



IT700 GENERAL DESCRIPTION

IT700 is a fully integrated Powerline Communication (PLC) modem and application solution on a single chip. IT700 incorporates Yitran's extremely reliable PHY (Physical Layer), line driver, 8051 Micro with 256 KB flash for protocol stack and application implementation, as well as 24 general purpose I/Os.

IT700 is an ideal solution for a variety of narrowband applications and offers the required flexibility for the implementation of communication protocols and applications such as SE 1.0, SE 2.0, IPv4 and IPv6.

MAIN FEATURES

- Full, low cost PLC modem and applications solution in a single chip.
- Incorporates YITRAN'S high performance DLL (Data Link Layer), Y-NET protocol and extremely robust PHY (Physical layer).
- Includes 8051 Micro for protocol stack and application.
- High in-phase and cross-phase reliability.
- Complies with worldwide regulation requirements (FCC, ARIB, CENELEC).
- Ideal for a "No New Wires" applications utilizing existing electrical wiring and grids such as Energy Management and Demand Response, AMR (Automated Meter Reading/Management)/AMM/AMI, home/building automation, security access and more.
- Fully compatible with IT800 series

LAYER 1 (PHY)

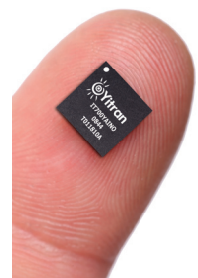
- PLC optimized PHY (Physical Layer)
- DCSK (Differential Code Shift Keying) Yitran's patented modulation technique provides extremely high reliability
- High immunity to signal fading, various noise characteristics, impedance modulation and phase/frequency distortion
- High in-phase and cross-phase reliability
- Forward short-block soft decoding error correction mechanism and CRC-16
- Complies with worldwide regulations (FCC, ARIB, EN50065-1, CENELEC)
- Multiple transport modes:
FCC and ARIB bands maximum raw bit rate:
 - 7.5Kbps Standard Mode (SM)
 - 5.0Kbps Robust Mode (RM)
 - 1.25Kbps (Extremely Robust Mode) ERM
 CENELEC bands maximum raw bit rate:
 - 2.5Kbps Robust Mode (RM)
 - 0.625Kbps Extremely Robust Mode (ERM)

LAYER 2 (DLL)

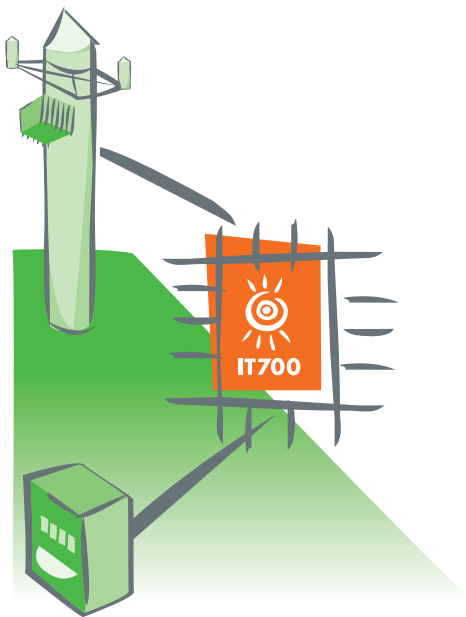
- PLC optimized DLL (Data Link Layer)
- Up to 1023 logical networks and 2047 nodes/network
- ACK (Acknowledged) and UnACK (Unacknowledged) data transmission services
- Re-transmission mechanism
- Support for all PHY transport modes with automatic rate control mode
- CSMA/CA (Carrier Sense Multiple Access with Collision Avoidance) channel access scheme
- Adaptive back-off algorithm based on IEEE802.11 and optimized for the power line medium (patent pending)

LAYER 3 (NETWORK)

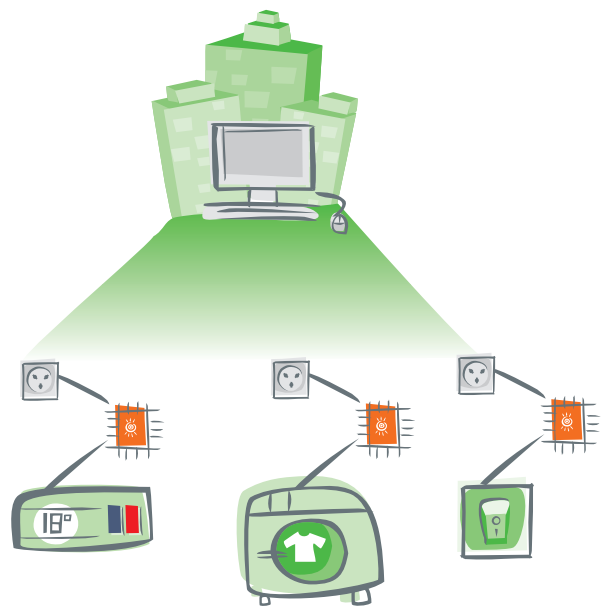
- Supports 1000 different overlapping networks
- Supports 2000 nodes in each network
- AES 128 Encryption with 32 bit authentication
- Supports tree topology with 16 hops
- Time to create 100 nodes network - 5 minutes
- Time to add new node to the network - 15 seconds



PARAMETER	VALUE	NOTE
Modulation	DCSK	Patented modulation technique HomePlug C&C ready
Frequency Operation Band	Within 100-400 kHz Within 9-95 kHz Within 95-125 kHz	FCC/ARIB Bands CENELEC Band A CENELEC Band B
Bit Rate	Standard Mode (SM) - 7.5 Kbps Robust Mode (RM) - 5 Kbps Extremely Robust Mode (ERM) - 1.25 Kbps	FCC/ARIB Bands
	Robust Mode (RM) - 2.5 Kbps Extremely Robust Mode (ERM) - 0.625 Kbps	CENELEC Bands A and B
Error Correction	Forward short-block soft decoding error correction code and CRC-16	
Receiver Sensitivity	<1mV PTP	
Dynamic Range	>85dB	
Single Supply Voltage	+3.3V	
Interface	UART / SPI / I ² C / JTAG / dedicated A/D	Simple command language
Package	QFN 56 (56 pins)	
I/Os	24 general purpose I/Os	



IT700 FOR AMR APPLICATIONS



IT700 FOR COMMAND AND CONTROL APPLICATIONS



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