

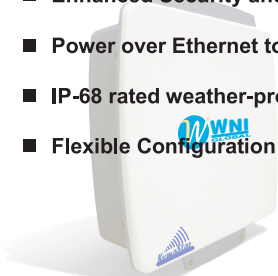
## *KymaStar / KymaLink*

# KSL Series 5.X/2.4GHz E1/T1 PDH / Ethernet Convergent System 1xE1/T1 and 2xE1/T1



### Features and Benefits

- High quality Voice / Data / Video transmission
- Cost-effective alternative to traditional E1(T1) devices.
- 2 ports E1(T1) supported
- High reliability of radio link provides excellent BER
- Operate on 2.4GHz ISM band and 5GHz UNII bands with OFDM technology
- Employs Time Division Duplex (TDD) transmission, no need to plan and to allocate separate channels for the uplink and downlink data streams
- End to end transmission of multiple user services over packet switched networks
- Transparent Ethernet forwarding
- Support SNMP for remote monitor and management
- Window based utility provides user friendly interface to configure the IDU/ODU
- Rapid installation and easy configuration for deploying the link.
- Enhanced Security and access control
- Power over Ethernet to ODU
- IP-68 rated weather-proof housing for ODU
- Flexible Configuration upgrade



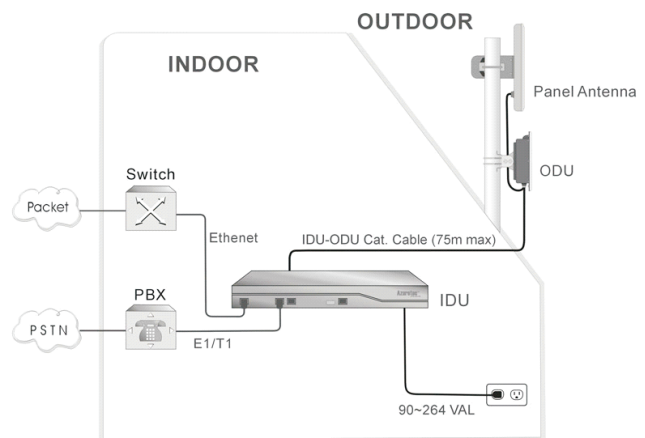
**KymaStar/KymaLink** series delivers up to 54Mbps air rate for Ethernet (Up to 6 Mbps Throughput) and 2 ports E1 (T1) traffic (Net throughput 23Mbps). The system operates in 2.4 GHz ISM Band or 5.8 UNII Band.

**KymaStar/KymaLink** employs Time Division Duplex (TDD) transmission. This technology simplifies the installation and configuration procedure.

There is no need to plan and to allocate separate channels for the uplink and downlink data streams.

Operation over 2.4GHz and 5.x GHz UNII bands is not affected by harsh weather conditions, such as fog, heavy rain etc.

**KymaStar/KymaLink** series system offers more than just an attractive price-point per link and powerful performance characteristics. Easy of installation and alignment along with smart management capabilities make setup and configuration a snap.



**Basic Hardware Installation Figure**

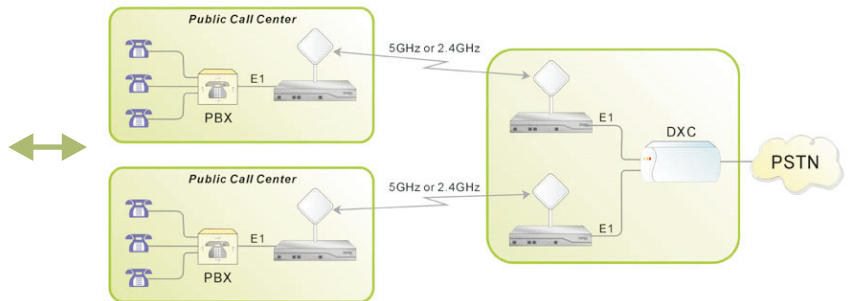
### APPLICATIONS

- Wireless Backup
- Emergency Services and Temporary Deployment
- Cellular Backhaul
- Telephony Extension
- Lossless Backhaul for Hot Spots
- Interconnecting Multiple Legacy Services over Packet Networks
- Extension to MMDS and 3G last mile networks

