



MTTplus

Modular Test Platform

The compact MTTplus Modular Test Platform addresses the challenges of communication service providers to increase efficiency and productivity. This flexible test system lowers operational and capital expenditures associated with handling multiple technologies required to address today's Access, Business, Carrier Ethernet, Edge, Core and Transport services.

The MTTplus platform builds on the legacy of the legendary MTT, providing a compact, powerful and cost-effective modular test toolkit for today's wide range of evolving test needs. Construction, installation, and maintenance are at the core of MTTplus functionalities, including all the technologies that are enabling Service Providers to continue offering competitive services over their networks.

MTTplus also addresses the growing need of fiber test tools for the evolving hybrid FTTx/copper networks. Telcos can equip their field force with a test toolkit ranging from xDSL technologies as well as for FTTx/PON installation tools such as OTDR, Fiber Link Mapper, Light Source, Optical Power Meter, VFL and Fiber Inspection Scope. Powerful Transport, Core, Edge, and Metro, LAN and WLAN testing capabilities make the MTTplus platform a complete 64K to 11 Gbps testing solution for PDH/DSn, SDH/SONET, OTN, EoOTN, Ethernet, Fibre Channel, CPRI/OBSAI, as well as IEEE C37.94 and legacy 64k codirectional.

WiFi verification is becoming an inherent part of the installation and verification process for high-speed and Gigabit Internet services. The optional WiFi module, WiFi Spectrum Analyzer and network troubleshooting tools enable not only connectivity testing but also signal strength, coverage and interference analysis.

Platform Highlights

- Modern, modular test platform with a growing range of available test modules covering legacy and modern Access (copper and fiber), FTTx, Metro, Edge, Carrier Ethernet and Transport technologies
- Application-oriented GUI
- Multi-technology: Copper, Fiber Optics, Teleprotection, DSn/PDH, SONET/SDH, OTN, Ethernet, Fibre Channel, CPRI/OBSAI
- Expand test functions with a growing list of test modules
- Future-proof cost-effective platform
- GUI familiarity across different test modules and other VeEX products reduces learning curve
- Test set connectivity via USB, Ethernet, WiFi
- Four USB ports (3x USB A and 1x micro-B USB)
- Fast and efficient test result transfer to USB memory stick, PC or centralized cloud server (R-Server)
- Built-in GNSS receiver option for geo-tagging, time-stamping and one-way delay applications
- Built-in camera option for job site documentation, QR and bar codes
- Small package and light weight
- Field replaceable battery pack
- Large LCD Touch Screen and ambient light sensor

MTTplus Platform

The MTTplus modular platform can be customized by ordering one or multiple field-replaceable test modules to match specific target applications (refer to the individual test module specs for further details).

Durable and Field Upgradeable Platform

- Compact, light weight, and rugged forward-looking design
- Field replaceable battery pack

LCD Display

- 7 inch (175 mm) LCD with touch screen
- LED backlight for durability, extended battery life, and crisp image

Management & Data Interfaces

- Ethernet
- USB 2.0
- Micro-B USB OTG port

Optional USB Transceivers

- WiFi
- Bluetooth®

Productivity Tools

- Web browser, Web Remote, EZ-Remote
- File Manager, PDF report generator, OTDR SOR viewer
- ReVeal RXTS Results and Profiles Management (PC)
- VeExpress client
- VeSion® R-Server client
- Built-in camera (optional)
- LAN and WLAN troubleshooting tools

VeExpress™

Minimize CAPEX and optimize OPEX by managing your test set fleet with VeExpress cloud service. VeEX's test sets are based on all-inclusive hardware platforms, offered at a low cost entry point, and can be configured for specific applications using software licenses. VeExpress manages test sets (hardware) and their test functions (licenses).

Stop purchasing test sets loaded with extra features or modules, just in case, or placing multiple orders with varying configurations for different user groups or applications. Reduce your CAPEX by buying what you really need and proactively manage your software and hardware assets.

Buy only the required test features, in the right quantities, to optimize your OPEX by sharing those specialized test features not required on a daily basis.

