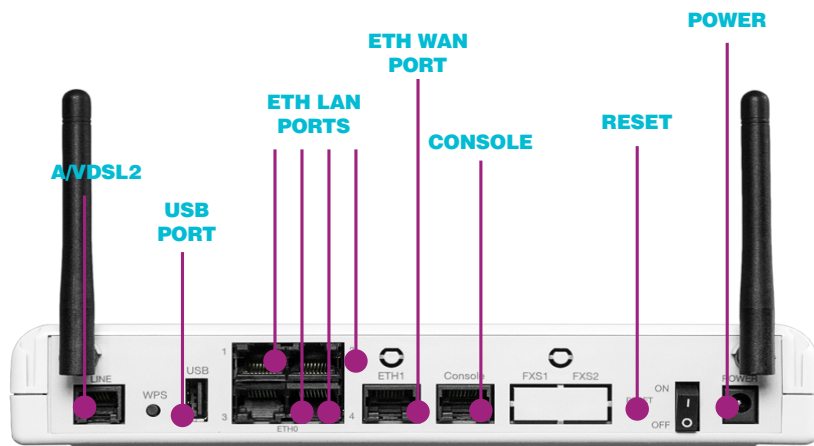


TT-1000MW
analog voice ports



TECHNICAL SPECIFICATIONS

LED Indicators

- POWER
- FXS
- ISDN
- USB
- ETH0
- ETH1
- Wi-Fi
- INTERNET
- LINE

Physical Interfaces

- 1 or 2-port A/VDSL2 with RJ-11 connector
- 1-port GbE with RJ-45 and SFP connectors (Eth1)
- 4-port GbE switch with RJ-45 connectors (Eth0)
- 1-port console with RJ45 connector or MiniDIN 8P connector
- 1 or 2-host USB
- 2-port ISDN-BRI with RJ-45 connectors
- 2 or 4-port FXS with RJ-11 connectors
- 1-port FXO with RJ-11 connector

VDSL2/ADSL2+ Network Interface

- VDSL2 backward compatible with ADSL2/2+ interface
- VDSL2 interface
- ITU-T G.993.2
- Profiles: 8a, 8b, 8c, 8d, 12a, 12b, 17a, 30a
- Full Vectoring
- Profile 17a&30a 2-pair bonding
- DELT
- ADSL2/2+ interface
- ITU-T G.992.1 Annex A, B⁽⁹⁾
- ITU-T G.992.3 Annex A, B, J, L, M⁽⁹⁾
- ITU-T G.992.5 Annex A, B, J, L, M⁽⁹⁾
- T1.413
- Downstream line rate: up to 24 Mbps
- Upstream line rate: up to 1 Mbps, up to 3.5 Mbps with Annex M

3G/LTE

- LTE (FDD) B1/B2/B3/B5/B7/B8/B20
- DC-HSPA+/HSPA+/HSPA/UMTS dual-band B1/B2/B5/B8
- EDGE/ GPRS/ GSM quad-band 850/900/1800/1900 MHz
- Data Transfer Rate
- DC-HSPA+ :Downlink:42 Mbps, Uplink: 5.76 Mbps
- LTE FDD: Downlink:100 Mbps, Uplink: 20 Mbps @Bandwidth 20M (CAT3)

ATM

- Services
- Up to 8 VCCs
- Class of Services (CBR, VRB-rt, VBR-nrt, UBR+, UBR)
- Voice and Data packets over different VCCs (VC bundling)
- Selective CLP marking
- F4/F5 OAM cells, AIS and RDI
- ATM: ITU T-1.361, ITU T-1.363.5, ITU T-1.432, ITU T1610, ITU T-1.731
- Access protocols
- IP over AAL-5, Ethernet over AAL-5 (RFC2684)
- PPP over AAL-5 (RFC2364)
- PPP over Ethernet (RFC2516)
- LLC/SNAP and VC encapsulation
- Multiprotocol Interconnect over Frame Relay (RFC1490 Bridged, RFC1490 Routed)

WiFi Interface

- IEEE 802.11b/g/n
- IEEE 802.11ac (factory option)
- WEP encryption
- WPA1 and WPA2
- IEEE 802.1x authentication
- MAC filtering

Voice Interfaces

- FXS
- Compliant to Q.552 requirements
- Port impedance: real 600Ω or complex Euro values
- Low distortion ringing voltages
- Diagnostic features
- FXO
- Compliant to ETSI TBR 21 requirements
- ISDN-BRI
- 4-port NT/TE VOICE (2-port TE DATA)
- Fully compliant to L1 standards (ETSI ETS 300 012)
- PP and PMP configuration
- ISDN-PRI
- 1-port NT/TE with RJ-45 connector
- Balanced E1 G.703/G.704
- Fully compliant to L1 standards (ITU-T I.413, ETSI ETS 300 011)
- Euro ISDN EDSS-1
- ETS 300 125 (ITU-T Q.921)
- ETS 300 102-1 (ITU-T Q.931)

