# IVR-Multitester-2

## xDSL with OPM, VFL and optional OTDR / Optical Microscope

IVR-Multitester-2 touch screen handheld is a 5G Android 9.0 or higher OS tester specially designed to avoid the use of several tools in the field.

IVR-Multitester-2 combines Wifi 5G Android + 1D/2D Barcode Scan + ADSL/ VDSL2/35B + DMM Test + TDR + OPM + PON Power Meter + VFL + PON Network Resource Verification & ONU Status Detect + Cable Tracing + Check Line Sequence + Landline Telephone + IPTV + 1 Gbps Download Speed + Fiber Ranger + ONU.

Optionally, you can add hardware to have an OTDR or Fiber Microscope.

- **IVR-Multitester-2: 5G Android OS Smart Phone**
- **Resistant to dropping impact from 1.2m height, good water-proof, and dust-proof effect**
- **1080 x 1920 TFT, true color 5.5 inch Capacitance touch screen to make work in the sunlight more easy and convenient**
- **Rechargeable 2pcs 3.8V 4100 mAh battery installed inside**

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| xDSL Index | |
|---|---|
| xDSL test main functions | Physical Layer Info<br>PPPoP Dial<br>FTP Client, Fixative IP<br>Network Layer Test<br>Modem Emulation<br>PING<br>Support VLAN, HLOG,QLN<br>Error Code Statistics<br>Bit Graph Display<br>BPT /SNR Data<br>Modem Parameter Setting(VPI/VCI) |
| **ADSL Index** | |
| Standards | ITU G.994.1 (G.hs), ITU G.992.5, ITU G.992.5 Annex L. The max distance which can be connected is 6.5km. Compatible with ADSL, ADSL2 and READSL. |
| Attenuation | 0~63.5 dB |
| Noise margin | 0~32dB |
| Upstream channel rate (interweaved / fast mode) | 0~1.2Mbps |
| Downstream channel rate (interweaved / fast mode) | 0~24Mbps |
| The modulating bits in the DMT sub-channel | 0~15 and each sub-channels' frequency points |
| The number of error codes | CRC, HEC, FEC, NCD, OCD |
| Other parameters | Output power of DSL<br>Displays every condition of the DSL line: lost signal and shutdown of link |
| **VDSL2 Index** | |
| Standards | ITU G.993.2(VDSL2). Be compatible with ADSL2+, ADSL standard |
| Upstream channel rate (interweaved / fast mode) | VDSL2 : 0-100M (35b max 100M) |
| Downstream channel rate (interweaved / fast mode) | VDSL2: 0-100M (35b max 300M) |
| The modulating bits in the DMT sub-channel | 0~15 and each sub-channels' frequency points |
| The number of error codes | CRC, HEC, FEC, NCD, OCD |

| VDSL2 Index | |
|---|---|
| Other parameters | Output power of DSL<br>Displays every condition of the DSL line: lost signal and shutdown of link<br>DSLAM information<br>Error seconds<br>INP pulse protection<br>SNR channel figure<br>Channel noise margin figure |
| Support profiles | Profile 8a, 8b, 8c, 8d, 12a, 12b, 17a (30a, 35b optional) |
| **DMM Test Index** | |
| DC voltage | -400 to 400 V; Resolution: 0.1V |
| AC voltage | 0 to 290 V |
| Capacitance | 0 to 1000 nF; Accuracy: 0-10 nF: ±2 nF, 10-1000 nF: ±2% ±2 nF |
| Loop resistance | 0 to 20 KΩ; Accuracy: 0-100 ±3% ±4Ω, 100-500: ±3%, 500-20 KΩ: ±2% |
| Insulation resistance | 0 to 50 MΩ; Accuracy: 0-1 M ±3% ±4Ω, 100-500: ±3%, 500-20 KΩ: ±2% |
| **Cable Fault Locator (TDR) Index** | |
| General specifications | Check line mix and break fault. Auto and manual distance test |
| Test range | 4 km |
| Highest resolution | 1 m |
| Dead zone | 0 m |
| Power consumption | 1 W |
| VOP adjusting range | 100-300 m/us |
| Distance test accuracy | ≤ 1 m |
| Pulse test voltage range | ≥ 30 V |
| **Optical Power Meter Index** | |
| Wavelength range(nm) | 800~1700 |
| Photosensing material | InGaAs |
| Power test range (dBm) | -70~+10 or -50~+26 |
| Error range | ±5% |
| Display distinguishability | Linear display: 0.1 %<br>Logarithmic display: 0.01 dBm |
| Adapters | 2.5 mm universal adapter |