- Buy commonly used test functions required to get the day-to-day job done
- Share the software license pool among different users

VeExpress secure cloud-based environment provides the redundancy and speed of geographically-distributed servers around the world as well as scalability and up time. Test sets and web clients automatically connect to the closest/fastest server available.

- Improve first-dispatch success by making sure test sets are up-to-date, have all required test features to get each job done right the first time
- Missing a test function? Supervisors can assign test features on the go, making them immediately available in the test set, using VeExpress. Less time wasted due to unexpected cases. Automatic approval mode is also available for users to share licenses directly.
- Keep platform and modules' software up-to-date

License Management

- Retrieve licenses for new test functions
- Share test features assignment with floating licenses
- Test features are no longer tied to specific test sets, so software assets can be reallocated as needed
- Track test sets and usage
- Manage software versions to keep all test sets aligned to the latest approved software version.
- Simple to use VeExpress client interface is fully integrated into the test set to avoid getting in the way of users' daily tasks
- Intuitive web-based VeExpress client interface for users and managers

Built-in Precision Timing References

The test platform offers highly accurate and stable clock reference options to provide precise timing and time to its test modules and applications. These internal physical clock references can be used for phase, timing and wander delay measurements. Accurate UTC time of day (ToD) and 1PPS from GNSS can be used for time sensitive tests such as Time Error and one-way-delay measurements.

Modular GNSS receiver design makes it easy and inexpensive to keep up with technology evolution and timing improvements.

GNSS Timing Receiver Option (Z88-00-009P)

This high-sensitivity timing GNSS module (built-in) provides precise location, UTC time and timing synchronization to the test platform, in the form of NMEA messages, ToD and internal GNSS 1PPS clock reference. It offers optimized accuracy with location survey and timing mode. Its timing mode provides a fixed-position mode to improve timing stability for stationary applications. This is the recommended module for wander, phase error, time error, holdover, delay measurements, as well as location and timestamp tagging applications.

GNSS: GPS (L1 C/A)
GLONASS (L10F)
BeiDou (B1I)
Galileo (E1B/C)

Bands: 1561.098, 1575.42, and 1602 MHz
Tracks up to two satellite bands simultaneously
Satellite table with C/No levels in dB-Hz
Up to 72 channels

Location Survey Lock (reduces position-based wander)

- Precision Timing mode operation (stationary)
- Accuracy Threshold (m)
- Observation Window (s)
- 3D Deviation: <1.3m (clear sky)

Accuracy

- Time: ≤20 ns RMS (clear sky)
- Position: 2.5m
- Programmable in-survey accuracy threshold and time window

Antenna Cable Delay Compensation (ns)

Sensitivity

- * Cold start: -148 dBm
- * Tracking: -167 dBm

Clock Output: 1PPS (internal)

Acquisition Time (first fix)

- * Cold start: 26s
- * Hot start: 1.5s

Antenna Power: 5 Vdc, 50 mA

Connector: SMA, 50 Ohms

Temperature: 0 to 45°C

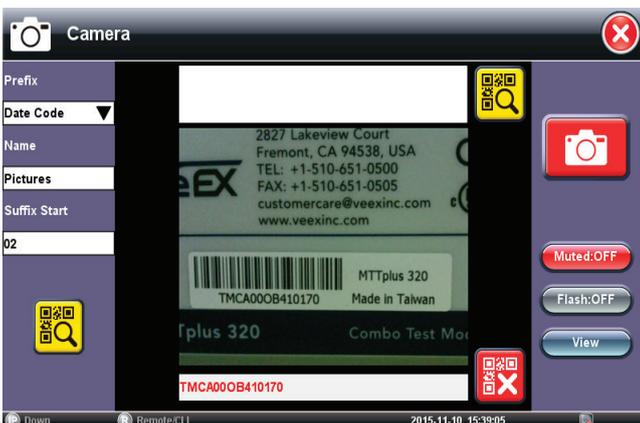
Recommended Antenna

- * Dual or Quad GNSS antenna supporting GPS L1 C/A, GLONASS L10F, BeiDou B1I, Galileo E1B/C
- * Bands: 1561.098, 1575.42 and/or 1602 MHz
- * Type: Active with LNA, 3 to 5 Vdc, <45 mA
- * Gain: >26 dB
- * Noise: <1.5 dB

