

# SIGNALPATH™ 230 SIGNALING GATEWAY

The SignalPath™ 230 (SP230) is an advanced signaling protocol converter designed to facilitate interoperability between incompatible communication networks. The SP230 enables a seamless interface between in-band and out-of-band networks, and between out-of-band networks and other out-of-band networks.

Different types of telephony communication protocols, both in-band and out-of-band, circuit-switched or packet, exist globally. In fact, there could be as many as six or seven protocols in use within one network. The SP230 breaks down the communication barriers presented by these different protocols and enables the flow of information across any network.

Not only can you increase your potential to connect to a larger portion of the world market, but you can also eliminate charges you may be currently paying to one or more companies for network connections. This means more revenue in your corporate pocket.

## EXTENSIVE PROTOCOL SUPPORT

Multiple protocol support in a single platform means better inventory management and lower overall operating cost. Protocols supported are:

- R1, R2, DTMF
- ANSI SS7 (ANSI), ITU-T C7, ETSI ISUP, Spanish ISUP, NOM112, C7 variants (e.g., Argentina, Chile, Peru, Spain)
- NI2 and ETSI PRI-ISDN
- Custom variants of both in-band and out-of-band protocols are available.

## SUPERIOR MAINTENANCE AND DIAGNOSTICS

- Multiple maintenance features enable quick and cost-effective resolution of network problems.
- Trace functionality is available to aid in troubleshooting configuration and network problems.
- Visual and dry contact alarms allow for remote and local monitoring.
- The “hot plug-in” feature enables insertion and removal of modules without affecting operation.

## REDUNDANCY

- Redundant common module capability translates to less equipment down-time.
- Redundant power supplies are input and output isolated.



## SCALEABLE ARCHITECTURE

- The SP230 has a modular design, with a capacity of up to 52 E1 or T1 interfaces, allowing users to scale the product to fit small or large applications while incurring a low upfront investment.
- Chassis-based, the SP230 is designed specifically for today's high standards in the communications environment.

## OTHER PRODUCT FEATURES

- Standard connections (RJ48, BNC)
- Up to 52 E1 or T1 trunks (full duplex, 104 ports)
- Up to 1,612 DS0s per chassis
- Dynamic bi-directional  $\mu$ -Law/A-Law T1/E1 conversion
- 19 in. (48.26 cm) rack-mountable chassis

**STANDARDS CONFORMANCE**

<b>R1</b>	Q.310–Q.331
<b>R2</b>	Q.400–Q.490
<b>DTMF</b>	BellCore TR-TSV-002275, Subsection 6.13
<b>SS7</b>	BellCore TR-NWT-00246, ANSI T1.111a, T1.112, T1.113a, T1.114, T1.116, T1.234–T1.236
<b>C7</b>	ITU-T White Book: Q.767, Q.701– Q.704, Q.705, Q.708, Q.709, Q.780– Q.782, Q.784, Q.788
<b>ISDN-ETSI</b>	ETSI 300-102, Q.931, Q.921
<b>ISDN-NI2</b>	BellCore TR-NWT-001268, TR-NWT-002343; Q.931, Q.921

**AGENCY COMPLIANCE**

<b>Safety</b>	EN 60950, European Safety (CE Mark)  UL 1950 3rd Edition, U.S. Safety  C22.2 No. 950, Canadian Safety
<b>EMC</b>	EN 300 386-2: 1997 EU EMC (CE Mark)
<b>Emissions</b>	FCC Part 15, Sub-part J, Class A

**HARDWARE SPECIFICATIONS****Physical**

<i>Height</i>	10.5 in. (26.7 cm)
<i>Width</i>	19 in. (48.26 cm)
<i>Depth</i>	14 in. (35.6 cm)

**Input**

<i>Power</i>	-48 to -56 VDC
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**Environmental**

<i>Temperature</i>	32° to 122° F (0° to 50° C)
<i>Humidity</i>	Up to 95% non-condensing
<i>Altitude</i>	Up to 10,000 ft. (3,048 m)

**SYSTEM CAPACITY**

<b>Aggregate Cards</b>	Up to 13 per chassis
<b>Interfaces</b>	Up to eight E1 or T1 trunks per Aggregate card; up to 104 full duplex trunks per chassis
<b>Channels</b>	Up to 31 per trunk; up to 248 per Aggregate card; up to 3,224 per chassis
<b>SS7/C7</b>	Four per AGC card
<b>Signaling Links</b>	Eight per card set Up to 52 per chassis

**INTERFACE SPECIFICATIONS**

<b>Framing</b>	E1: G.732 or G.704 T1: D4 SF or D4ESF
<b>Bit Rate</b>	E1: 2,048 Mbps T1: 1.544 Mbps
<b>Clocking</b>	E1: ± 30 ppm internal E1: ± 100 ppm external T1: ± 30 ppm internal T1: ± 150 ppm external
<b>Impedance</b>	E1: 120 ohm balanced E1: 75 ohm unbalanced T1: 100 ohm balanced
<b>Coding</b>	E1: AMI or HDB3 T1: AMI or B8ZS
<b>Alarms</b>	E1: Loss of carrier signal, multi-frame carrier signal, sync; alarm indication signal (AIS); receipt of remote alarm; receipt of multi-frame remote alarm T1: Loss of carrier signal; loss of frame; receipt of alarm indication signal (AIS); receipt of remote alarm
<b>Diagnostics</b>	E1/T1: signaling state report, digit report
<b>Performance</b>	E1: G.703, G.704, G.732, G.823 T1: ATT Pub. 62411

