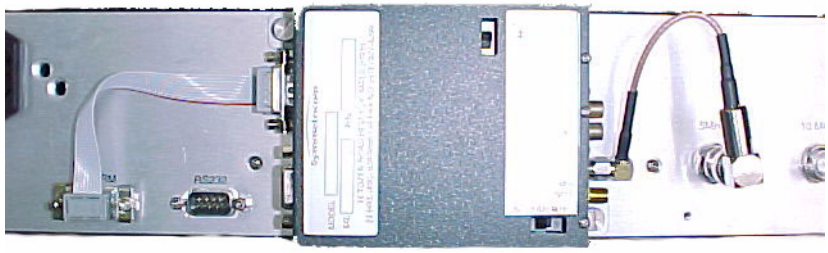
Symmetricom®

Telecom Synthesizer

for the 4310 Cesium Frequency Standard

Operator Manual



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Overview

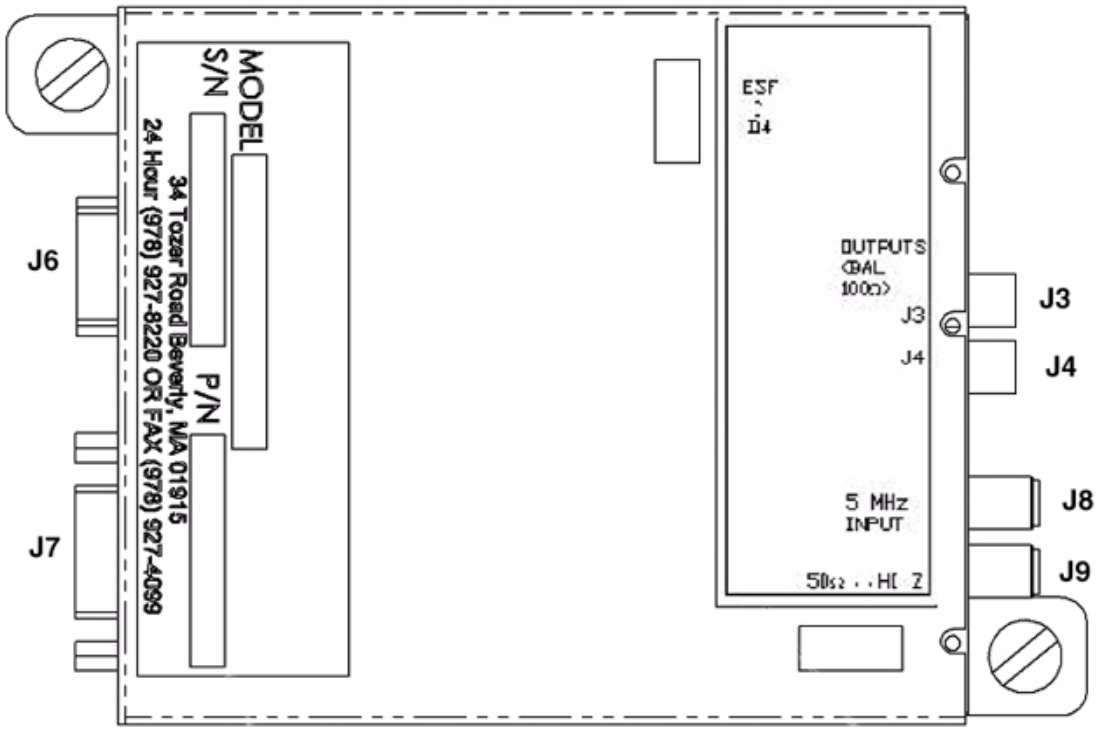
The Telecom Synthesizer (pn 13945-10x), which mounts on the rear of the Symmetricom 4310 Cesium Frequency Standard (Cesium III technology), converts a 5 MHz output from the 4310 into two 1544 kbps (T1) telecom outputs.

