

**E1-GSM<sup>TM</sup>****E1 Channel Bank with  
30 X GSM Wireless Interface(s)****BHUMIKA ENTERPRISES**

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**Bhumika Integrated E1 / T1 GSM  
Channel Bank - PROS**

1. Integrated and Compact. 24 (T1), or 30, (E1) GSM channels in a compact 6U high, 19-inch rack-mountable shelf.
2. Integrated, Single Power Input: -48VDC or AC Mains. Both options are provided.
3. 3.5dB gain, external antennas with 2 meter Rg174 cable and antenna trays. Easy to manage.
4. Offers Remote and Integrated Graphical User Interface (GUI) Management to monitor all GSM channels. This option allows the USER to view and monitor the status of ALL 24 / 30 GSM channels, including FAULTS on any of the individual GSM channels, remotely, over a TCP-IP network.
5. Integrated, 64ms. and 128ms. Echo-Canceller option. This option allows the USER to install a 64ms. / 128ms. Echo-Canceller in the same 19-inch chassis, to effectively remove any echoes resulting From VoIP and VoFR network delays.
6. Direct E1 - A Law to GSM Conversion, or, Direct T1 Mu Law to GSM conversion, with patented (patent pending) noise reduction technology. Greatly improves voice quality and voice clarity.

**Third Party, component solutions  
comprising of E1 / T1 Channel Banks  
and 24 (T1) / 30 (E1) Fixed Wireless  
Terminals - CONS**

1. Discreet and poorly managed solution comprising of a channel bank and discreet and 24 (T1) / 30 (E1) Fixed Wireless Terminals.
2. Individual, 24 (T1) / 30 (E1) Fixed Wireless Terminals with 30, separate power inputs. Difficult to manage.
3. Absence of External Antennas provides no additional signal gain.
4. No management facility to monitor the GSM terminals remotely, or to view the channel or fault status on any of the GSM channels.
5. No option of ANY Echo-Canceller, which are often essential and required in VoIP and VoFR call termination, owing to unacceptable echoes which often result from network delays.
6. Poor coupling of analog lines (from the E1 / T1 channel banks) to GSM Fixed Wireless Terminals often results in the analog lines picking up a lot of GSM transmission noise often resulting in unacceptable voice quality and poor quality service.

### Orion's Integrated E1 / T1 GSM Channel Bank - PROS

7. Unique dial-out, user programmable access. USER PROGRAMMABLE, call directory interface. This optional feature, unique to Orion E1 / T1, GSM Multiplexer, allows the USER to program "out-bound" calls (GSM Network to E1 / T1), to be restricted to a list of USER pre-programmed numbers only. This feature can be used to provide limited access to out-going calls (GSM Network to E1 / T1), on dedicated channels, which the service provider may wish to RESERVE only for its SUBSCRIPTION CUSTOMERS wishing to use out-bound long-distance services (GSM Network to E1 / T1), through VoIP / VoATM networks.

This option also allows the USER to RESTRICT, or to ALLOW all calls originating from the GSM Network to E1 / T1 VoIP / VoATM Gateway.

8. Accurate CALL METERING resulting from accurate answer-supervision and line-disconnect supervision since the integrated E1 / T1, GSM Channel Bank derives its answer-supervision (required for the call-metering function), from the SS7 based GSM Network Signaling / GSM Switch.
9. Greater product reliability. Integration results in greater product reliability and results in less downtime resulting from a low failure rate.
10. Low Cost. Integration also results in cost reduction when compared with a component based, discreet solution comprising of a T1 / E1 channel bank PLUS 24 / 30 Fixed Wireless Terminals.

### Third Party, component solutions comprising of E1 / T1 Channel Banks and 24 (T1) / 30 (E1) Fixed Wireless Terminals - CONS

7. No USER PROGRAMMABILITY to RESTRICT or ALLOW calls based a USER PROGRAMMABLE directory. No such feature is provided, or offered in the Fixed Wireless Terminal Channel Bank solution.
8. Unreliable CALL METERING resulting from a battery reversal based, or VAD based (Voice Activated) answer supervision, which is based on analog technology and prone to errors. A VAD based answer supervision offers unreliable CALL METERING, in comparison with the integrated E1 / T1, GSM Channel Bank which derives its answer-supervision (required for the call-metering function), from the SS7 based GSM Network Signaling / GSM Switch.
9. Poor product reliability resulting from low integration, poor management and a high number of individual components that are required to be managed (24 or 30 individuals Fixed Wireless Terminals, each with separate power supplies, and the channel bank.
- 10 Higher cost. The cost appears to be even higher, the absence of any available features, and if poor product management, poor product integration resulting in lower product reliability is taken into consideration.