

## BM-BENCH - Biomedical instrument maintenance bench



Workstation Frames		
<b>ETABTL19B</b>	ESD TL table frame 1880x750 mm with perforated back panel	1 x
<b>ESDSET1</b>	ESD grounding set for workstation	1 x
Equipment Panels		
<b>PANTL19</b>	TowerLine device panel, 1.9 m	1 x
<b>PANSOCKETLEU</b>	Schuko sockets under device panel, 4 pcs	1 x

<b>PANKOURBX</b>	Cable casing set for instrument panel	1 x
<b>Power Supply Units</b>		
<b>(S1) SU1</b>	1-phase supply unit	1 x
<b>Modules</b>		
<b>(1) ELPSL3</b>	1-phase schuko socket outlets, 3 pcs	1 x
<b>(2) POA10A</b>	Adjustable compressed air supply, 0-10 bar, analog gauge	1 x
<b>(3) ACF23010M (OPTION)</b>	AC outlet 230 V, 2300 VA, isolation level monitoring	1 x
<b>(4) ACF2304</b>	Isolated 1-phase AC connection, 230 V, 4 A, 1000 VA	1 x
<b>(5) TISECULIFESTBASE</b>	Test instrument for electrical safety of medical devices	1 x
<b>USB1BT</b>	USB-interface back side of the panel	1 x
<b>Z751A</b>	Barcode reader (OPTION)	1 x
<b>Z750A</b>	16 A 3-phase current adapter (OPTION)	1 x
<b>(6) DMMHPRO</b>	Digital multimeter, 12 000 digits, TRMS	1 x
<b>(7) TLP603</b>	Programmable DC power supply, 0-30 V, 0-5 A; 30-60 V, 0-3 A	1 x
<b>(8) SSWT1010SET</b>	Soldering station, 90 W	1 x
<b>XNT_KIT</b>	Soldering tip set, 5 pcs	1 x
<b>(9) ELPSL3</b>	1-phase schuko socket outlets, 3 pcs	1 x
<b>Accessories</b>		
<b>WHR855001</b>	Hook set, 20 pcs	1 x
<b>WSK91835008</b>	Light rail, 2 x M900	1 x
<b>WSK861956UK</b>	LED light, UK power plug	1 x
<b>WTL839086</b>	Suspension rail + pick-up boxes (WEL806211), fixed to perforated back panel	1 x
<b>ELTOOLSET</b>	Electronics tool set, 30 parts, ESD	1 x
<b>C20PU_ESD</b>	Chair, black, polyurethane, ESD	1 x
<b>WTL854485</b>	Steel shelf, M1800, 1773 x 400 mm	1 x
<b>WSK861960</b>	Task light	1 x
<b>WEV60635022</b>	Drawer trolley, drawers 2 x 100, 2 x 150 mm, ESD	1 x

<b>M695R (OPTION)</b>	Defibrillator analyser	1 x
<b>M695D (OPTION)</b>	Infusion pump analyser	1 x
<b>M695W (OPTION)</b>	NIBP simulator	1 x
<b>GMST (OPTION)</b>	Report generating software	1 x
<b>M695U (OPTION)</b>	Electrosurgical analyser	1 x
<b>M688L (OPTION)</b>	Illuminance monitor	1 x

## ETABTL19B TowerLine workstation frame

- ESD powder painted steel frame
- L-shaped ergonomic legs, height 1920 mm
- Legs equipped with perforated uprights for placing accessories to different heights
- Versatile and adjustable accessories enable ergonomic and practical working environment
- Perforated back panel for accessories
- Vertical cable channels inside legs
- Horizontal cable channel below the table top at rear part
- Spacer bar between legs for stable construction
- Load capacity: 300 kg, evenly loaded
- Adjustment screws under legs to eliminate the roughness of the floor
- Table top with laminate surface, durable rounded plastic edges, colour light speckled grey, ESD protected
- Table top dimensions: 1880(W) x 750(D) mm



## ESDSET1 ESD grounding set for workstation

- ESD connection box including 1 Mohm series resistor
- ESD grounding set for the workstation frame
- ESD grounding set for wrist straps
- ESD wrist strap, 2 pcs



