changes in input
- Equipped with power supply
- Fuse at the front panel
- Standard accessories: manual, test leads
- Dimensions: $\frac{1}{2}$ -module, 125(W) x 200(H) mm

DC voltage

Range	600 mV...1000 V
Best resolution	0.1 mV
Best accuracy	$\pm 0.15\% + 2$ digits

AC voltage

Range	600 mV...1000 V
Best resolution	0.1 mV
Best accuracy	$\pm 1.0\% + 3$ digits

DC current

Range	60 mA...10 A
Best resolution	0.01 mA
Best accuracy	$\pm 1.0\% + 3$ digits

AC current

Range	60 mA...10 A
Best resolution	0.01 mA
Best accuracy	$\pm 1.5\% + 3$ digits

Resistance

Range	600 Ω ...50 M Ω
Best resolution	0.1 Ω
Best accuracy	$\pm 0.9\% + 1$ digit

Capacitance

Range	1000 nF...9999 μ F
Best resolution	1 nF
Best accuracy	$\pm 1.2\% + 2$ digits

Frequency

Range	100 Hz...100 kHz
Best resolution	0.01 Hz
Best accuracy	$\pm 0.1\% + 1$ digit

ELPSL3 1-phase socket outlets

- 3 pcs earthed schuko socket outlets
- Dimensions: ¼-module, 62.5(W) x 200(H) mm



ACP40 Programmable 1-ph. AC power supply

- Output values: 0-250 V, 0-4 A, max. 900 VA
- Galvanic isolation
- Digital display for viewing output voltage, current and settings
- Setting accuracy and display resolution: 1 V / 0.1 A
- Measuring accuracy: voltage ± 2 V, current ± 0.1 A
- Overvoltage protection setting 0-250 V, overcurrent protection setting 0-4 A with OFF-position
- Short-circuit protected
- Output from 4 mm safety terminals or from unearthed socket (one output active at a time)
- Output ON / OFF -buttons with indicator lights
- Automatic self-test and line voltage measurement when starting
- Stability feature for stabilizing output voltage
- Firmware update possibility
- Dimensions: 1/2-module, 125(W) x 200(H) mm



ACPETHERNET Ethernet connection and software for ACP power supply

- Ethernet connection for ACP power supply
- Control program
 - Fast two-way communication
 - Versatile user interface enables e.g. automatic measurements without programming
 - Advanced datalogging function enables e.g. simultaneous follow-up and saving of several quantities, or saving of an individual value by the snapshot function
- LabView-driver
 - Advanced TCP/IP based LabVIEW driver speeds up making own applications

SUNET Supply unit control module

- Enables remote control for electricity in the workbench (requires TLC software)
- Features
 - Connection permission for power
 - Power off control
 - Power on/off status information
- Key switch for bypassing software control
- Ethernet connection



- Dimensions: ¼ module, 62.5(W) x 200(H) mm

SU1 1-phase supply unit

- Main switch for the whole workstation with START position
- Green indicator light
- Integrated emergency switch, reset from the main switch
- Automatic restart prevention system e.g. after power failure
- 16 A thermal overload protector
- Fault current protection 0.03 A for all devices connected to the supply unit
- Earth terminal screw
- Outlets for the device modules
- Dimensions: ½-module, 125(W) x 200(H) mm



STRBOX500 Storage box

- Integrated storage box for the device panel
- Powder-painted steel frame
- Suitable for storing training sets, test leads etc.
- Internal dimensions: 480(W) x 380(D) x 180(H) mm



WSA92735001 Auxiliary top

- Can be rotated 360°, tilt adjustment 0-25°
- Structure made of ESD painted steel
- Dimensions: 560(W) x 340(D) mm



WHL859151 Suspension rail

- ESD powder painted steel construction
- Fixed to perforated back panel
- Width 742 mm

WEL806207 or WEL806211 Pick-up box

- Plastic pick-up box
- ESD protected
- Max. 7 pcs for WHL859151 suspension rail
- Dimensions: 105(W) x 165(D) x 75(H) mm WEL806207, 99(W) x 160(D) x 70(H) (WEL806211)

