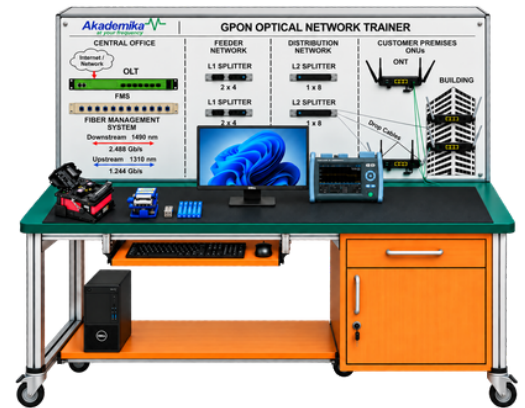


WB-FTTH

Fiber To The Home Network Workbench



FEATURES

- Hands-on platform for GPON, FTTH, FTTP and FTTR network design, deployment, commissioning, configuration and maintenance.
- Provision to work with OLTs, ONUs/ONTs, optical splitters, feeder/distribution/drop fibers and FTTH termination hardware.
- Power supply sockets for 5 and 15 Amps and Circuit breaker for Protection
- Smooth surface and antistatic pad
- Movable castor wheel
- Required fiber network equipments
- Aluminium extrusion Frame

SPECIFICATIONS

- Dimensions : 1500mm x 750mm x 750mm
- 25mm Table Top
- 30mm x 30mm aluminium extrusion
- Lockable castor wheels
- Cupboard with shelf : 450mm x 450mm x 450mm
- Drawer : 450mm x 450mm x 150 mm
- Computer Keyboard drawer under the table 50mm x 380mm
- Electric Panel height from table top 100mm
- 5 Sockets with circuit breaker Baseplate for Computer 1000mm x 375mm

Optical Network Configuration and Management System Hardware Specification

- Minimum 8 Gigabit ports.
- Minimum 4 PON ports provided with 4 SFP.
- Wavelength: Tx 1490 nm, Rx 1310 nm.
- Transmission distance: 20 km.
- Voice, Data and IPTV support.

Management Software Specification

- Support for IPv4 and IPv6 networks.
- Port-status monitoring and configuration management including VLAN, Trunk, RSTP, IGMP and QoS.
- Management functions including DBA, Network Unit authorization, ACL and QoS.

- Online Network Unit configuration and management.
- Support for data encryption, multicast and port VLAN.
- Support for Static and Dynamic Bandwidth Allocation.
- Support for port-based QinQ and Selective QinQ (Stack VLAN).
- Support for port-based, MAC-based and IP-subnet-based VLAN.
- Remote ONT configuration for Internet and voice.
- Support for HTTP enable/disable from OLT.
- Built-in DHCP server.
- Advanced Encryption Standard (AES) for securing downstream traffic.
- AC/DC voltage protection against short circuit and overload, with grounding point.
- Fully compliant with ITU GPON standards.

Optical Network Components

- Single Mode G.652, 9/125, 6-core feeder cables.
- Single Mode G.652, 9/125, 6-core distribution cables.
- Single Mode G.657 drop cables.
- PLC optical splitters, Fiber Distribution Box
- Fiber management system, Joint enclosures.
- FTTH boxes, Fiber optic termination boxes.
- Optical patch cords, Optical pigtails.
- 0 dB adaptors, Dual-band Optical Network Units.

Optical Tools and Measuring Instruments

1. Optical Time Domain Reflectometer (OTDR)

- Wavelength (nm): 1310 $\pm$ 20, 1550 $\pm$ 20
- Applicable fiber: SM (ITU-T G.652)
- Distance range (km): 0.2, 0.5, 1, 2, 5, 10, 20, 30, 50, 100, 200, 256
- Pulse width (ns): 3, 10, 20, 30, 50, 100, 200, 300, 500, 1000, 2000, 5000, 10000, 20000
- Sampling resolution: min. 5 cm
- Number of sample points: max. 256000
- Event dead zone (m)*1: $\leq$ 0.8
- Distance measurement accuracy (m): $\pm(1 \text{ m} + \text{Measurement distance} \times 2 \times 10^{-5} \pm 1 \text{ sampling resolution})$
- Attenuation dead zone (m)*2, *4: 4/5
- Dynamic range (dB)*3, *4: 32/30
- Loss measurement accuracy: $\pm 0.03 \text{ dB/dB}$