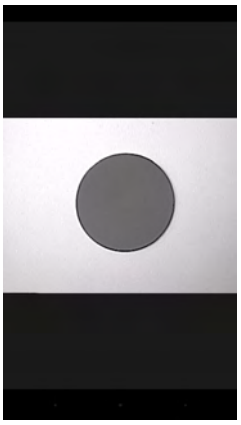
| PON Power Meter Index (1G/10G optional) | | | |
|---|---|---|---|
| Stand wavelength | 1310(upstream) | 1490(downstream) | 1550(downstream) |
| Pass zone (nm) | 1260~1360 | 1470~1505 | 1535~1570 |
| Range (dBm) | -40 ~ +10 | -45 ~ +10 | -45 ~ +23 |
| Isolation@1310nm (dB) | | >40 | >40 |
| Isolation@1490nm (dB) | >40 | | >40 |
| Isolation@1550nm (dB) | >40 | >40 | |
| Uncertainty (dB) | ±0.5 | | |
| Linearity(dB) | ±0.1 | | |
| Unit | dBm/xW | | |
| **VFL Index** | | | |
| VFL | FP-LD | | |
| Wavelength | 650nm±20nm | | |
| Output power | 1mw / 3mw / 5mw / 10mw (optional) | | |
| Connector | 2.5mm universal adapter (SC, FC, ST) | | |
| Working mode | CW or 2Hz modulation | | |
| Applicable fiber | SM / MM | | |
| **Pon Network Resource Verification & Onu Status Detect Index** | | | |
| Verification | ONU info: SN \ PASSWORD \ LOID \ MAC | | |
| ONU status detect | Online, long light, OLT break, ONU break, No power, None ONU | | |
| Adapter | SC / APC | | |
| **Cable Tracking Index** | | | |
| Test cable type | Network cable, twisted pair cable, telephone line, USB cable, coaxial cable | | |
| Line status test | Determine open or short circuit | | |
| Voltage polarity detection | Positive and negative of DC voltage | | |
| Distance of signal transmission | No less than 3km | | |
| DC Voltage | No more than 48V | | |
| **Check Line Sequence Index** | | | |
| Function | Support generate network line signal to view the network check line sequence with the receiver | | |
| Feature | Easy to operate: determine the line sequence by receiving side lights order | | |
| **Landline Telephone Index** | | | |
| Function | Connector with telephone line, can be used as landline | | |

| IPTV Test Index | |
|---|---|
| Transmit Quality | |
| Curt rate(kbps) | Transfer rate of the IPTV service packages |
| IP num(is) | Statistics of IP package gathered in the sampling period |
| Lostednum | Data statistics of RTP package loss number gathered in the sampling period |
| IP Jitter | Reflect levels of IP packet transmission quality |
| **Net Configuration (Support any net encapsulation format, include TS, TCP, UDP, RTP, RTSP, PPPoE etc.)** | |
| MDI DF | Delay in MDI test regulated by RFC4445 |
| MDI MLR | Media Package loss number in MDI test regulated by RFC4445 Source MAC: IPTV sender MAC |
| Dst Mac | STB MAC address |
| Tos TTL | IP Protocol information |
| Source IP | IPTV sender IP |
| Dst Port | STB IP |
| Source Port | IPTV sender Port |
| Dest Port | STB Port |
| Rtp type | RTP Protocol information |
| **Statistics** | |
| MLR-15 | Statistical value of MLR in 15 minutes |
| Losted total | RTP packet loss total number in test cycle |
| Rate | Current test cycle rate, including maximum, minimum and average statistics |
| **Fiber Ranger Index** | |
| Optical fiber interface | FC/PC |
| Wavelength | 1550nm |
| Test distance | 0.01~10km (If over measuring range, the error is large) |
| Error | ± (2m + 2 x 0.0001 x distance) |
| Dead zone distance | ± 10 m |
| Loss threshold | ± 0.6 dB (Detect loss range in intermediate fault point) |
| Working temperature | -5 °C ~ 40 °C |
| Working duration | ≥ 8 hrs (Continuous working) |
| Charge power supply | 5V / 1.5A |