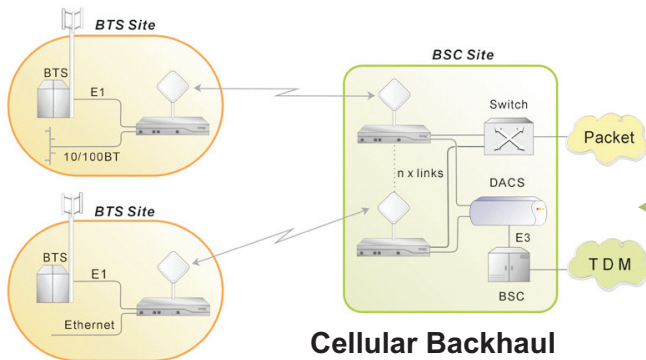
## APPLICATIONS

### ■ Telephone Services Extension to Remote / Rural Locations

In many remote parts of the developing world, where infrastructure is lacking, operators are establishing public call centers to provide basic telephony services. The **KymaStar/KymaLink** series enables service providers to extend voice circuits to remote / rural sites.



### Telephone Services Extension to Remote / Rural Locations



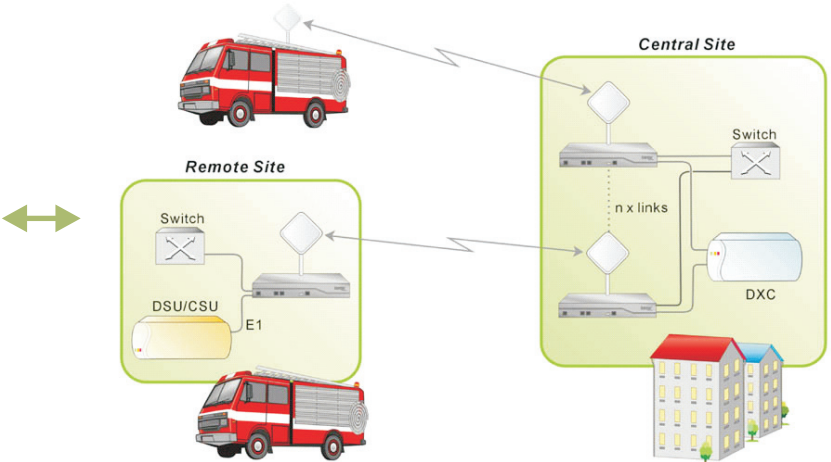
### Cellular Backhaul

### ■ Cellular Backhaul

**KymaStar/KymaLink**, together with the DXC, supports integration of cellular, monitoring and management traffic. Several Ares 2000-2s can be co-located at the BSC to handle incoming traffic from various remote sites and the DXC can aggregate the multiple E1/T1s for transport over E3/T3 or STM-1/OC-S circuits.

### ■ Emergency Services and Temporary Deployment

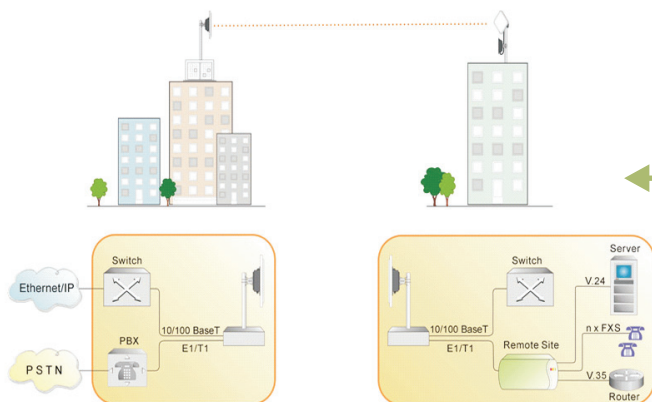
Establishing temporary communications links during an emergency situation is a classic wireless application. Simple setup, configuration and antenna alignment ensure rapid deployment of multiple services.



