

## **EUT Description**

The SIGNALpro is a data analysis tool used to decode paging data for system diagnostics and performance evaluation. The product may be operated as a stand alone unit to gather and store data or in conjunction with a PC to provide real time on- screen presentation of paging data.

Reception of paging data can be accomplished using a built-in 900 MHz. or 150 MHz. receiver or by connection to an external receiver such as a communications or service monitor. Data is then decoded on the DSP card and passed to the HOST card for transmission to the PC.

Sales are limited to paging service providers, law enforcement, and paging equipment manufacturers.

The SIGNALpro hardware consists of five circuit boards, backplane board, power supply, and aluminum enclosure or case.

The circuit board and power supply functions are as follows:

1. Power Supply - Power-One MAP55-1024 AC to 24 VDC power supply.
2. Backplane - Provides interconnection between all circuit modules.
3. DC/DC Converter Board - Provides +12, -12, an +5VDC power sources for all circuit modules. Accepts input from the power supply module or front panel DC Input .
4. Oscillator/GPS Board - Provides an ovenized 10MHz. reference oscillator signal and houses the GPS receiver module.
5. HOST/CPU Board - Provides communications between the SIGNALpro and PC, data storage for the DSP and Receiver modules.
6. DSP Card - Performs decoding of paging data by detecting paging format and rate and applying an appropriate decoding algorithm.
7. Receiver - Dual conversion synthesized receiver with two possible configurations, a wide band version (5 kHz. Maximum system deviation) and a narrow band version (2.5 kHz. Maximum ).

### **I/O Connections:**

#### **Front Panel:**

1. DC Input - an input intended for connection to a vehicle 12VDC power source using a cigarette lighter adapter.
2. MHz. IN/OUT BNC connector - With the front panel switch set to the internal position the ovenized oscillator provides a 10MHz. output to this connector to be used as a reference for other test equipment. With the front panel switch set to Ext. an external 10 MHz. reference signal may be input at this connector.
3. GPS Ant - Connection point for the external GPS receive antenna. 1575.42 MHz. operating frequency.
4. Spare Outputs - No function.
5. 1PPS - 1 Hz. timing reference output.
6. Console GUI - Connection port between the SIGNALpro and the PC providing bi-directional RS-232 communications at 57.6 kbps.
7. Rx Ant - antenna connection point for the internal 900 or 150 MHz. receiver.
8. RX Audio Out - Demodulated audio output from the optional internal receiver module. Normally connected to the DSP input.

9. Slot 2 Input - Audio input to the DSP card. Input sources include the internal receiver via the RX Audio Out port, external receiver, or 4 Level Out port.
10. Level Out - Audio output from the DSP MSB/LSB to 4 level interface. Connected to the Slot 2 Input in place of the receiver connection.

**Parallel I/O -**

1. Pins 1, 2, 8 - Ground
2. Pin 3 - MSB Input
3. Pin 4 - LSB Input
4. Pin 5, 6 - +5VDC
5. Pin 7 - Audio Invert Input
6. Pin 9 - Not used
7. Pin 10 - Scope trigger 1 output

**Rear Panel**

1. AC Input - 90-132, 175 - 264 vac, 47-63 Hz. input.
2. Alternate Port - Not used.
3. ASCII Serial port - used for factory test purposes.

**Clock Frequencies:****Oscillator/GPS Card:**

10 MHz., 5MHz. Both signals distributed by the backplane to the HOST and DSP cards.

**HOST/CPU:**

1. 16.667 MHz. Clock for the 68302 processor. Confined to the HOST card.
2. 4XOUT - 96kHz. Signal used on the HOST and distributed to the DSP card as BUS4X.
3. MHz. - 4.8 MHz. signal used on the HOST and distributed to the DSP card as BUS4\_8.
4. 4XDIV - 24kHz. Signal confined to the HOST.

**DSP:**

- 1 MHz. Clock for the TMS320C26 DSP. Confined to the DSP card.
- 2 48kHz. Signal confined to DSP card.

**RECEIVER CARD:**

1. 21.4 MHz. IF.
2. 455kHz. IF.
3. Low side Injection 1<sup>st</sup> L.O. operating in the range of 907.6 to 919.6 MHz. to cover possible receive frequencies in the range of 929-941MHz.
4. High side Injection 1<sup>st</sup> L.O. operating in the range of 172.4 to 180.4 MHz. to cover possible receive frequencies in the range of 151.0 to 159.0 MHz .
5. MHz. 2<sup>nd</sup> L.O.