Enea® X25-BRICKS

Packet and Data Link Protocols for X.25 packet networks

X25-BRICKS is a portable software package that implements the X.25 and Packet Assembly Disassembly (PAD) protocols. These protocols are used between Data Terminal Equipment (DTE) and a Packet Switched Data Network (PSDN), when access is through a dedicated circuit or an ISDN BRI or PRI line using B or D channels.

### Features
- Enea X25-Bricks primary software entities
  - MDL, DL: Management Data Link and Data Link
  - PAD: PAD (X.3, X.28, X.29)

- Data Link (DL) functions
  - Core DL LAPB and LAPD (with ISDN support)
  - Modulo 8 and 128 support
  - Frame length, window size, and timer values supported at provisioning time
  - Error correction
  - Multi-Link Procedure (MLP) option
  - X.75 support
  - Data Link relay support
  - Provisioning and re-provisioning
  - APIs

- X25-PLP functions
  - ITU-T and ISO timers
  - Modulo 8 and 128 support
  - RNR, REG, DIAD packet support
  - D, Q, A, M bit management
  - Extensive list of optional facilities support
  - Statistics counters compliant with link MIB
  - X.25-PLP Finite State Machine
  - Provisioning and re-provisioning
  - APIs
  - OSI Network services ITU-T X.213
  - X.25-oriented API
  - Standards: ITU-T X.25, ISO IS8208

### PAD functions
- Management of call parameters
- Provisioning and re-provisioning
- DTE-DTE entity internal interface

### Enea X25-Bricks Companion Stacks
- PH implementation for a synchronous full duplex bit stream
  - Frame delimitation (HDLC frame)
  - HDLC bit stuffing and un-stuffing
  - CRC16 calculation and error detection
  - Error Rate Monitoring (Alignment and Normal)
  - Provisioning and re-provisioning
  - PH and management APIs
  - Processor support
    - Infineon IPAC, ESCC2, ESCC8, Munich-32, HSCX
    - Motorola MC683xx, PowerQUICC I and II
    - Zilog Z85230, Z8530
    - Standard: ISO HDLC 3309

- PAD functions
  - Assemble characters into packets
  - Disassemble user data field packets
  - Virtual call set-up and clear, reset and interrupt procedures
  - Generate service signals
  - Forward packets when the proper conditions exist (e.g., when a packet is full or an idle timer expires)
Transmit data characters, including start, stop and parity elements, to the start-stop mode DTE
Handle break signals from the start-stop mode DTE
Edit PAD command signals
Set and read the current value of PAD parameters
Select a standard profile
Provisioning and re-provisioning

ISDN signaling (described in Enea ISDN-Bricks data sheet)
API-SERVER (described in Enea® API-Bricks data sheet)

XTI/XX25 functions
- Reset
- D Bit
- Explicit acknowledgment of expedited data
- Set D bit during connection phase for negotiation
- X.32 ID procedure
- Data Link LAPB support
- X.25 Facilities
  - Packet size
  - Window size
  - Throughput class negotiation
  - Closed User Group
  - CUG with outgoing access

Bilateral CUG
Fast select
Reverse charging
Local and remote non-X.25 facilities

Enea X25-Bricks Software Architecture
- System Management (SM)
- HDLC drivers
  - MPH Physical management (line interface)
  - PH (HDLC)
    - HDLC Interrupt Service Routine
  - PH
- Enea X25-Bricks stack
  - MDL Data Link Management
  - DL entity (LAPB and LAPD)
  - MX25 X.25 Management
  - X.25-PLP X.25 Packet Layer Protocol
  - PAD Packet Assembly Disassembly
- Enea ISDN-Bricks stack
  - Call Control (CC)
  - MNS Network Signaling Management
  - Network Signaling (NS)
- API
  - API-SERVER entity
  - DTE-I NT entity (AT commands and PAD)
  - XTI/XX25 XTI support

Enea X25-Bricks Dedicated Circuit Software Architecture.
Enea X25-Bricks/Enea ISDN-Bricks Software Architecture.