## PANTL19 TowerLine device panel

- Panel for integrated electrical equipment
- Structure of the panel made of ESD powder painted steel
- Panel equipped with modular device system: devices can be easily added and removed
- Integrated modules are covered with polyester film to ensure long lifetime for the markings in the front panel
- Energy saving LED lighting integrated at the bottom of the panel
- Panel top can be opened
- Height from the table top can be freely chosen
- All connectors are located at the bottom of the panel which enables placing the panel against a wall
- Width: 1880 mm, max. 7 ¼ modules



## PANSOCKETLEU Schuko sockets under device panel

- 4 pcs schuko sockets under device panel, 2 pcs at both ends

## PANKOURBX Cable casing set for instrument panel

- Cable channel inside the panel for power cables
- Cable spiral inside the panel for data cables and compressed air tubes up to 10 bar
- Aluminium socket unit inside the panel, 8 pcs schuko sockets

## SU1 1-phase supply unit

- Main switch for the 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



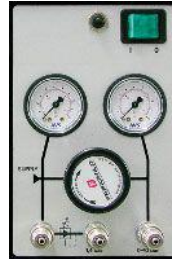
## ELPSL3 1-phase socket outlets

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



## POA10A Adjustable compressed air supply

- Regulated precision air supply
- Three selectable outputs:
  - Output 1: network pressure
  - Output 2: 1.4 bar, constant
  - Output 3: 0.15-10.00 bar, adjustable
- Outputs 1 and 3 equipped with analog pressure gauges, 0-10 bar
- Sensitivity 0.3 mbar
- Flow capacity 68 m<sup>3</sup> / h
- Solenoid valve in the supply
- All connections with snap-on connectors, 6/4 mm male connector as standard
- Dimensions: ½ module, 125(W) x 200(H) mm



## ACF23010M AC outlet with isolation level monitoring (OPTION)

- AC outlet equipped with isolation level monitoring system
- Suitable to be used in medical equipment maintenance workshops
- Provides constant, safe and secure monitoring of electrical systems with IT type grounding
- Very early detection of potential insulation deteriorations, PE-wires and isolation transformer malfunctions
- Includes a transformer (2300 VA) to enable isolation level measurements
- Output from earthed schuko socket: 230 V: 2300 VA
- Overload protection
- Dimensions: 1 ¾ module, 375(W) x 200(H) mm



## ACF2304 Isolated 1-phase AC outlet

- Galvanically isolated AC outlet
- Output: 230 V, 4 A, max. 1000 VA
- Overload protectors for primary / secondary circuits
- Electronic attenuator for restricting switching current
- Dimensions: ½-module, 125(W) x 200(H) mm



## TISECULIFESTBASE Test instrument for electrical safety

- Test instruments for measuring electrical safety of biomedical and electrical devices per VDE 0701-0702, IEC 62353 and IEC 60974-43
- Measurements
  - Protective conductor resistance
  - Insulation resistance
  - Protective conductor current, RMS value
  - Touch current, RMS value
  - Device leakage current, RMS value
  - Leakage current from the application part, RMS value
  - Patient leakage current, RMS value
  - PRCD time to trip for 30 mA PRCDs
  - Current, voltage, frequency, active power, apparent power, power factor
- 8 reconfigured test sequences for quickly testing simple operating equipment
- One universal, adjustable test sequence
- One test sequence executed with individual measurements
- Enormous data maintenance and storage concept for automated test sequences and measurements for up to 50,000 data records
- Fast access to measurement and test functions with double rotary switch, direct selection keys and softkeys
- High-resolution, brilliant 4.3" TFT color display
- Unique multiple measurement allows convenient recording of several measuring points
- Comprehensive, legally secure preparation of test reports
- Modern interfaces: for data entry two USBs in the front panel and for data exchange one USB in the panel as option
- Remote control via PC software possible
- Antimicrobial housing
- Standard accessories: Test probe (2 m, not coiled), USB cable, plug-on alligator clip, cable set for voltage measuring inputs, calibration certificate, condensed operating instructions, ETC report software available on the Internet
- Dimensions: 1 ½ module, 375(W) x 200(H) mm



## USB1BT USB connection

- Single USB-connection for connecting PC to a panel device
- Type B connector at the back of the device panel

## Z751A Barcode reader (OPTION)

- For connection to the USB master port at the test instrument, and for reading in barcodes
- Barcode reader makes it possible to conveniently insert the ID numbers of DUTs into single measurements and test sequences
- This device is based upon the concept of an instinctive scanning distance and provides best possible reading performance
- Green Spot technology provides a “good-read” projection directly on the code
- The device is equipped with a USB port