| ONU Index | | |
|---|---|---|
| ONU Test | | |
| | EPON | GPON |
| Registration state | none | O5 Operation |
| Authentication state | Registered, authenticated | Success |
| Output power | +0.5 ~ 5 dbm | +0.5 ~ 5 dbm |
| Input power | -27 dbm ~ -8 dbm | -27 dbm ~ -8 dbm |
| Supply voltage | 3100 ~ 3500 mV | 3100 ~ 3500 mV |
| Bias current | 0 ~ 90 mA | 0 ~ 90 mA |
| **ONU (ONT) Emulation** | | |
| To emulate user's ONU(ONT) to exclude the faulty of user's ONU(ONT) | | |
| **General Specifications** | | |
| Display screen | 1080X1920TFT, true color 5.5 inch Capacitance touch screen | |
| Operation system | Built-in Android 9.0 operation system | |
| System | CPU Qualcomm 450, 1.8 GHZ 8 Core, 2Gb RAM,<br>Flash 2 + 16 Gb, 3G + 32 Gb / 4 G + 64 Gb optional,<br>Supports TF memory card (The biggest capacity is 64G) | |
| Bluetooth | Support 4.0 | |
| WIFI | Support IEEE 802.11b/g/n/ac | |
| 4G | CDMA: 1X/EVDO BC0<br>WCDMA: B1/B2/B5/B8<br>FDD-LTE: B1/B2/B3/B4/B5/B7/B8 | GSM 850/900/1800/1900<br>TD-SCDMA: B34/B39<br>TD-LTE :B38/B39/B40/B41 |
| Power Supply | Rechargeable 2pcs 3.8V 4100mAh or 2pcs 3.8V 6800mAh polymer battery | |
| Camera | 8/5 million pixel front camera and 16/13 million pixel rear camera ,support auto focus and flash function.(High and low configuration optional) | |
| Dimensions | 181mm x 87mm x 45mm | |

# Aditional Hardware Modules

| IVR-OTDR-BL | Wavelength | Dynamic Range |
|---|---|---|
| IVR-OTDR-43BL-PI | 1310/1550nm | 43/42dB |
| IVR-OTDR-40BL-PI | 1310/1550nm | 40/39dB |
| IVR-OTDR-35BL-PI | 1310/1550nm | 35/34dB |
| IVR-OTDR-32BL-PI | 1310/1550nm | 32/30dB |
| IVR-OTDR-40BLF-PI | 1310/1550/1650nm | 40/39/38dB |
| IVR-OTDR-40BLF-PI | 1310/1490/1550nm | 40/38/39dB |
| IVR-OTDR-35BLF-PI | 1310/1550/1650nm | 35/34/34dB |

| IVR-M-FP-01 / IVR-M-FP-02 | |
|---|---|
| **Magnification** | 400x |
| **Focus way / Range** | Single-way / <3mm |
| **Focus time** | 2-6 s |
| **Alignment** | 95% |
| **Output** | Digital USB 1.0/2.0 |
| **Weight (g)** | 110 |
| **Dimension (mm)** | 180 x 22 x 56 |
| **Light Source / Life time** | Coaxial blue LED with 100,000 hrs above |
| **Image Sensor** | 1/3 Inch, 5V Voltage |
| **Temperature** | -10~60 °C |
| **Humidity** | 90% Relative humidity Tolerance, no condenses |

# Ordering Information

| IVR-Multitester-2 Standard Module | |
|---|---|
| CDMA: 1X / EVDO BC0 | |
| GSM: 850 / 900 / 1800 / 1900 | |
| WCDMA: B1 / B2 / B5 / B8 | |
| TD-SCDMA: B34 / B39 | |
| FDD-LTE: B1 / B2 / B3 / B4 / B5 / B7 / B8 | |
| TD-LTE: B38 / B39 / B40 / B41 | |
| **IVR-Multitester-2 Options** | |
| ADSL2+ Module | A |
| VDSL2 Module | V |
| VDSL2 Annex Q Vplus/35b | 3 |
| 1D/2D Bar Code Scanning Module | B |
| Optical Power Meter Module | G |
| PON Power Meter Module | 1 (1G) 2 (10G) |
| Cable Fault Locator Module | 8 |
| VFL Module | H |
| Pon Network Resource Verification& Onu Status Detect Module | L, K |
| DMM Module | D |
| Cable Tracking Module | X |
| Check Line Sequence Module | W |
| IPTV Test | I |
| ONU Module | O |
| Landline Telephone Module | T |
| Fiber Ranger Module | R |

- *If you choose V, it includes A, if you choose O, you can not choose A, V or 3. You can only choose one function among TDR+DMM, PON power meter, PON network resource verification & ONU status detect or fiber ranger.*
- *InterVRE reserves the right to alter and amend the design, characteristics and specifications without notice or obligation.*

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