Comet 1634F
Comet 1632F

Comet 163xF Series
TDM G.SHDSL.bis Router

- Point to point Ethernet and TDM MUX data extender over multiple G.SHDSL.bis copper lines
- Compliant with ITU-T G.991.2 standard, TC-PAM 4/8/16/32/64/128 line coding and 802.3ah EFM 2Base-TL bonding.
- 1 or 2 pairs G.SHDSL.bis with 5.7Mbps per pair
- Supports extension rate up to 30Mbps over 2 pairs of copper
- Support various interface includes Fast Ethernet, E1, RS-232, EIA-530, X.21 and V.35.
- Front panel LED indicators for ease of status monitoring
- Easy installation by Profiles, Console, Telnet (SSH), WEB GUI(HTTPS), SNMP (v1/v2c/v3) or TR-069
- Remote software upgrade for field-deployed units via TFTP or HTTP/HTTPS
- Ethernet Routing or Switching with VLAN prioritization and QoS
- Router function supports NAT/NAPT, DNS relay, DHCP client/ server/ relay, RIPv1/RIPv2 and Static route.
- Support security-link feature and DSL line protection for data transmission
- Console/Serial COM switchable, comply with RFC 2217, may connect via TCP client/server or UTP mode.

TAINET's Comet 163xF TDM series is the so called Ethernet Access Devices (EAD), Ethernet Media Data Converter (MDC), Ethernet Multiplexer (EMUX) or Ethernet DSL modem, which takes advantage of the latest G.SHDSL.bis standard. This mini-terminal enables the transport of traffic from Ethernet E1, Nx64k Data and RS-232 interface with line rate 15M/30Mbps over 2/4 wires G.SHDSL.bis link.

Comet 163xF TDM series supports high-speed and dedicated symmetrical data transmission that utilizes DSL bandwidth. When data rate is within 2Mbps, the transmission distance can reach 6km. When the transmission distance is within 3km, the data rate may over 4Mbps, and especially work in Ethernet Ring Protection Switching (ERPS) mode that complies with ITU-T G.8032. Furthermore, Comet 163xF TDM series is fully compatible with TAINET iEAC-16, the intelligent Ethernet access chassis. This combination is designed to work with central office especially for long distance Ethernet Access Service. It covers the ADSL/VDSL's disadvantages of distance limitation by offering multi-pair bonding services.

Comet 163xF TDM series is an ideal solution for Telecom Carriers, Service Providers and business users. In order to reduce operation/management burden, based on ITU-T recommendation G.991.2 standards, administrators of Comet 163xF TDM series are entitled to configure the modems through Profiles, Console, Telnet (SSH), WEB (HTTP/HTTPS), TR-069 or SNMP v1/v2c/v3 agent with ease.

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NNI Interface: G.SHDSL.bis

- Type: 2 or 4-wire
- Standard: ITU-T G.991.2, ETSI 101 524
- Bonding protocol: IEEE 802.3ah EFM 2Base-TL
- Line rate: n x 64Kbps, n= 3~239 (2w), 6~478(4w)
- Connector: 1 x RJ-45
- Line coding: TC-PAM 4/8/16/32/64/128
- Impedance: 135 Ω
- ITU K.21 compliant

UNI Interface - E1

- Data Rate: 2.048Mbps
- Connector: RJ-45 for balanced E1 120 Ω
- (Optional external convert cable for unbalanced 75 Ω)
- Line coding: HDB3
- Framing: Framed /Framed+CRC /Unframed
- Compliance: ITU-T G.703 and G.704
- Jitter Performance: compliant with ITU-T G.823
- Support BERT test mode

UNI Interface - Nx64k Data

- Connector: DB-25 Female with optional adapter cable (V35/X21/RS449/RS530/RS530A/RS-232)
- V.35/RS530 Data Rate: n x 64Kbps, up to 4.6Mbps
  - DTE and DCE clock settings
  - Full duplex
  - Synchronous Data Rates
- RS232 Data Rates: V24-nx64,n=1~3
  - Asynchronous 300/ 600/ 1200/ 2400/ 4800/ 9600/ 19200/ 38400/ 48000/ 56000/ 57600/ 115200 bps
  - Synchronous 1200/ 2400/ 4800/ 9600/ 19200/ 38400/ 57600/ 115200 bps
  - Packet data bit : 7/8 bit
  - Packet stop bit (1 or 2 bit) can be selected

Timing Source: Synchronous and Plesiochronous

- Internal clock
- Received clock from DSL line
- External clock from DTE interface (E1 or Nx64k Data)