## Z750A 16 A 3-phase current adapter (OPTION)

- Devices which are equipped with a 5-pole, 16 A / 6 h CEE plug can be quickly and efficiently tested with the CEE adapter
- Connect the adapter to a test instrument designed for testing portable devices in accordance with DIN VDE 0701-0702 in order to perform testing per DIN VDE 0750/IEC 601, which is equipped with an earthing contact outlet for connecting the device under test, and is capable of directly measuring protective conductor current
- The following tests can be performed on devices with CEE plugs with the help of the adapter:
  - Testing of protective conductor continuity
  - Insulation test
  - Equivalent leakage current measurement
  - Differential current measurement, L1-L2-L3-N
  - Function test



## DMMHPRO Digital multimeter

- Resolution:  $\pm 12,000$  digits, 4½-place
- 3 connector jacks with patented automatic blocking sockets
- TRMS AC and AC / DC function
- Automatic and manual measuring range selection
- Automatic storage of measured values: DATA / MIN / MAX
- Large, light-blue illuminated display with extra-large characters (15 mm) and an analog bar graph for dynamic processes
- Measuring categories: 1000 V CAT III and 600 V CAT IV
- 16 multimeter functions
- Additional filter function and voltage measurement





with reduced input impedance for limiting interference, e.g. for measurements at frequency converters

- Battery Charging Status - Power Saving Circuit
- Multimeter integrated with a quick-release mechanism, it can be used also as a portable instrument
- Standard accessories: 1 pair of safety measurement cables (1.5 m) with 4 mm test probes, 2 batteries, condensed operating instructions, CD ROM (operating instructions in English and German), DAkkS calibration certificate
- Dimensions: ½-module, 125(W) x 200(H) mm

### **DC voltage**

Range 100 mV...1000 V  
Best resolution 10  $\mu$ V  
Best accuracy  $\pm 0.05\%$  + 3 digits

### **AC voltage**

Range 100 mV...1000 V  
Best resolution 10  $\mu$ V  
Best accuracy  $\pm 0.5\%$  + 9 digits

### **DC current**

Range 1 A...10 A  
Best resolution 100  $\mu$ A  
Best accuracy  $\pm 0.9\%$  + 10 digits

### **AC current**

Range 1 A...10 A  
Best resolution 1 mA  
Best accuracy  $\pm 1.5\%$  + 10 digits

### **Resistance**

Range 100  $\Omega$ ...40 M $\Omega$   
Best resolution 10 m $\Omega$   
Best accuracy  $\pm 0.2\%$  + 5 digit

### **Frequency**

Range 100 Hz...30 kHz  
Best resolution 0.01 Hz  
Best accuracy  $\pm 0.05\%$  + 3 digit

### **Temperature (with type K thermocouple, not included in delivery)**

Range -250  $^{\circ}$ C...+1372  $^{\circ}$ C  
Best resolution 0.1  $^{\circ}$ C  
Best accuracy  $\pm 1\%$  + 5 digit



## TLP603 Programmable DC power supply

- Output values: 0-30 V, 0-5 A; 30-60 V, 0-3 A
- Ripple: < 8 mVpp
- Output ON/OFF button
- Current limit and voltage settings showed on the display
- MAX and MIN display (current and voltage)
- Output voltage adjustment accuracy: 0.01 V
- Current limitation adjustment accuracy: 0.001 A
- Voltage measurement accuracy:  $\pm 0.03$  V
- Current measurement accuracy:  $\pm 0.006$  A
- Short-circuit protected
- Self test
- Test for leads / mohm-measuring
- Voltage compensation when using long leads
- Standard languages: Finnish, English, Swedish
- Graphic backlight LCD-display
- Adjustable LCD contrast
- Firmware-update possibility
- Output from 4 mm safety terminals
- Dimensions: ½-module, 125(W) x 200(H) mm



