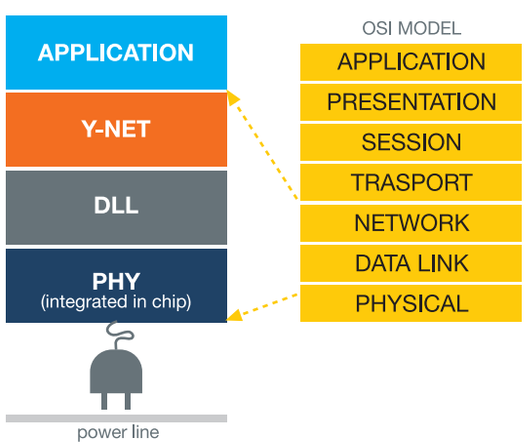
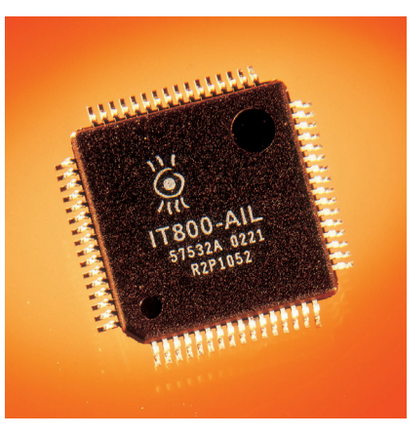
Y-NET

A PLC Networking Layer

Y-Net is the companion network layer software suite released by Yitran Communications for IT800 series of powerline networking controller products. The **IT800Y** SoC integrates the IT800 PHY, Data Link Layer (MAC) [layer 1 and layer 2 of the OSI stack] and the Y-Net Networking stack. The IT800 powerline transceiver technology (MAC and PHY) has been chosen by the Homeplug Powerline Alliance as its baseline Command & Control technology standard (HPCC). With Yitran's high performance DLL (Data Link Layer) and extremely reliable PHY layer, the IT800 provides an ideal solution for a variety of command & control applications, and supports the implementation of various protocols. The utilization of an advanced patented DCSK (Differential Code Shift Keying) spread spectrum modulation technique in the IT800 modem core enables extremely robust communication over the existing electrical wiring with data rates up to 7.5Kbps. In addition to the inherent interference immunity provided by the DCSK modulation, the device utilizes several mechanisms for enhanced communication robustness, such as forward short block soft decoding error correction algorithm (patented) and special synchronization algorithms. UART interface and simple command language enable simple seamless connection to an external Host. The IT800 complies with worldwide regulations (FCC part 15, ARIB and CENELEC bands) and is an ideal solution for a variety of "No New Wires" narrowband command & control applications in Home Automation, Building Automation and Utility Automation (Automatic Meter Reading/Management, Energy Management and Electricity Theft Reduction, etc.).

The Y-Net network layer protocol is the layer 3 of the OSI stack. It aids in the creation and management of a network. Without such a network protocol, it will be almost impossible to create and manage a large network of command & control devices. If the data link layer is the one that basically defines the boundaries of what is considered a network, the network layer is the one that defines how interconnected network functions. It is the lowest layer in the OSI model that is concerned with actually getting data from one network node to another. It is at this layer that the transition really begins from the more abstract functions of the higher layers—which don't concern themselves as much with data delivery—into the specific tasks required to get data to its destination. The most basic functions of the Y-Net network layer are: **Network Creation**, **Secured and Plug & Play Admission of nodes to the Network**, **Advanced data services**, Dynamic Routing (Routing data between nodes in the network via intermediate nodes), and Error Handling and Diagnostics.





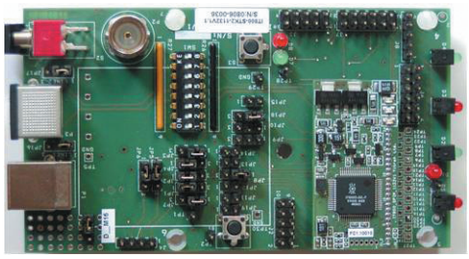
Y-NET MAIN FEATURES

- Secure and Plug & Play Network Formation
- Plug & Play
- Logical Network Creation
- Master-Slave and Peer-to-Peer Network Configurations
- Full Security Suite
- Multiple Network Topologies (Fully Connected, Mesh, Tree)
- Multiple Networks Support
- Selective and Secure Participation of Nodes
- Dynamic Routing
- Failure Detection
- Network Parameter Recovery