UNI Interface: Console / Serial over IP

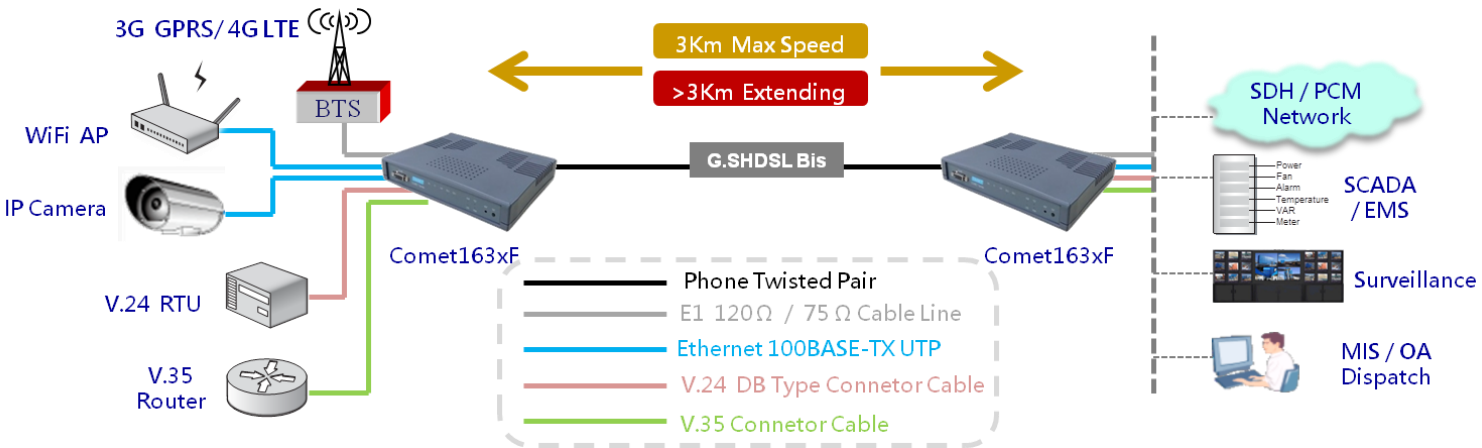
- Serial type: RS-232C, DCE mode
- Connector: D-Sub 9 pin
- Data Rate: Asynchronous. 300~115200bps
- Pattern: 5~8 data bits, Even/Odd/Non-parity bit, 1 or 2 stop bit.
- Protocol: RFC-2217(Telnet), TCP (Virtual COM), UDP
- Adaption Mode: Console, Client or Server mode

UNI Interface: Ethernet

- Ethernet type: 10/100BaseT
- Connector: RJ-45
- Auto-MDI/MDIX detection, Full/half duplex support
- Auto-negotiation for speed and duplex
- Support Layer 2 function
- IPv4/IPv6 supports

Ethernet Networking function

- Supports 802.1d transparent bridge function
- Supports ACL function
- Scalable per port bandwidth control (Step = 64K, up to 100M)
- Supports 802.3x flow control
- 2K MAC learning address
- Ethernet packet length 9K Jumbo frame for LAN and up to 2048 bytes for WAN (DSL)
- Provides 802.1q VLAN tagging, up to 4094 VLAN ID
- Supports 802.1p QoS facility
- ITU-T G.8032 Ethernet Ring Protection Switching (ERPS)
- Support SNTP protocol to get network time
- DHCP Client/ Server/ Relay
- Static Route and RIPv1/RIPv2 dynamic routing
- Point to Point over Ethernet (PPPoE) protocol support.
- Network and Port Address Translation (NAT & NAPT)
- Virtual IP for different VLAN (LAN supports secondary IP)



TDM & EFM G.SHDSL.bis Modem

Management Interface

- Console port: DB9 connector (RS232C)
- Ethernet port: RJ-45 connector (Fast Ethernet)
- Support remote management
- Support Local and remote diagnostic status
- Support Performance monitoring functions (PM)
- Support VLAN Management function
- Support remote upgrade via WEB or TFTP
- Front panel reset to factory default button
- Configuration via Console, Telnet (SSH), WEB GUI (HTTP/HTTPS) , SNMP v1/v2c/v3 and TR-069**

User Management

- Support three access privilege levels for administrator, user/operator and guest/monitor
- Administrator may create, modify and delete account.
- Operator can add、modify and manage devices.
- Monitor can only read and check the status of devices.