## SSWT1010SET Soldering station

- Power: 90 W
- Channels: 1
- Temperature range: 100-450 °C
- Temperature accuracy:  $\pm 9$  °C
- Temperature stability:  $\pm 2$  °C
- Graphical backlit LC-Display
- Automatic standby of tool thanks to integrated acceleration sensor in the tool
- Soldering iron:
  - 90 W, 24 V with Power Response Heating Technology
  - Heat-up time (ca) in seconds (50-350°C): 7
- ESD safe
- Includes: power unit, soldering iron, safety rest and cleaning sponge for soldering iron, soldering tip (2.4 mm)
- Operating voltage: 230 V, 50/60 Hz
- Dimensions: ¾ module, 187.5(W) x 200(H) mm



## XNT-KIT Soldering tip kit

- Includes five tips:
  - 0.25 mm spike/chisel
  - 1.6 mm short cone/chisel
  - 2.4mm short cone/chisel
  - 0.8 mm short cone/chisel



- 1.2 mm long cone/chisel

## ELPSL3 1-phase socket outlets

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



## WHR855001 Hook set

- Hook set, attached to perforated back panels
- 20 pcs hooks e.g. for tools



## WSK91835008 Light rail

- Rail can be used to attach light ergonomically above the workstation
- Structure made of ESD-painted steel
- Height and depth adjustment
- Width: 2 x M900



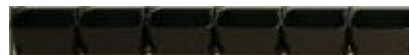
## WSK861956UK LED light

- Excellent energy efficiency
- Long lifetime upto 50 000 hours
- Illuminance: 1800 lux, 1 meter
- Natural white colour, colour temperature 4000 K
- Dimmer 10-100 %
- UK power plug



## WTL839086 Suspension rail

- ESD powder painted steel construction
- Fixed to perforated back panel
- Load capacity 10 kg
- Width 634 mm



## WEL806211 Pick-up box

- Plastic pick-up box
- ESD protected
- Max. 6 pcs for WTL839086 suspension rail
- Dimensions: 99(W) x 160(D) x 70(H) mm

## ELTOOLSET Electronics tool set

- Professional electronics tool set
- 30 parts
- ESD protected design
- Tools included:
  - Side cutter - oval head
  - Needle nose pliers
  - Tip cutter - angled wide head
  - Ergonomic precision tweezers with straight, strong tips
  - Ergonomic precision tweezers with straight, very pointed tips for gripping fine wires
  - Ergonomic precision tweezers with straight, flat and rounded tips for simple gripping jobs
  - Screwdriver set, precision, ESD, slotted, Phillips, 6 pcs
  - Screwdriver set, precision, ESD, hexagon, 6 pcs
  - Screwdriver set, precision, ESD, hexagon nut driver, 6 pcs
  - Screwdriver set, precision, ESD, TORX, 6 pcs



## C20PU-ESD Chair

- ESD protected
- User-friendly and quick adjustability
- Large, ergonomically designed seat and backrest and lumbar support
- Black
- Polyurethane
- Height/backrest/tilt adjustment
- Castors with load-sensitive brakes
- Seat height: 440-620 mm



## WTL854485 Shelf

- Construction made of ESD powder painted steel
- Fixed to upright tubes
- Load capacity: 80 kg
- Dimensions: 1773(W) x 400(D) mm



## WSK861960 Task light

- Task Light is the ideal desk-mounted lamp for precise work
- Together with a large built-in magnifying glass, six LED -bulbs and independent left/right dimming functionality, this light gives superb control
- It is easy to secure on any work surface of 70 mm or less, and infinitely adjustable
- 6 long-lasting dimmable power LEDs, 3 on each side
- Independent left/right dimming (10 settings)
- Last-setting memory
- Colour rendering index (CRI): 70
- Large, 127 mm 3-diopter magnifying glass
- Made of anodized aluminium, glass and UV-stable polycarbonate
- Adjustable table clamp included for worktops 18-70 mm thick
- Mains lead length of 2 meters makes positioning easy
- Max light intensity 2800 lux



## WEV60635022 Drawer trolley

- Drawers 2 x 100, 2 x 150 mm
- Drawers equipped with ball-rails
- Load capacity 30 kg / drawer
- Drawers open 75 %
- Central locking
- ESD-painted steel frame, ESD mat on top
- Four swivel wheels, two with brakes, diameter 100 mm, ESD
- Dimensions: 450(W) x 520(D) x 560(H) mm