Y-NET EVALUATION PACKAGE:

The Y-Net package contains Yitran's STK2 development boards in which the **IT800Y** IC comes pre-flashed with the data link layer and Y-Net layer software. The kit consists of the following items:

- 1 Concentrator
- 5 Remote Stations
- 6 Power Supplies and Cables
- CD with software and documentation



LAYER 1 (PHY):

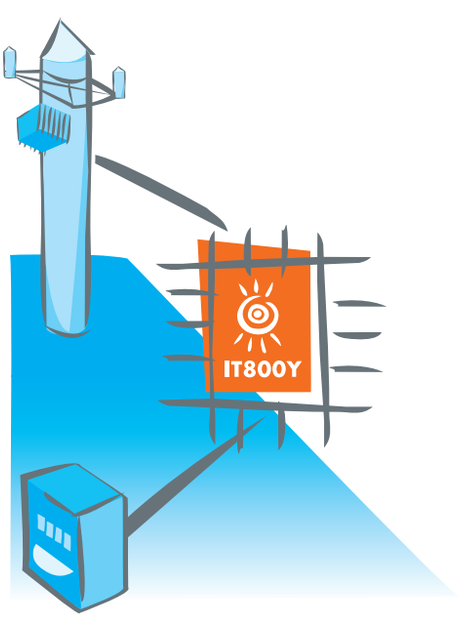
- DCSK patented modulation technique
- High immunity to various noises and distortions
- High in-phase and cross-phase reliability
- Forward short-block soft decoding error correction mechanism and CRC-16
- Complies with worldwide regulations
- FCC & ARIB bands maximum raw bit rate:
  - 7.5Kbps Standard Mode
  - 5.0Kbps Robust Mode
  - 1.25Kbps Extremely Robust Mode
- CENELEC bands maximum raw bit rate:
  - 2.5Kbps Robust Mode
  - 0.625Kbps Extremely Robust

LAYER 2 (Data Link Layer):

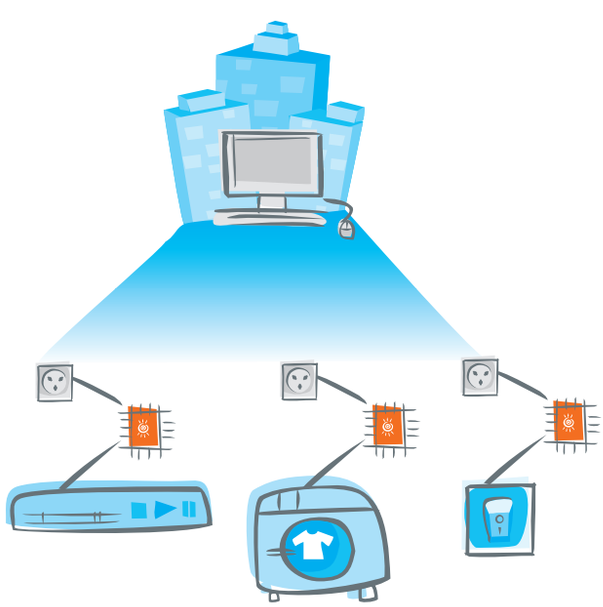
- Up to 1023 logical networks and 2047 nodes/network
- ACK and UnAck data transmission services
- Re-transmission mechanism
- Support for all PHY transport modes with additional automatic rate control mode
- CSMA/CA channel access scheme
- Patented Adaptive back-off algorithm
- Simple serial Host interface (logical command language over UART/SPI)

LAYER 3 (Network Layer):

- Support 1000 different overlapping networks
- Support 2000 nodes in each network
- AES 128 Encryption, with 32 bit authentication.
- Support tree topology with 16 hops
- Support mesh topology with 2 hops
- Time to create 100 nodes network – 5 minutes
- Time to add new node to the network 15 sec.



IT800Y FOR AMR APPLICATIONS



IT800Y FOR COMMAND AND CONTROL APPLICATIONS

NETTANAVOTGRAPHICDESIGN

YITRAN COMMUNICATIONS LTD.

POWERING THE SMART HOME

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