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Find the *Astronics / EADS / Racal 3351R/10M* at our website: *Click HERE*

RACAL INSTRUMENTS™ 3351



- **Rubidium Vapor or Ovenized Crystal Oscillator**
- **Three Independently Buffered Outputs**
- **1 MHz, 5 MHz Output and 10 MHz Frequency**
- **Optional 1 PPS Output**
- **C-size, Double-Wide VXIbus Module**
- **Precision Frequency Distribution System**

Frequency Standard

Stable, Accurate Signal Measurement for VXIbus
As VXIbus systems become more sophisticated and are configured to automatically test high-performance units, the need to improve the accuracy and stability of signal generation and measurement will increase proportionally. To meet these tighter frequency and time requirements, the 3351 provides either a high-stability oven oscillator (<5 x 10^{-10} per day) or an ultra-stable rubidium oscillator (<5 x 10^{-11} per month).
The Option 01T interface controls the 1260-39, using both register-based and message-based operation. Refer to the applicable Option 01T data sheet for specifications and product features such as include, exclude, and scan lists, relay coil-current monitoring, and user-defined path names and reset states.

High-Level Frequency Stability
As defined by the VXIbus specification, the Slot 0 Controller provides a common 10 MHz clock source CLK10 which is distributed on the VXIbus backplane. However, the minimum accuracy of this clock is 100 ppm (or <1 x 10^{-4}) which is not adequate for demanding test and measurement applications in the RF or time generation environment. Use of a high-stability rubidium or ovenized reference can improve the repeatability and accuracy of sophisticated measurements by a factor of up to 2500 per month.

Flexibility
Independent buffering allows the three outputs to be used simultaneously with no reduction in output performance. This permits its use as a precision frequency standard and as a frequency distribution system. For satellite and telemetry applications, a one pulse per second (PPS) output may be substituted for one of the standard frequency outputs.

Locks With VXIbus and Other Instruments
The three outputs of the 3351 may be used to lock IEEE-STD-488 and other rack-and-stack instruments residing outside the VXIbus chassis to the high-stability reference. Or, one of the outputs may be connected directly to the External Device Reference Input on a VXIbus module or a Slot 0 Controller. The Reference Input on Racal Instruments 1260-00C Slot 0 or National Instruments embedded controller automatically locks the CLK10 to the higher accuracy reference of the 3351. All instruments that use CLK10 on the VXIbus are then automatically locked to this higher stability oscillator.

EADS NORTH AMERICA DEFENSE

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3351 PRODUCT SPECIFICATIONS

OUTPUT CHARACTERISTICS

Channels
3

Frequency Choices
Standard: 1 MHz, 5 MHz and 10 MHz
Option 10 M: 10 MHz on 3 channels

Amplitude
900 mV_{rms} (min.) into 50 Ω

TIMEBASE CHARACTERISTICS
(3351E Ovenized Oscillator)

Temperature Stability (0^0 to 50^0 C)
±7 ppb

Short Term Stability
30 min. Warm Up: 0.5 ppb_{rms}
5 hr. Warm Up: 0.05 ppb_{rms}

Aging Rate (at shipment)
Short Term: 0.5 ppb/day
Medium Term: 10 ppb/3 mos.
Long Term: 200 ppb/year

Retrace
30 min. Warm Up: 0.02 ppb
5 hr. Warm Up: 0.01 ppb

Trim Range
Fine: ±0.1 ppm
Coarse: ±1 ppm

TIMEBASE CHARACTERISTICS
(3351R Rubidium Oscillator)

Accuracy (after 4 min. @ 25º C)
1 ppb/year

Aging Rate (after warm up)
Short Term: 0.04 ppb/day
Medium Term: 0.05 ppb/mo.

Retrace (after 1 hr. @ 25º C)
0.02 ppb

Trim Range
±1 ppb

Trim Setable Resolution
0.01 ppb

FRONT PANEL I/O

Inputs
+24 V Standby: BNC (3351R only)

Outputs (Channels 1-3, BNC, 50 Ω)
Default: 1 MHz, 5 MHz, 10 MHz
Option 10M: Chan. 1-3 are 10 MHz

OPTIONS

Option 01: 1 PPS Output
One of the output channels is replaced by a 1 pulse/s reference.

Option 10M
10 MHz Output on all 3 Channels

VXIBUS INTERFACE DATA
(Dual slot, message-based, VXIbus 1.4 Compliant)

Status Lights
Red: Fail Self-Test
Green: Output On (Each Channel)
Green: Rubidium Std. Locked (3351R)

Peak Current & Power Consumption

	+24 V	+5 V	24 V	+5 Vstby
Ipm(A, 3351E)	0.0	3.0	0.1	0.75
Ipm(A, 3351R)	2.0	2.3	0.1	0.0

Total Power (3351E): 21 Watts (3351R): 62 Watts

ENVIRONMENTAL

Temperature
Operating (3351E): 0º C to 50º C
Operating (3351R): 0º C to 55º C
Storage: -40º C to +70º C

Weight
6 lbs. (2.7 kg)

EMC (Council Directive 89/336/EEC)
EN55011, Group 1, Class A
EN50082-1, IEC 801-2,3,4

Safety (Low Voltage Directive 73/23/EEC)
EN61010-1, IEC1010-1, UL3111-1, CSA22.2#1010

The CE Mark indicates that the product has completed and passed rigorous testing in the area of RF Emissions, Immunity to Electromagnetic Disturbances and complies with European electrical safety standards.

ORDERING INFORMATION

MODEL/DESCRIPTION	PART NUMBER
Racal Instruments 3351E/10M, 3351E with Option 10 M (all Outputs 10 MHz)	404947-003
Racal Instruments 3351ER/10M, 3351R with Option 10 M (All Outputs 10 MHz)	404946-003

The EADS North America Defense Test and Services policy is one of continuous development, consequently the equipment may vary in detail from the description and specification in this publication.

EADS North America Defense Test and Services
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