



Specifications

General

The 9780 is a programmable 10W FSK power line carrier system which fully complies with ANSI C93.5. The standard Tx/Rx system is packaged in a single 3U high chassis and includes full-feature transmitter and receiver sections. The unit may optionally be equipped with a hybrid, SOE module, and redundant supply in the same chassis. External amplifiers can be used to boost the output power if required.

Dimensions: 19" x 5.25" x 15.25"

Supply voltage: 48/125 Vdc (38 to 150 Vdc, 85W)
250 Vdc (200 to 300 Vdc, 85W)

Weight: Approximately 18 lbs.

Operating Temperature: -20°C to 60°C

Humidity: 0 to 95% non-condensing

Dielectric and surge withstand: Per ANSI C93.5

ESD Protection: per IEEE PC37.90.3, Draft A, 1-8-99

Transmitter

The transmitter is a fully programmable three-frequency Direct Digital Synthesis (DDS) generator followed by a 10 W power amplifier and filter. The unit may be configured for 1W/1W, 1W/10W, 3W/10W, or 10W/10W operation (for a two-frequency system, three-frequency systems have additional modes).

Number of frequency presets: 3

Frequency step size: 10 Hz

Frequency setting method: Direct reading rotary switches

Rated output power: 10 Watts rms

Output impedance: 50 Ohms
(w/ load-matching adjustment)

Receiver

The receive circuit consists of an input normalizer, programmable frequency detector, and carrier level indicator.

Receiver sensitivity: 5 mVrms

Maximum receive level: >25 Vrms

Frequency Shift ±Hz	Nominal Bandwidth	Delay [*] Time	Unidirectional Channel Spacing	Bi-Directional Channel Spacing
100 Hz	200 Hz	12 ms	500 Hz	1000 Hz
250 Hz	500 Hz	7 ms	1250 Hz	2500 Hz
500 Hz	1000 Hz	5 ms	2500 Hz	5000 Hz

Table 3. Minimum permissible channel spacings and delay times.

^{*} The delay times specified have been established per ANSI C93.5, section 5.7.3, and 6.3.21. The electromechanical block output contacts will add an additional 5 ms delay.

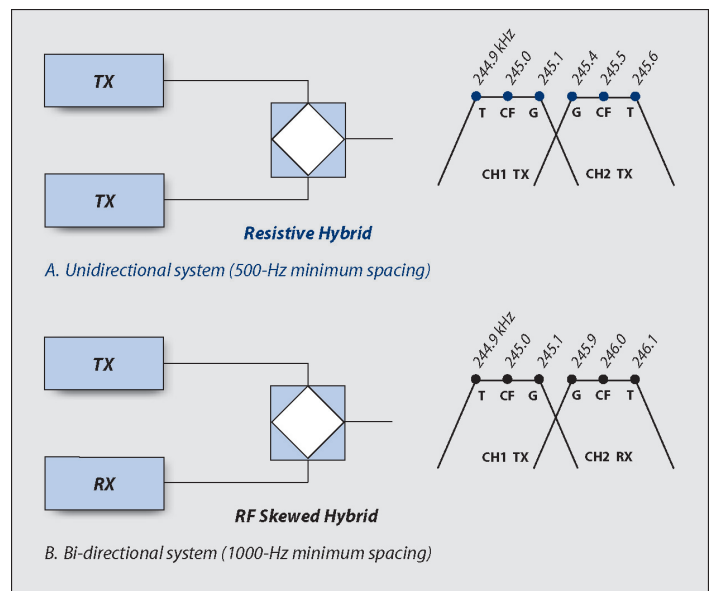


Figure 3. Typical Channel Spacings.

Carrier Level Indicator

Display: Front panel 3-1/2 digit direct reading (in dB)

Range: ±10dB

External meter output: 0 to 100 μAmp or ±1Volt, jumper selectable

Receiver Logic Functions

The FSK's received signals are sent into a user configurable logic module which processes the information. Each of the individual timers and signal qualifiers may be independently disabled or set to a desired value (in mSec) see Table 1.

Sequence of Events

The units may be equipped with a Sequence Of Events (SOE) data log. System status points are checked every millisecond and changes in system status (events) are recorded in the

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log with time and date stamps. The events are stored in non-volatile memory and are recalled most recent event first. The forty most recent events are retained. The local clock is automatically synchronized to an externally supplied IRIG-B signal if available.

IRIG-B input: 1000 Hz modulated or direct TTL

Output Ratings

(2) Solid State Outputs

(1) guard, (1) trip:

Maximum continuous current: 1 Amp
Maximum 1 minute current: 2 Amps
Maximum 100 mSec current: 10 Amps
Maximum open circuit voltage: 280 Volts

(2) Form "C" Contacts/Relay Outputs

(1) guard (1) trip:

Maximum continuous current: 5 Amps
Maximum 200 mSec current: 30 Amps
Maximum open circuit voltage: 280 Volts

(5) Form "C": Alarm Relay Contact Outputs:

Tx Sent, PS Fail, Tx Fail, Low Level, Logic Fail

Maximum continuous current: 1 Amp
Maximum breaking current (125 Vdc):
1 Amp, non-inductive
Maximum breaking current (280 Vdc):
0.25 Amp, non-inductive
Maximum open circuit voltage: 280 Volts

Note: Logic level (5 volt nominal) outputs are available.

RF Output

Maximum continuous output power: 10 Watts

Nominal output impedance: 50 Ohms

(w/ matching adjustment)

Input Ratings

(2) Trip key inputs 1 & 2

48 Volt Inputs

Will not operate at or below: 28 Volts
Will operate at or above: 35 Volts
Minimum pulse duration: 100 μ Sec
Input Current: <10mA, 5mA typical

125 Volt Inputs

Will not operate at or below: 70 Volts
Will operate at or above: 90 Volts
Minimum pulse duration: 100 μ Sec
Input Current: <10mA, 5mA typical

250 Volt Inputs

Will not operate at or below: 140 Volts
Will operate at or above: 175 Volts
Minimum pulse duration: 100 μ Sec
Input Current: <10mA, 5mA typical
Note: Logic level (5 volt nominal) inputs are available.

RF Input

Input impedance (termination enabled):

50 or 75 Ohms, selectable

Maximum continuous termination power dissipation:

1 W Input impedance (termination disabled):
>30 K-Ohms

Input Protection

>50 Vrms continuous without damage to receiver
(excluding termination resistors).

Input Surge

3KV per C93.5



Figure 4. Typical RFL® 9780 Programmable FSK Power-Line Carrier Front Panel Down.

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