### Emergency Services and Temporary Deployment

### ■ Telephony Extension

**KymaStar/KymaLink** offers a cost-effective solution for extending an E1 (T1) voice circuit up to 10 kilometers in a point-to-point application. **KymaStar/KymaLink** is uniquely designed to handle all voice and data traffic while being virtually maintenance-free. The solution seamlessly connects the telephony and computer networking systems in one building to those in another building, thus creating one physical private network over the airwaves. The PBXs are interconnected via E1 interface and the routers are interconnected via Ethernet interface.



### Telephony Extension



# KSL Series 5.X/2.4GHz E1/T1 PDH / Ethernet Convergent System 1xE1/T1 and 2xE1/T1

## SPECIFICATIONS

CONFIGURATION								
Architecture	IDU: Indoor Unit: Multiplex XxE1/T1+Ethernet, Includes 24VDC PoE ODU: Outdoor Unit: TDD Ethernet Radio							
IDU to ODU Interface	Outdoor CAT-5 cable: Maximum cable length: 75m							
RADIO								
Frequency bands	<table border="1"> <tr> <td>KS24-</td> <td>2.400 – 2.4835 GHz</td> </tr> <tr> <td rowspan="4">KS5X-</td> <td>5.150 – 5.250 GHz (UNII 1 – Indoor - FCC)</td> </tr> <tr> <td>5.250 – 5.350 GHz (UNII 2 – Low Power - FCC)</td> </tr> <tr> <td>5.470 – 5.725 GHz (includes DFS / TPC – ETSI)</td> </tr> <tr> <td>5.725 – 5.850 GHz (UNII 3 – Standard - FCC)</td> </tr> </table>	KS24-	2.400 – 2.4835 GHz	KS5X-	5.150 – 5.250 GHz (UNII 1 – Indoor - FCC)	5.250 – 5.350 GHz (UNII 2 – Low Power - FCC)	5.470 – 5.725 GHz (includes DFS / TPC – ETSI)	5.725 – 5.850 GHz (UNII 3 – Standard - FCC)
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Data Rate	Configurable up to 23 Mbps (bi-directional)							
Ethernet Throughput	Up to 6 Mbps							
Channel Bandwidth	20 MHz							
Duplex Technique	TDD							
Modulation	OFDM-BPSK, QPSK, 16QAM, 64QAM							
Transmit Power	23dBm max.							
Received Dynamic Range	> 60dB							
ETHERNET INTERFACE								
Type	10/100Base T Interface with Auto-negotiation (IEEE 802.3)							
Number of Ethernet Ports	1 (LAN Traffic Bandwidth Control), Up to 6 Mbps Throughput							
Framing / Coding	IEEE 802.3/U							
Bridging	Self-learning up to 2047 MAC addresses IEEE 802.1Q							
Traffic Handling	MAC layer bridging, self-learning							
Line Impedance	100 Ω							
VLAN Support	Transparent							
Connector	RJ-45							
E1/T1INTERFACE								
Framing	Unframed (transparent)							
Number of E1(T1)	0, 1, 2							
Standard Compliance	G.703, G.826							
Timing	Independent Tx and Rx timing							
Line Code	E1: HDB3 @ 2.048 Mbps; T1: B8ZS/AMI @ 1.544Mbps							
Impedance	E1-120 Ω. Balanced; T1 – 100 Ω, Balanced							
Connector	RJ-45							
Jitter & Wander	According to G.823, G.824							
NETWORK MANAGEMENT								
Local Management	CLI / RS232, SNMP							
Remote Management	SNMP							
SNMP Agent	MIB II, Private MIB							
Security	User log on, MAC Access control list, WEP Encryption 40,128,152 bit							