Security Management

- Manage permission settings and queries
- Supports security protocol SSHv2 / SNMPv3
- Support login password complexity of 6 characters, uppercase and lowercase letters, digits, special symbols
- Support login account permission level setting, operation log
- Anti-camouflage attack mechanism: lock IP and delay login
- Support SSL1.2, HTTPS secure encrypted connection access

Performance Management

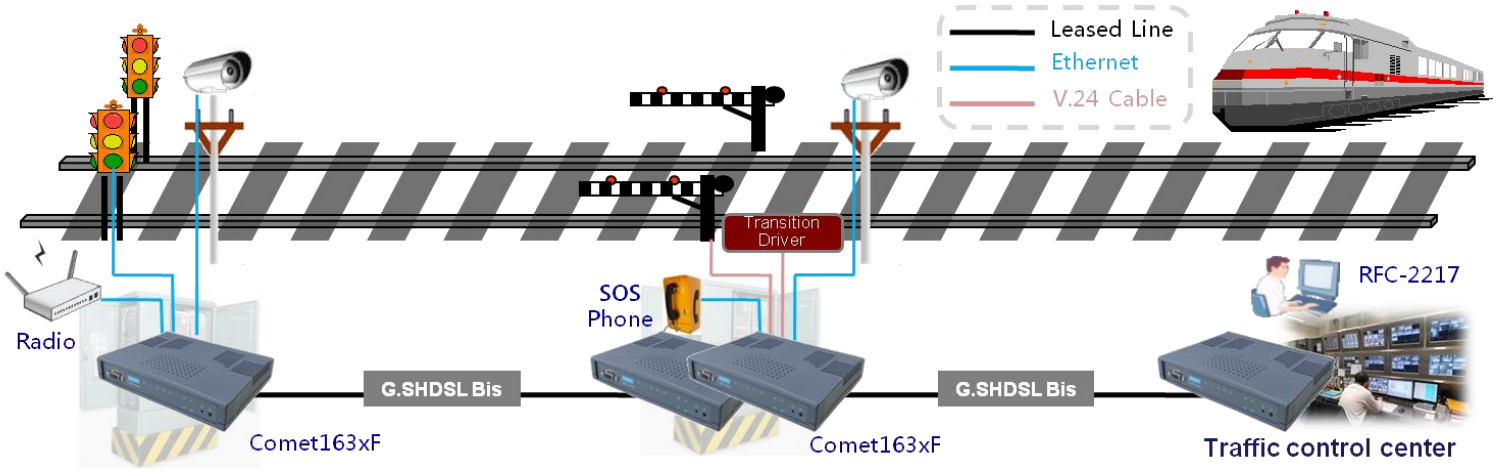
- Historical performance query, report and monitoring
- Performance data storage and query
- Support ES / SES, SHDSL UAS count and query
- SHDSL CRC error counting and querying
- SHDSL SNR signal noise rate status query
- SHDSL ATN signal attenuation status query

Fault Management

- Alarm status display
- Support Current / History alarm log
- Alarm Level setting and query: Critical、Major、Minor、Normal
- Alarm logs (alarm type, time, status and Level)

Alarm Prompt

- Interface data loss alarm
- Ethernet disconnection alarm
- Clock source automatically switching alarms
- DSL ATN line signal attenuation value alarm
- DSL SNR signal noise rate value alarm
- DSL CRC line loop check value alarm
- E1 signal and packet loss alarm
- Remote Power failure alarm (Dying Gasp)



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System Management

- Supports Telnet/SSH、Web/HTTPS
- Supports SNMPv3 network management interface
- Control and monitor remote unit via Embedded Operation Channel (EOC)
- Supports SNTP and OAM functions
- Support Internal / External clock source

Certification

- ISO 9001 Quality Management
- CE Approval, EN 55032, 55024, 61000-3-2, 61000-3-3
- CE LVD Safety, IEC-62368-1, EN 62368-1**
- ITU-T K.21 Compliant**

Power Requirement

- 100~240V AC to 12VDC adapter
- DC 48V (Comet 163xF/DC48)
- Power consumption< 6W

LED indication

- PWR, CPE, TST, ALM, DSL 1/2, LAN, E1, V35
- Dual color LED for DSL status monitoring

Operating Environment

- Operation Temperature: 0 °C ~ 50 °C
- Storage temperature: -20 °C ~ 70 °C
- Humidity: up to 95% (non-condensing)

Dimension

- 200(W) x 150(D) x 39(H) mm

Models

Interface	Wire	Model
FE / RS-232 / V.35 / E1	2-wire	Comet 1632F
FE / RS-232 / V.35 / E1	4-wire	Comet 1634F

Note:

** Features and specifications are subject to change without prior notice