Voice Processing

- Voice Codes
- ITU-T G.711 (A-law, μ-law)
- ITU-T G.729a (Factory Setup Option)
- Transparent pass-through
- ITU-T G.165/G.168 echo cancellation
- Voice Activity Detection and Comfort Noise Generation
- RTP/RTCP (RFC1889)
- Up to 12 Voice Channels VoIP + 30 (PRI Module)

Signalling

- Euro ISDN EDSS-1
- ETS 300 125 (ITU-T Q.921)
- ETS 300 102-1 (ITU-T Q.931)
- SIP 2.0 according to RFC 3261 (TCP or UDP transport)
- En-block and Overlap sending
- ISDN speech, audio and data (Fax Gr 2/3)
- DTMF detection and carrying (RFC2833), DTMF info
- Local Generation of
- Dial tone
- Ring back tone (180 Ringing reply)
- Call Waiting tone- Busy tone
- Fast Busy tone

Fax and Modem Support

- T.38 fax relay
- Automatic G.711 Fax and Modem Pass-Through

Supplementary Services⁽¹⁾

- Locally managed₂ or Softswitch-based
- Call hold
- Consultation call
- Call waiting
- Call forwarding
- Caller Identity Presentation (CLIP), DTMF and FSK based
- Identity restriction
- Call transfer
- 3party conference (FXS only)
- MSN

DDI Bundle

- GNR Management
- Multi-port to one number association and vice versa
- Multi-port to multi-number range association

IP Functions

- IP Routing
- RIP v1/v1c/ v2, BGP, OSPF
- Enhanced Network Address and Port
- Translation (NAPT) engine, with multiple
- ALGs (including SIP, TFTP and H.323)
- DHCP Server/Client/Relay, DHCP Learning
- Multicast IGMP v1/v2/v3, PIM-SM, Static
- Routing Filtering Redistribution
- Firewalling
- Extended Access Lists
- Stateful Packet Inspection including Denial of Service attacks
- IP Services
- DNS proxy
- DDNS client
- VPN (GRE, IP, PPTP server/client)
- IPsec with DES, 3DES and AES
- ICMP, IGMP snooping, Telnet, TFTP
- Layer 3 QoS according to DiffServ model (RFC2474, RFC2475)
- Priority based queuing (Absolute Priority, WFQ, RED)
- Extensive monitoring, tracing and troubleshooting facilities

Ethernet Services

- Self Learning Bridge with up to 1k MAC addresses and automatic ageing
- Full-Duplex IEEE 802.3x
- Half-Duplex back pressure flow control
- Automatic MDI/MDI-X crossover
- Broadcast/Multicast storm protection
- VLANs (802.1Q and 802.1p) port based management
- Tag/Re-Tag/Untag
- Trunking (VLAN multiplexing)
- Priority based queuing

Authentication

- PAP/CHAP/MS-CHAPv1 and v2 authentication
- Basic and Digest schemes (RFC2617) Service Resiliency
- ISDN backup
- VRRP (RFC2338)
- Dial on Demand Routing

Management & Configuration

- Password Protected Access
- 2 login levels + configurable privilege access right
- AAA and local authentication
- TACACS+
- Local Management
- Console port
- Extensive CLI
- Remote Management
- CLI (internal Telnet Server)
- HTTP (embedded WEB Server)
- HTTPS (embedded Secure HTTP WEB Server)
- SNMP Agent (v1, v2c, v3)
- SSH
- Syslog
- Network Performance Monitor
- Ping MIB

- TR-069⁽³⁾

- Firmware upgrades: Local and Remote (TFTP & FTP client embedded)

Ethernet OAM functionality

- Link Layer OAM (IEEE 802.3ah OAM)
- Service Layer OAM (IEEE 802.1ag Connectivity Fault Management)
- ITU-T Y.1731 Performance Monitoring
- SAM according to ITU-T Y.1564

Environment

- Operating Temperature: -5° ÷ 45°C (23° ÷ 113°F)
- Non-Operating Temperature: -40° ÷ 70°C (-40° ÷ 158°F)
- Operating Humidity: 10 ÷ 93% (noncondensing)

Compliance & Approvals

- Storage: ETSI EN 300 019-2-1 T.1.3
- Transportation: ETSI EN 300 019-2-2 T.2.3
- Operating Conditions: ETSI EN 300 019-2-3 T.2.3
- EMC: EN 55022, EN 55024, EN 61000-3-2, EN 61000-3-3
- Protection: ITU-T K.21
- Safety: EN 60950-1

Power

- External power supply
- AC input voltage: 100-240 Vac
- AC input frequency: 50/60 Hz
- AC input current: max 0,65A

NOTES

⁽¹⁾Supplementary Services management is not yet fully standardised by international bodies and their implementation could be subject to revisions

⁽²⁾Depending on the specific service, a common implementation between the IAD and the Softswitch needs to be agreed

⁽³⁾TR-069 available under license

⁽⁴⁾For Annex B and Annex J support please contact your sales representative