- Reflection accuracy: ± 2 dB
- Laser class: Class 1M
- Display*: 5.0 inch color TFT LCD WVGA (Capacitive touchscreen).
- Resolution: 800 × 480 pixel
- External interfaces: USB2.0 × 2; Type A × 1: Host, Type micro B × 1: USB mass storage devices,
- power supply; Wireless LAN (WLN option): IEEE802.11b/g/n
- Battery — Type: Lithium ion polymer Display*: 5.0 inch color TFT LCD WVGA (Capacitive touchscreen).
- Resolution: 800 × 480 pixel
- External interfaces: USB2.0 × 2; Type A × 1: Host, Type micro B × 1: USB mass storage devices,
- power supply; Wireless LAN (WLN option): IEEE802.11b/g/n
- Battery — Type: Lithium ion polymer



2. Event Module

- The OTDR should be supplied with a Fiber Optic Event Module which should be mounted on a Sturdy Aluminum Casing emulating various Fiber Events. All the the events should be terminated with SC Adaptors. Various Events Like Splice , Attenuator , Splitter and Single Mode Fiber of Different Lengths should be housed in the Module.

3. Fusion Splicing Machine

- Fiber alignment: Core/cladding alignment / manual alignment.
- Splicing time: 9 sec; heating time: 22 sec.
- Applicable fibers: SM (G.652/G.657), MM (G.651), DS (G.653), NZDS (G.655), EDF and BIF/UBIF.
- Cladding diameter: 90–150 μm ., Coating diameter: 125–1000 μm , Return loss: Better than 60 dB.
- Splice loss: 0.02 dB (SM), 0.01 dB (MM), 0.04 dB (DS), 0.04 dB (NZDS).



Connectorization Tool Kit

- ST fiber polishing disc : 01 No.
- Fiber polishing sheets : 10 No.
- Fiber polishing pad : 01 No.
- Fiber optic zoom microscope : 01 No.
- Jacket stripper : 01 No.
- Buffer stripper : 01 No.
- Fast connector : 10 No.
- Optical fiber Spool : 100mtr.
- Optical multi-meter : 01 No.

FTTH Tool Kit



- Power Meter, FC-6S Fiber Cleaver, Dual-hole Fiber Optic Stripper, Fiber Optic Stripper, 5mW Visual Fault Locator, Empty bottle, Fixator, AA Battery, Bag for Visual Fault Locator, Bag for Fiber Cleaver, Hexagon Wrench, Adapter for Power Meter, Storage Bag for all Tools

CURRICULUM

- Study and Identification of various sections of the GPON FTTH Network.
- Identification of various Networking devices used in the Optical communication PON network - OLT, Optical FMS , FDB, Splitter, and ONT /ONU.
- Test the signal flow path of a FTTH Network.
- Insertion Loss Testing and Performance Evaluation of Optical Splitters
- Installation of Fiber Distributor Box (FDB)
- Installation and Study of Optical Distribution Network
- Deployment and Configuration of OLT and ONU in a Fiber-to-the-Home (FTTH) Network
 - Accessing Web Management Interface
 - Viewing Network Device Mac Addresses
 - Accessing OLT Remotely
 - Building A Basic OLT And ONU Configuration
- Perform OTDR test and find the faults in the link using the Fiber Event Module.
- Measure cable performance using OTDR
- Demonstrate fiber preparation for splicing (strip jacket, dressing buffer tubes & fibers, strength members, removal of buffer coating).
- Demonstrate fusion splicing and measure splice loss

*Image shown is for reference only and does not represent the actual workbench configuration or design.