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Model 8140 Frequency Distribution System



- **Eliminates Periodic Frequency Calibration of Test Equipment**
- **For Calibration Lab or Production Test**
- **10-MHz or Custom Outputs**
- **Trunk-Line Frequency Distribution Lowers Wiring Costs**
- **Unlimited System Size When Daisy Chaining**

Spectracom's Frequency Distribution System comprises the Model 8140 Distribution Amplifier and combinations of Model 8140T LineTaps™, Model 8140MT MultiTaps™, and Model 8140VT VersaTaps™.

The Model 8140 Distribution Amplifier sends accurate frequencies to multiple locations over long distances. The amplifier derives 10 MHz from the input signal, and sends it on the trunk line coaxial cables to up to 25 remote stations. Running a separate cable to each station is not necessary. Input and output signals are monitored. Faults light a visual indicator or activate an optional Audible Alarm. Unlimited numbers of remote stations may receive output from one frequency standard by adding distribution amplifiers.

Remote station Line Taps receive both 10-MHz and DC power from the trunk line cable. The signal is buffered, then converted to the frequency needed at that station. MultiTaps are configurable dividers with three square wave outputs. VersaTaps are single-frequency synthesizers that provide custom frequency outputs.

SPECTRACOM 101 DESPATCH DRIVE EAST ROCHESTER NY 14445
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Model 8140 Specifications

Frequency Output: Four connectors provide 10-MHz sine wave signals to terminated cable via separate buffer amplifiers. Level is 0.5 V rms, 50 ohms, superimposed on +12 VDC. One front panel TTL-compatible output is selectable between 0.1, 1, 5, and 10 MHz. Phase noise is typically less than -130 dB/Hz 1 kHz from the carrier when the distribution amplifer is fed with noise-free 10 MHz.

Number of Remote Stations: Each Distribution Amplifier will drive up to 25 standard Line Tap loads. If additional loads must be driven, another Model 8140 Distribution Amplifier may be "daisy-chained" onto the output of a Line Tap to drive 25 more loads.

Tap	Standard Line Tap Load
8140T	1
8140MT	3
8140MT-40	1
8140VT-10-00	3
8140VT-10-00-40	1

Distance to Remote Stations: Up to 25 LineTaps on RG-58 50-ohm cable at a maximum distance of 1500 feet from base station. Model 8140TA Distribution Line Extender extends this distance to up to 3000 feet with fewer Line Taps allowed. Using low-loss cable such as RG-8 extends distance to 3000 feet for all 25 Line Taps.

Audible Alarm (Option 20): Activated by input or output loss.

Frequency Input: 10 MHz; Signal level 0.25 to 3.0 Vrms, 50-ohm impedance. Input options: 5 or 1 MHz.

Power: 115/230 VAC ±15%, 50/60 Hz; 40 W.

Physical & Environmental

Size:
8.5"W x 5.25"H x 13.5"D
216W x 133H x 343D mm

Weight:
12 lbs

Connectors:
Input/Output:
BNC; 4 DC-isolated output terminators included
AC power: 3-prong connector, 7' cord included