Built-in Camera Option

Augment job site documentation with before/after pictures, read QR and Bar Codes using the built-in camera

- * Auto Focus
- * LED Flash
- * 960 x 720 pixels
- * Auto QR Code or Bar Code detection and decoding
- * Dedicated camera button



Fiber Optic Tools

Digital Fiber Inspection Scope

Dirty connectors can damage or degrade the performance of expensive optical modules, or produce inaccurate results. Inspecting and cleaning patch cords and pluggable optics connectors before mating them is always recommended.

This option allows digital video microscope probes* to be connected directly to the MTTplus through a USB 2.0 port. Featuring live video feed on the MTTplus screen for visual analysis. It offers image capture, IEC 61300-3-3 Sect 5.4 Pass/Fail templates for SMF and MMF, save, export and generate report to USB flash drives.

Visual Inspection

- Visual file selector.
- Image comparison for before-after reports.

Auto-Focus Detection and Analysis Option

Test set automatically detects when image is in-focus, captures the image and analyzes it. This process is faster than complex mechanically-driven auto-focus systems as they rely on human reaction and finesse.

- Analysis per IEC 61300-3-3.
- SMF and MMF templates (Core, Cladding, Adhesive and Contact areas).
- Dots or square to highlight contamination, debris and scratches.
- Report Generation.

**USB Fiber Scope sold separately. Check individual datasheet for details.*

OTDR Viewer

Built-in OTDR Viewer and Client application provides full post-analysis of SOR traces, as well as control of OPX-BOXe OTDR via direct USB connection, WiFi, or Bluetooth®.

- Traces and Events table view.
- Loss calculations.
- V-Scout and Link Mapper option.
- Compatible with Fiberizer Cloud (upload and download).
- Controls external OPX-BOXe OTDR.

OPX-BOXe OTDR Control

The VeEX OPX-BOXe is an ultra-compact OTDR that can be controlled by the test set using Bluetooth®, WiFi or USB connection. Once paired or connected to the micro OTDR, the test set displays a virtual OTDR user interface that is used to control the OPX-BOXe and perform measurements. Since fibers are common place in access, metro and transport networks, having a companion add-on OTDR reduces truck rolls since there is less dependence to call on specialized fiber construction crews to verify or troubleshoot fiber related problems.

VeSion® R-Server Client Option

Part of VeEX's VeSion® centralized monitoring and management solutions, the R-Server Workflow and Asset Management system provides crucial tools to manage fleets of technicians, test equipment, standardized test profiles, thresholds, centralized test results collection, reporting, jobs/ticketing, and software update delivery to create coordinated and efficient disciplined workforce and test procedures. R-Server enhances the workflow to achieve the level of quality and repeatability required by telecommunications service providers, MSOs and their contractors. The flexible R-Server can be deployed in cloud, hosted, and corporate networks, on physical or virtualized servers.

Makes the job simpler for field technicians as they can download test profiles and upload test results. Supervisors can preset and upload test parameters which are provided to the test sets as profiles. Technicians can simply download profiles, run tests, and upload results to a centralized system that stores and secures the data. No need to worry about losing test results ever again.

Centralized Workflow Optimization Repository

- Manage your VeEX test sets fleets, distributed across multiple locations, regions, groups (Org Chart) from a centralized location.
- Test result management, indexing, geotagging, and mapping.
- Features a dynamic dashboard that allows users to easily see the results of thousands of tests in graphical format.
- See PASS/FAIL rates and test set usage at a glance.
- Upload, download and share test profiles and test results.
- Advanced Save function appends work order (trouble ticket), comments and extra information to test reports.
- Manage approved software versions for test consistency.
- Inventory and repair tracking.
- Seamless integration with job ticketing and work order management systems.