## M695R Defibrillator analyzer (OPTION)

- Used for functional testing of external defibrillators
- Delivered energy is measured by a built-in simulated load similar to the human body (50 ohms)
- Test for the refractory period, sensitivity and immunity
- Quick selection of the desired waveforms and test data
- Biphasic pulsed compatibility
- Retrieves information about defibrillation
- Analysis for transcutaneous pacemakers
- Monophasic and biphasic compatible
- Test for shock advisory algorithm
- Measuring outgoing energy
- Fully AED compatible
- LCD display
- Power supply: 9 V battery or 220 V AC
- Standard accessories: Operating instruction, 2



internal paddle adapters, 2 9 V batteries, 2 plastic electrode plates

## M695D Infusion Pump Analyzer (OPTION)

- Designed to test the flow rates of intravenous infusion pumps to ensure their correct operation
- Easy to Use
- Easy to Clean
- Simultaneous Operation of Two Chambers
- Large Graphics Display with Cursor Selection of Options & Setup of Parameters
- Auto Chamber Recognition
- 2 Chamber Sizes (3.5 & 35 mL)
- Out-of-Sequence Sensing
- Battery Display (0 to 100%)
- Ranges 0 to 999.9 mL/hr & 0 to 9999 mL/hr
- $\pm 1\%$  of Reading Flow Accuracy
- Digital Calibration - No Pots to Turn
- Replaceable Tubes
- Sealed Level Sensors
- Programmable End of Test Audio
- Programmable Auto or Manual Test Start
- Standard accessories: Luer Lock hose set, sealing plug



## M695W NIBP Simulator (OPTION)

- Simulator for testing patient monitors
- Includes functions such as NIBP, IBP, ECG, temperature, arrhythmia, respiration, leak detection and much more
- The multi-connect ports make it possible to connect 2 and 4 mm ECG cables and permit use of ECG cables with pushbutton or clip
- Peak pressure detection with simple reset function
- Read-out of synchronized invasive blood pressure
- Expandable during mobile use by means of flash programming
- ECG read-out with complete NSR waveform
- Digital pressure envelope offset
- $\pm 1\%$  deviation from measured pressure value
- With multifunctional connection
- Small, portable, lightweight
- Standard accessories: operating instructions, 9 V battery, external power pack, soft carrying case, DINAMAP / Critikon adapter, quick disconnect adapter, Luer adapter, Marquette adapter, Bulb adapter, calibration certificate



## GMST Report generating software (OPTION)

- Professional System for the Management of Tests for Electrical Safety in Accordance with Valid DIN-VDE, EN and IEC Standards
- Ideal solution for production facilities, municipal utilities, power utilities, administrative offices, facility managers, electrical equipment rental companies, hospitals and other public and private properties
- Suitable for testing the electrical safety of electrical installations, mobile devices and welding units, as well as for function tests in the field of medical technology
- Individualized test sequences and test reports
- Automatic data transfer and data communication
- Export of test reports to data files or as print-outs
- Report generation and label printing
- Simplified navigation, tree structure, test table
- Archiving of all information in a database
- Communication with several test instruments
- e-mail notifications
- System requirements: Windows XP SP2 ... 7, 8, 8.1, 10 with .Net 2.0 or newer



## M695U Electrosurgical analyzer (OPTION)

- Analysis of complex, multiple-pulse waveforms
- Standardized industrial HF measurement
- HF leakage current measurement
- REM/ARM/CQM test adjustable in 1  $\Omega$  steps
- Ultra-fast digitizing of HF waveforms
- Sampling of up to 16 million data points
- Internal precision loads adjustable from 1 to 6400  $\Omega$  in 1  $\Omega$  steps
- Integrated real-time operating system with ¼ VGA color touch-screen
- Automated, freely definable test sequences
- Automated current-power curves with various power levels per load value setting
- Compatible with external test loads
- Definable screen display
- USB, RS 232 and Ethernet communication ports
- Dedicated connectors for external keyboard and mouse
- Automatic or manual activation of the ESU generator during the load curve test
- Remote control of the ESU generator is possible
- Generation of test reports



## M688L Illuminance monitor (OPTION)

- Suitable for the performance of measurements at transilluminated and self-luminous surfaces, for example at monitor screen workstations and findings screens
- Precision luminance measurement
- Color corrected silicon photodiode
- Storage of up to 100 measured values
- Automatic and manual measuring range selection
- Luminance units of measure:  $\text{cd} / \text{m}^2$  or  $\text{fL}$
- CD ROM with software for measured value logging and display, as well as device control
- Interface: USB port
- Calibration certificate