Controls:
Power switch, frequency select

Indicators:
Power, output fault

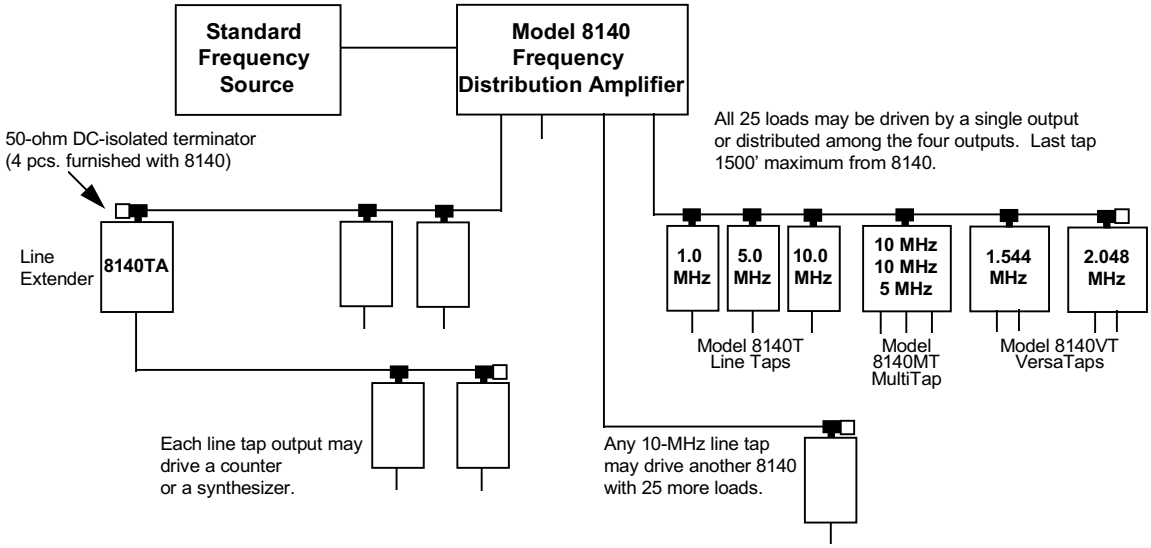
Temperature:
0 to +50°C operating range

Humidity:
95% R.H.non-condensing

System Ordering Information

1. Specify Spectracom **Model 8140** plus
   Option 01 for 19" EIA rack mount
   Option 07 for 5-MHz input
   Option 08 for 1-MHz input
   Option 20 for audible alarm
2. Specify output taps:
   Model **8140Txx** provides fixed sine wave outputs
   8140T10 = 10 MHz
   8140T5 = 5 MHz
   8140T1 = 1 MHz
   8140TR1 = 0.1 MHz
   Model **8140MT** provides configurable TTL frequencies.
   Model **8140VT** provides fixed custom frequencies.
3. Specify any required Line Extenders, **8140TA**.
4. When exceeding 25 standard Line Tap loads, (see table) order additional Model 8140 Amplifiers.

Frequency Distribution System, Typical Interconnection Diagram



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8140T Line Tap™

- **Buffered Sine Wave Output**
- **Isolates Trunk Line From Any Load Disturbances**



Performance Specifications

Output Frequency Choices: 10, 5, 1, or 0.1 MHz. Specify for each Line Tap.

Output Level: 600 mV rms sine wave into 50 ohms. TTL-compatible when used without termination.

Input Signal: 10 MHz from Model 8140

Harmonic Distortion: -40 dBc

Reverse Isolation: 80 dB typical

Power: DC power is supplied via the coaxial trunk line from a Spectracom Distribution Amplifier.

Physical & Environmental

Size: 5.25" W x 2.63' H x 1.71" D
133 W x 67 H x 43 D mm

Hole Pattern: 4.75" x 1.75"; 121 x 44 mm

Weight: 1 lb

Connectors: BNC - Input tee included

Temperature: 0 to +50°C operating range

Humidity: 95% R. H. non-condensing

Ordering Information

For 10-MHz sine wave output tap, specify **8140T10.**
For 5-MHz sine wave output tap, specify **8140T5**.
For 1-MHz sine wave output tap, specify **8140T1**.
For 100-kHz sine wave output tap, specify **8140TR1**.

8140MT MultiTap™

- **Three Buffered Square Wave Outputs Reduce Cost Per Output**
- **User-Settable Frequency Dividers Increase System Flexibility**

Performance Specifications

Frequency Outputs:
Three square wave outputs per MultiTap. 1.5 V p-p into 50 ohms. There are four groups of output frequency choices. Once a group is chosen, each of the three outputs may be set to any frequency in the group. For a 10-MHz input, the outputs are:

Groups

10 MHz	10 MHz	2 MHz	2 MHz
5	5	1	1
1	0.5	0.2	0.1
0.2	0.1	0.04	0.02
0.04	0.02	0.008	0.004

Frequency Input: Typically 10 MHz. TTL input range is 1 kHz to 20 MHz; sine input range is 100 kHz to 20 MHz. 300 mV p-p to 5V p-p sine; high impedance. Output frequencies are proportional to input frequency. Coaxial input line must be properly terminated.

Power: DC power is supplied through the coaxial trunk line from a Spectracom Distribution Amplifier. An optional AC / DC adapter allows the MultiTap to be driven from sources other than a Spectracom Distri-bution Amplifier. External power must always be used if any output frequencies desired are less than 100 kHz even if used with a distribution amplifier.

