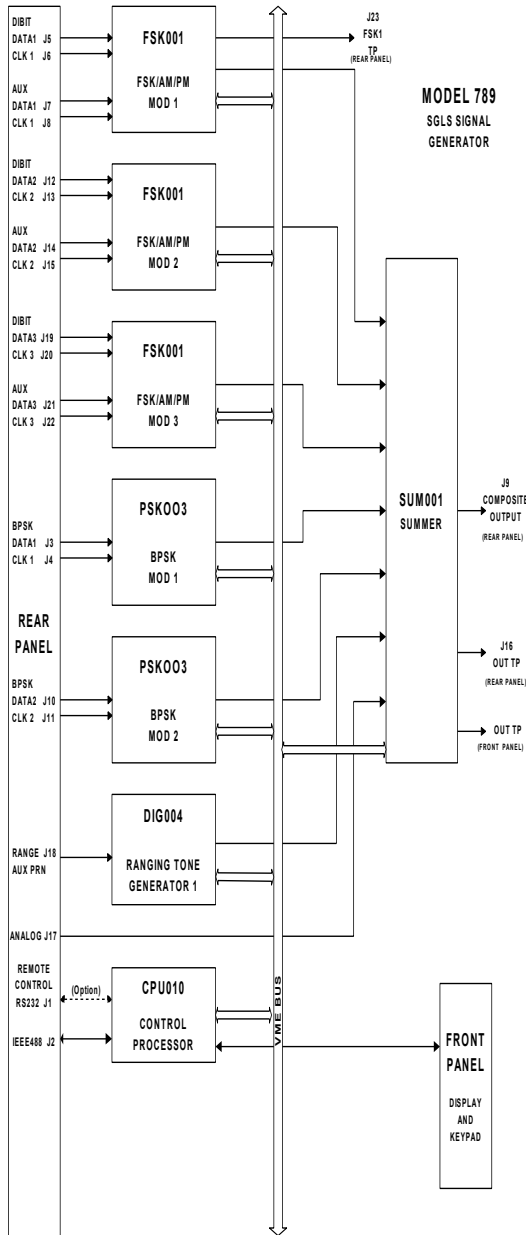


SGLS SIGNAL SYSTEM

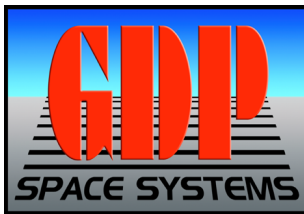
Model 789



The Model 789 SGLS Signal Generator is part of the GDP Space Systems' Modular Subcarrier System (MSS) family. The MSS family provides high performance Phase Shift Keyed (PSK), Frequency Shift Keyed (FSK), Phase Modulation (PM), Space Ground Link System (SGLS) and Digital Baseband (BB) signal generation. Upconversion can also be added to translate subcarrier frequencies to a 70 MHz output signal. Direct Digital Synthesis (DDS) techniques are used to produce the subcarriers at frequencies up to 10 MHz. The MSS modular architecture utilizes a series of VME based modules which can be readily configured for generation of PSK, FSK, PM, SGLS, and Digital BB signals.

The GDP Space Systems Model 789 SGLS Signal Generator provides multi-channel Space Ground Link System (SGLS) compatible Telemetry Tracking and Command (TT&C) and communication subcarrier signals.

The model 789 includes three FSK/AM/PM Modulators, two BPSK Modulators, a Ranging Tone Generator, and a Signal Summer/Level Control module. The unit accepts three SGLS dibit encoded data/clock and three auxiliary data/clock inputs for FSK subcarrier modulation; two data and clock inputs for BPSK subcarrier modulation; a ranging signal input for Range Tone output selection; and an external analog input channel. An internal pseudo-random noise (PRN) generator can be selected in place of any of the external data inputs. Signal level control and ON/OFF selection is provided for each Modulator output, the digital baseband ranging signal, and the buffered analog input signal. The Modulator and Range Tone Generator outputs and the external analog signal are routed to the Summer. Up to four-of-seven signals are combined to produce a Composite Output signal. Individual signal level and ON/OFF control is provided for the four selected signals on the Summer, as well as selectable attenuation of the composite output. All selectable functions are controlled through either the local front panel display and keypad, or the IEEE-488 remote control port.



SGLS SIGNAL SYSTEM

Model 789

SPECIFICATIONS

PSK MODULATORS

External Modulation Data Inputs:

Data & Clock (0-degree clock required for code conversion)

- Input data rates: DC to 2 Mbps TTL signal levels, unbalanced

Input Code conversion:

- NRZ-L/M/S; BiPhase-L/M/S; DM-M/S;

BYPASS

Internal PRN Generator:

Pattern: 2047 (N=11); 2,11 taps (4 Kbps, 32 Kbps, 64 Kbps)

Sub-Carrier Generator

Frequency: Selectable to 10 MHz;

Resolution: 1 Hz

Frequency Accuracy: +/- 100 ppm;

Optional, to 1 ppm.

FSK/AM/PM MODULATOR (SGLS)

External Data Inputs: TTL levels into 50 Ohms, unbalanced

SGLS Formatted Dibit Data and

Clock:

Auxiliary Serial Data and Clock

Ternary Data (1,0,S) and Clock

95 KHz, 76 KHz, 65 KHz; or
385 KHz, 366 KHz, 365 KHz.

Binary FSK Modulation

Frequency Accuracy: +/- 100 ppm, standard.

PM Modulation to 10 MHz

Modulation Index: Selectable, 0.00 to
3.14 radians

COMPOSITE OUTPUT

Output Impedance: 75 Ohms (50 Ohms, optional)

Output Level, each sub-carrier: $1 V_{pk-pk}$ (nominal),
at +3dBm setting

Output Level Adjustments

Each subcarrier: +3 dBm to -30 dBm, in

0.1 dBm steps

Composite: 0 to 7.5 dB Attenuation, in 0.5

dB steps

Test Ports: Fixed Attenuation (-10 dB

nominal) of Composite signal.

Performance

Signal On/Off Switching Isolation: 60 dBc

Spurious: -45 dBc

Harmonics: -40 dBc

IM³: -45 dBc

LOCAL FRONT PANEL CONTROL

VF Display and Keypad

Vacuum Fluorescent (VF) display

2-line by 40-character format

Twenty (20) position keypad

REMOTE CONTROL

IEEE- 488; RS-232

MISCELLANEOUS

Power: 115 Vac +/- 5%, Single Phase, 47-63

Hz, 300 watts, max

Size: 10.5 (H) x 22 (D) x 19 (W), inches

Weight : 70 lbs

Mounting: Std. 19" EIA rack w/ slides

Environment: Temp: +10 to +40 degrees C

RH: 15 to 85%, no cond.

Altitude: 0 to 10,000 ft.

Ordering Information

789-00 Basic Unit
OP789-01 1PPM Oscillators

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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