Packing List

- Telecom Synthesizer (pn13945-10x)
- BNC/SMA Cable (pn 13982-501)
- Ribbon Cable (pn 13981-501)
- ALARM Extension Cable (pn 13981-502)
- 5 MHz Extension Cable (13982-502)

Connector Identification/Specification

Figure 1: Mounting Screws and Jumper Identification



Connector Identification

J3	T1 output
J4	T1 output
J6	Alarm and power input (Ribbon cable) from 4310
J7	Passthrough alarm output (Ribbon cable) to PC (Monitor II software)
J8	5 MHz reference frequency input
J9	5 MHz reference frequency output (feedthrough from J8)

Connector Specifications

J3, J4: T1 Outputs

Signal type:	AMI
Frequency:	1544 kbps
Format:	Framed all one's, D4 or ESF
Connector:	Bantam TT89 (Switchcraft)

J6: Alarm & Power Input

Pin	Alarm (Female)
1	+12 VDC, 180 mA power supply
2	+12 VDC return (ground)
3	Not Used
4	Major (Common)
5	Major (Fault=Closed)
6	Major (Fault=Open)
7	Not Used
8	Not Used
9	Not Used

J7: Alarm Output (Passthrough)

Same specification as J6, except pins 1 and 2 provide no power.

J8: 5 MHz Input

5 MHz:	1 V rms/50 Ohms

J9: 5 MHz Output

5 MHz:	1 V rms/50 Ohms

Note: J9 is a feedthrough output of the 5 MHz input on J8

Installation/Configuration

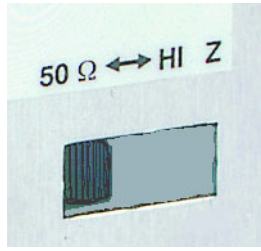
Warning: ***Disconnect the power cord from the Symmetricom 4310, before proceeding.***

1. Secure the Telecom Synthesizer to the rear panel of the 4310 using the two mounting screws.

Figure 2: BNC/SMA cable (pn 13982-501)

2. Connect the BNC/SMA cable (pn 13982-501) from "5 MHz" on the 4310 to J8.

Figure 3: Termination Switch set to 50 ohms



3. Set the Termination Switch to 50 ohms. (Terminates the 5 MHz inputs on J8.)

Note: If you are using the 5 MHz Extension Cable (13982-502) on J9 and terminating the signal elsewhere, set the Termination Switch to HI Z. Verify that the signal is properly terminated.

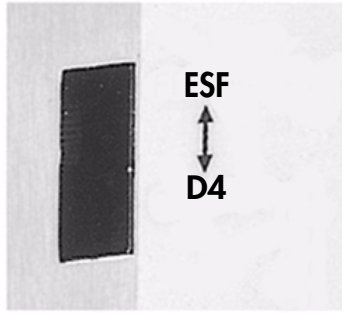
Figure 4: Ribbon cable (pn 13981-501)

4. Connect the Ribbon Cable (pn 13981-501) from "ALARM" on the 4310 to J6.

5. Connect the ALARM Extension Cable (pn 13981-502) from J7 to your PC (Monitor II software).

6. Connect the T1 outputs on J3 and J4 to other equipment, as needed.

Figure 5: Framing Switch



5. Set the Framing Switch to D4 or ESF position, as required. (Sets the framing for the T1outputs on J3 and J4.)

7. Turn the Symmetricom 4310 on. Wait for the LOCK indication before using the output signals.

END OF INSTALLATION/CONFIGURATION PROCEDURE

Note: Operate the Symmetricom 4310 Cesium Frequency Standard in the manner described in it own Operating Manual.

Functional Description

The Digital Synthesizer's VCXO (6.176 MHz) phase locks to the 5 MHz reference by digitally dividing the frequencies to a common frequency, phase comparing the two, integrating an error signal, and adjusting the VCXO's control voltage.

The Digital Synthesizer divides the VCXO signal by four (6.176 MHz / 4 = 1544 kHz), and outputs a 1544 kHz frequency which is then formatted, framed, and shaped to drive the output signals.

Figure 6: Synthesizer Assembly Block Diagram