Physical & Environmental

Connectors: BNC - Input tee included
Power: 2.1 mm I.D. DC jack

All other physical and environmental parameters are the same as 8140T.

Ordering Information

Specify **Model 8140MT** plus **Option 40** for 115 VAC adapter.



Stand-Alone Operation

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Model 8140VT VersaTap™

- **Synthesizer and Telecom Clock Converter or Extractor**
- **Custom Phase-Locked Output Frequency**
- **Locks to Input Reference**

The standard VersaTap is a single-frequency synthesizer whose output is factory-set to any frequency between 1 kHz and 20 MHz. Special frequencies are available, such as the 3.5795454... MHz (TV color subcarrier), 1.544 MHz (T1 data rate), 64 kHz (DS0 data rate), etc. Specify exact frequency at time of order.

There are many versions of the VersaTap not shown here. These include variations in signal frequency, format, voltage level and impedance. For features not listed in the table below, please consult the factory.

Performance Specifications

Output Frequency: Factory-set to any 1-kHz increment up to 18 MHz; 2-kHz increments up to 20 MHz. Accuracy equals input accuracy. Consult factory for other frequencies.

Output A: 600 mV rms sinewave into 50 ohms. If unterminated, will drive TTL load. (TTL square wave below 56 kHz). Harmonic distortion -35 dBc.

Output B: TTL square wave.

Input: 10 MHz, 0.1 to 5.5 V p-p; high impedance. For special input frequency or impedance, consult factory.

Phase Lock Indications: Indicator lamp is on when output is phase-locked to input signal. An internal jumper converts Output B to a TTL high when Output A is phase locked.

Power: DC power is supplied via the coaxial 10-MHz signal line from a Spectracom Model 8140, or Option 03 Distribution Amplifier. Other power options are:

Option 40, external 115 VAC to DC converter
Option 52, ±12 VDC
Option 53, ±24 VDC
Option 54, ±48 VDC



Physical & Environmental

Size:
8.3" L x 4.2" W x 1.7" H
(211 x 107 x 43 mm)

Mounting holes:
8.87" x 2.75"
(225 x 70 mm)

Weight:
3 lbs. maximum

Temperature:
-30 to +60°C operating range
-40 to +85°C storage range

Humidity:
95% R. H. non-condensing

Ordering Information

Part Number: **8140VT-XX-XX-XX**
Input Option
Output Option
(add user-specified frequency for 00 or 45 if required by table below.)
Power Option (if required)

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STANDARD OPTIONS LIST

INPUT			OUTPUTS
SIGNAL (Connector)	OPTION	OPTION	SIGNAL (Connector)
10 MHz (BNC)	10	00	User-specified Sine and TTL (BNCs)
	10	45	User-specified RS-422 and TTL (9-pin D); Same Frequency Sine (BNC)
	10	48	DS1 Framed All 1's (310 jack); 1.544-MHz Sine (BNC)
	10	50	Composite Clock (310 jack); 64-kHz Sine (BNC)
	10	58	CEPT Framed All 1's (310 jack); 2.048-MHz Sine (BNC)
	10	62	DS1 Framed All 1's (Terminal Block); DS1 Framed All 1's (Terminal Block)
	10	66	CEPT Framed All 1's (Terminal Block); CEPT Framed All 1's (Terminal Block)
DS1 (310 jack)	46	00	User-specified Sine (BNC); 1.544-MHz TTL (BNC)
	46	45	User-specified RS-422 and TTL (9-pin D); Same Frequency Sine (BNC)
	46	50	Composite Clock (310 jack); 64-kHz Sine (BNC)
Dual DS1 (310 jacks)	60	60	Frame Pulse (BNC); Frame Pulse (BNC)
CEPT (310 jack)	65	00	User-specified Sine (BNC); 2.048-MHz TTL (BNC)
	65	45	User-specified RS-422 and TTL (9-pin D); Same Frequency Sine (BNC)
STS-1 (WECO 560A jack)	74	00	4-kHz TTL (BNC); Retransmitted Output (WECO 560A)
DS3 (WECO 560A jack)	75	00	4-kHz TTL (BNC); Retransmitted Output (WECO 560A)
DS1 (Bantam jack)	76	00	4-kHz TTL (BNC); Retransmitted Output (Bantam)
CEPT (Bantam jack)	77	00	4-kHz TTL (BNC); Retransmitted Output (Bantam)

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