

# SGLS BASEBAND MODEM

## MODEL 484

### Features

#### ◆ SGLS (FSK/AM) SIGNAL GENERATOR

##### ◆ Input:

- ◆ Ternary 1, 0, S
- ◆ DiBit 48 bit frame

##### ◆ Output:

- ◆ FSK/AM Command
- ◆ PRN data & clk

#### ◆ SIGNAL SUMMER

##### ◆ Input:

- ◆ SGLS mod. Output
- ◆ Ext. PRN

##### ◆ Output:

- ◆ Linear Summation Composite Signal

#### ◆ SGLS DEMOD (OPTION)

##### ◆ Input:

- ◆ FSK/AM

##### ◆ Output:

- ◆ 1, 0, S & Clk.

#### ◆ REMOTE CONTROL:

- ◆ EtherNet (Option)
- ◆ RS-232
- ◆ IEEE-488

#### ◆ RACK MOUNT 5.25" Chassis



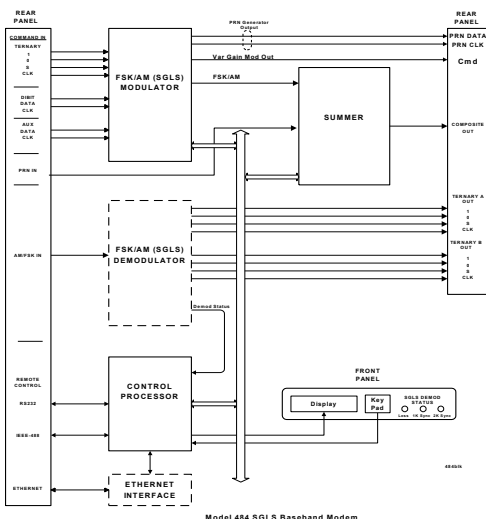
The GDP Space Systems Model 484 is a full featured SGLS FSK/AM Modulator / Demodulator (Modem).

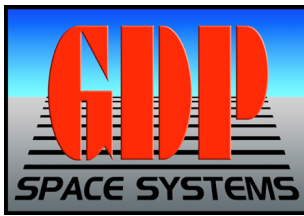
Either Ternary (1, 0, S) or DiBit (48 bit frame) commands are applied to the SGLS modulator, which produces the SGLS standard FSK/AM modulated signal. This signal is combined with an externally supplied digital data stream (usually the Ranging PRN) in a linear signal summer to produce a composite output ready for application to an up-link transmitter.

An Auxiliary data stream input may be used to produce a binary FSK output consisting of tones selected from the 1, 0, and S tone-set.

The FSK/AM signal is decoded into its original components (1, 0, S) by the SGLS Demodulator. The demodulator is capable of automatically detecting and decoding one of two predetermined signaling rates. No programming is required.

Two standard Remote Control interfaces are provided. Both RS-232 and IEEE-488 interfaces are installed. Optionally, an Ethernet interface is available. All remote control commands and responses are based on a simple ASCII protocol.





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### SPECIFICATIONS

#### SGLS FSK/AM MODULATOR

##### Inputs

- Ternary Data (1, 0, S) & Clock (0°)
  - 1 kbps or 2 kbps data rate ( $\pm 0.002\%$ )
- Auxiliary Serial Data & Clock (0°)
  - 1 kbps or 2 kbps data rate ( $\pm 0.002\%$ )
  - Binary FSK Modulation Tone Pair Frequencies
    - Selectable 1-0, 0-S or S-1
- SGLS formatted Dibit Data & Clock (0°)
  - Command/Frame Symbol Rate: 2.4 kbps/1 kbps or 4.8 kbps/2 kbps ( $\pm 0.002\%$ )
  - Fixed 48-bit frame (MSB first):
    - 7-bit sync word (1110010); 40 bits dibit encoded data; 1 parity bit (even)

##### Internal Modulation Data Source

- Internal PRN Generator
  - Fixed pseudo-random pattern length 2047 bits
  - 1 kbps or 2 kbps data rate

##### Outputs

- FSK/AM Modulator Command Signal
  - Rear panel BNC connector (50 ohm)
  - Adjustable amplitude: 0 Vpp to 2 Vpp into 50 ohms
  - Tone Frequencies: 95 kHz, 76 kHz, 65 kHz (1, 0, S)
  - Amplitude Modulation Factor: 50%  $\pm 1\%$
  - Adjustable Tone Transition Timing:
    - 0.55 to 0.7 bit period, in steps of 0.01 (default, 0.6 bit period)
- PRN Data & Clock output

#### Composite Signal Summer

##### Inputs

- External PRN Data, TTL levels
- FSK/AM modulation signal (internal feed) @ 2.0 Vpp into 75 ohms

##### Gain Control

- Each input to summing amplifier is adjustable in amplitude from 0 Vdc to 2Vpp.

##### Outputs

- Composite Signal
  - Linear summation of the SGLS Command Signal and normalized PRN channel
- Amplitude: 0 Vdc to 2 Vpp into 50 ohms

#### SGLS FSK/AM DEMODULATOR (OPTION)

##### Input

- 0.07 Vpp to 2.0 Vpp into 75 ohms
- FSK/AM per Space Ground Link Subsystem (TOR-0059(6110-01)-3)
- FSK Tones: (95 kHz, 76 kHz, 65 kHz)
- Amplitude Modulation: 500 Hz (1 kbps commands); 1000 Hz (2 kbps commands)
  - Modulation Factor: 50% nominal
  - Synchronization Delay: 60% nominal

##### Outputs

- 2 Sets: Ternary 1, 0, S Data and Clock
- TTL levels into 50 ohms

##### Status

- Front panel LED Status Indicators: LOSS, 1K SYNC, 2K SYNC

#### LOCAL FRONT PANEL CONTROL

##### Vacuum Fluorescent (VF) Display and Keypad

- Bright, high contrast VF display
- 6-line by 40-character format
- Twenty (20)-position momentary-action alpha-numeric keypad

#### REMOTE OPERATION

- RS232 Serial Interface
- IEEE STD 488 GPIB Interface
- Ethernet Interface (OPTION)

#### MISCELLANEOUS

##### AC Input:

- 115 Vac,  $\pm 10\%$
- Single phase, 57-63 Hz
- 300 watts, max.

##### Size:

- 5.25 in (H) x 24 in. (D) x 19 in. (W)

##### Weight:

- 40 lbs

##### Mounting:

- Standard 19-inch, EIA equipment-rack. Non-tilting slides provided.

##### Environmental, Operating:

- Temperature: 0 to +40, °C
- Relative Humidity: 15% to 85%, no condensation
- Altitude: 0 to 10,000 ft.

Recognizing that no standard product can meet all the needs of all users, GDP stands ready to provide units tailored to unique applications.

The statements in this data sheet are not intended to create any warranty, expressed or implied. Equipment specifications are subject to change without notice.

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