Tamper-proof Operation

- Lock profiles, enforce registration, date, and time on test sets.
- Consistent test environment: Assures all test sets are running approved software versions.
- Org Charts: Distribute and manage assets by regions, districts or groups, with multiple levels of visibility.
- Theft-deterrent function can activate "time bomb" to disable misplaced assets (test sets).

Advanced Test Results Management

It allows users to augment test reports by appending work order information (e.g. Job ID, account) as well as GNSS-traceable geo-location coordinates, map, GNSS-based timestamping, and comments.

- Compatible with R-Server database, search, reporting and mapping.
- Accurate tamper-proof location coordinates and timestamp can also be obtained from cellular service, using the V-Connect phone app.
- Test results can be uploaded via LAN, WiFi or cellular data connection.

V-Connect Mobile App

- Allows users to maintain test set's network connectivity, using an iOS or Android devices' Personal Hotspot feature. Additional features include Geotagging and timestamping test results.

Network Troubleshooting Tools

IP Tools

Provides basic Internet connectivity to the test set with Ping and Trace Route

Net Wiz

Network Discovery Tool

- Discovery: TX Frames, RX Frames, RX Errors, Advertised Speed, Advertised Duplex, Devices found, Networks found
- Devices: Total number, Routers, Servers, Hosts
- Device Details: Attribute, IP address, MAC address, Group Name, Machine Name, Ping OK
- Networks: IP Subnets, Hosts, Domains, Hosts Names

WiFi Wiz

The WiFi Wiz function with USB WiFi adapter for 802.11 a/b/g/n/ac wireless in 2.4 GHz and 5 GHz bands makes troubleshooting WiFi connectivity issues a simple task. Scan for available networks and view all access points detailed information along with SSID, signal strength and channel allocation. Connect to Access Points with WEP/WPA or WPA2 encryption and verify IP capabilities to ensure the wireless network is properly installed and configured. A full suite of IP testing features is supported (ping, trace, web browser, etc.).

Requires compatible USB WiFi adapter for a/b/g/n/ac networks in 2.4 GHz and 5 GHz bands

Access Points scan with signal level and link quality measurement WEP/WPA1/WPA2 encryption

IP Connectivity test (Ping, trace route, ARPWiz, Web browser)

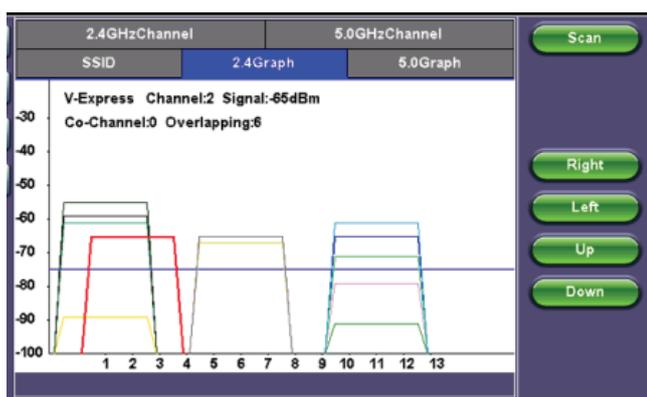
Provides WiFi LAN access to the test set (e.g. VeExpress, R-Server, Remote Control, ReVeal)



WiFi inSSIDer

The WiFi InSSIDer provides the best tools for WiFi networks discovery and performance troubleshooting. With compatible USB WiFi adapter for 802.11 a/b/g/n/ac wireless in 2.4 GHz and 5 GHz bands the inSSIDer provides a clear picture of the environment. It helps identify poor channel placement, low signal strength and interferences in easy to understand graphs and tables.

- Requires compatible USB WiFi adapter for a/b/g/n/ac networks in 2.4 GHz and 5 GHz bands
- Network scan results in Graphical or table format
- Lists: Network names, BSSID, encryption type, channel allocation, signal strength, co-channels, and overlapping channels



Platform Features & Options

Dedicated navigation and function buttons for non-touch screen operation (e.g. operating the test set with gloves on)

- Rugged design with integrated connector cover/stand and dual-shot rubber for protection, extra grip, and ergonomics.
- Flexible shoulder straps configurations.
- Integrated stylus holder.

