The SkyWAN® family of VSAT networking products is complemented by two compact high performance Frame Relay Access Devices of latest technology:

/ SkyWAN® FAD 9220 unit is a cost efficient solution for field offices
/ SkyWAN® FAD 9230 unit is a powerful solution for branch offices

Both devices provide Frame Relay concentration and switching of packetized voice as well as data from the LAN ports and/or the serial interfaces. Being specifically adapted to the SkyWAN® VSAT system, which is the leading full mesh TDMA DAMA networking platform, the combination of both defines the state of the art for voice quality in packetized transmissions over satellite. Bandwidth usage is minimized through efficient compression and dynamical call set-up.

As voice multiplexers both units support various voice interfaces and signalling standards. Digital interfaces can also be used for data connections. In this mode the FAD 9220 offers a maximum of 64, the FAD 9230 96 logical ports.

The serial line interfaces – up to 3 at the FAD 9220 and FAD 9230 – enable the integration of legacy data protocols.

Key Features
/ Delivers premium QoS over minimum bandwidth capacity for voice service
/ Support of analogue and digital voice, full support of QSIG (supplementary services)
/ Full range of legacy protocols i.e. HDLC, Async, SDLC, BSC, bit transparent
/ Support of IP Routing: RIP, OSPF

// Premium voice quality over minimal bandwidth via satellite //
## TECHNICAL SPECIFICATION

### SkyWAN® FAD 9220 / 9230

<table>
<thead>
<tr>
<th>SYSTEM DETAILS</th>
<th>FAD 9220</th>
<th>FAD 9230</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ethernet Port</strong></td>
<td>2 x 10 / 100 BaseT Ethernet</td>
<td>2 x 10 / 100 BaseT Ethernet</td>
</tr>
<tr>
<td><strong>Expansion Slots</strong></td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td><strong>Power</strong></td>
<td>auto-sensing 100-240 VAC, 50/60 Hz, 70 W maximum, -48 Volts DC</td>
<td></td>
</tr>
<tr>
<td><strong>Performance Level</strong></td>
<td>5,000 cells per second</td>
<td>15,000 cells per second</td>
</tr>
</tbody>
</table>

### NETWORK CONNECTIONS
- Automatic node discovery and rerouting with least cost metric routing
- Automatic load balancing, bandwidth on demand (over leased line), dial back-up, time-of-day connect

### TELEPHONY FEATURES
- **Maximum Telephony Channels**: up to 8 FXS or FXO or E&M, 4 BRI S/T ports
- **Digital Telephony Channels**: T1 signaling: CAS (Immediate Start, WinkStart and more), CCS (Q.SIG, National ISDN, Japanese ISDN)
  - E1 signaling: CAS (Immediate Start, WinkStart, R2, China Signaling #1 and more), CCS (EURO ISDN, Q.SIG), SS7 transparent
  - BRI S/T: CCS (EURO ISDN, Q.SIG, National ISDN, Japanese ISDN)
- **Voice Compression Algorithms** (5 channels per DSP): ACELP-CN (8K/6k with fallback), G.711 (PCM 64 kBit/s), G.726 (ADPCM 16k/24K/32K/40K), G.729 / G.729 a
- **TELEPHONY FEATURES**
  - **Maximum Telephony Channels**: up to 8 FXS or FXO or E&M
  - **Digital Telephony Channels**: 6 BRI ports or 30 digital channels per chassis via E1/T1

### LAN SUPPORT
- **Ethernet Interfaces**: Ethernet II and IEEE 802.2, 802.3, SNAP
- **Routing**
  - Standards: IP RIP V1/V2 or Static, OSPF, NAT, Multicast IGMP V1/V2
  - IPX RIP and SAP, LLC2, Virtual LAN, DHCP Client, BOOTP
- **Bridging**: 802.1D Spanning Tree Protocol (STP), MAC Layer, Transparent Bridging

### SERIAL PORT FEATURES
- **Basic Serial Port**: 1 serial interface, max. speed: 6.144 Mbit/s
- **Expansion Card**: dual serial interface card, 2.048 Mbit/s per serial interface
- **Protocols**
  - SNA: SDLC, LLC2 or Frame Relay RFC1490
  - Legacy Sync: PPP, HDLC, SDLC, X.25
  - Frame Relay: RFC1480, UNI-DTE, UNI-DCE
  - Asynchronous: ENQ/ACK, XON/XOFF, transparent, CTS/DTR

### PHYSICAL CHARACTERISTICS
- **Dimension**: 427 x 89 x 310 mm
- **Weight**: 4.0 kg

### ENVIRONMENTAL TOLERANCES
- **Operating Temperature Range**: 0°C to +45°C
- **Operating Humidity**: 10% to 95% non-condensing

### REGULATORY – COMPLIANCE AND AGENCY APPROVAL

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