ReVeal RXTS PC Software

This companion management PC software is included standard with each test set. ReVeal provides an easy-to-use and intuitive interface that allows you to take full advantage of your test sets by providing the following productivity tools:

- Convenient test profile management
- Flexible test results management
- Advanced report generation with html, pdf, or csv formats, combine test results, add logos and comments
- Test profiles management: Online or off-line Ethernet test profile creation, upload and download

Compatible with Windows OS, XP, 7, 8.1 and 10, 32 bits or 64 bits.

Remote Access

The MTTplus offers multiple ways to remote control it or access the information remotely (e.g. test results, test profiles, etc.). The test set can be reached via:

- ReVeal PC software.
- Web browser (Web Remote Control).
- EZ Remote cloud service.
- VNC® Client.
- SCPI Remote and Command Reference Tool PC software*.
- Scripting via SCPI commands.

- Connectivity: 10/100Base-T, Wi-Fi 802.11 a/b/g/n/ac*.

* Not included

EZ Remote™

This secure service offers Remote Access and Remote Control functionalities, allowing users to quickly connect to VeEX test sets located anywhere in the world. It works without the need for complicated VPN settings, port forwarding, firewall holes, exposed public IP addresses or special permissions from IT/ Security groups.

This VeEX hosted cloud service takes care of all the complex tasks required and presents it to users as a simple application. Connect to meters online anytime, anywhere, using any computer, tablet, or smartphone, with standard web browsers for screen-sharing, remote control and access to test results.

Use EZ-Remote to work remotely, help and coach inexperienced field technicians in real time, run tests, download test reports, collaborate, provide technical support and training.

- Remote Control functionality gives users full control of remote test sets (screen mirroring and mouse control).
- Remote Access functionality allows users to manage test results: View, Download, Rename, Delete, Convert to PDF, etc.
- Multi-platform support.
- Web browser based.
- No software to install.
- Connect using LAN, Wi-Fi or smart phone access point.
- No VPN required. All it needs is Internet access.
- Works through most firewall policies, no special ports to open.
- Basic EZ-Remote cloud service is included with the test set (no extra charge or recurrent fees).

File Manager

Profiles: Save and recall test profiles.

Saves results to internal SD card View, Rename, Delete and Lock profile and result files.

Filter and sort by Name, Test Mode, Test Type, Port, Date and Result/Profile.

Report generation: Test results generation in PDF format.

Export test results and profiles via USB memory, Bluetooth, web browser, Data Card or ReVeal RXTS companion PC software.

File Backup and Retrieve to/from USB.

Screen capture: Screen shots in PNG format.

Advanced Management

This option allow users to append work order information to test results (e.g. Job ID, account, location, comments)

- Compatible with R300 Productivity Server (R-Server)
- Authorized test sets can register with specific VeSion R-Server
- Test results can be uploaded via LAN, WiFi or cellular data connection

General

Size	188 x 168 x 80 mm (W x H x D) 7.40 x 6.61 x 3.15 in
Weight	0.84 kg (1.85 lb)
Battery	Li-ion smart battery 5800 mAh @ 10.8 VDC Field replaceable
Power Supply (AC Adaptor)	Input: 100-240 VAC, 50-60 Hz Output: 15 VDC, 4.0 A
Operating Temperature	-10°C to 50°C (14°F to 122°F)
Storage Temperature	-20°C to 70°C (-4°F to 158°F)
Humidity	5% to 95% non-condensing
Display	800 x 480 TFT 7" color display Touch screen
Management Interfaces	
Ethernet	1x RJ45 10/100BASE-T FDX
USB	1x USB A (internal storage) 2x USB A 1x Micro-B USB
WiFi	802.11a, b, g, n, ac (via USB dongle)
Bluetooth	USB transceiver
System Storage	
Internal	Dedicated 8GB USB flash
External	USB memory sticks up to 64GB (FAT32)
Remote	Upload via VeSion R-Server, WiFi or Bluetooth
Ruggedness	Survives 1m drop to concrete on all sides

