

Rubidium Frequency Standard

AR133A-03

High Stability Under Vibration

Key Features

- ❖ Long-term-stability: $5E-11$ /month
- ❖ Short term stability: $< 1E-11$ @ 1s
(option) Phase noise: -160dBc/Hz floor
Outputs: 10MHz and 1PPS
- ❖ Supply voltage: 15 VDC
- ❖ Steady state power $< 8W$
- ❖ Size: 77mm x 77mm x 49.65 mm
- ❖ Vibration isolated



Description

The AR133A-03 is a ruggedized version of Rubidium Frequency Standard model AR133A which is designed for airborne applications. A vibration isolator included in the AR133A-03 enables the unit to maintain high frequency stability and accuracy in vibration environments such as airborne platforms.

The unit features very fast warm-up and could be disciplined to an external 1PPS from GPS or other sources. It is one of the smallest, high performance disciplined rubidium frequency standards available today. The AR133A is comprised of a unique *DFLL (Digital Frequency Lock Loop)* where a high performance crystal oscillator is locked to the rubidium atomic line using an embedded microprocessor and a special patented algorithm.

Applications

- ❖ Secure Communication
- ❖ ELINT
- ❖ C4I



BIT and Remote Control

Built In Test (BIT)

The Built In Test detects > 95% of all failures.
 Detected via pin number 3 in the D Type connector - open collector (10mA max).
 High impedance = BIT Fail; short to ground = BIT Pass & Lock.
 BIT also is obtained also via the serial communication (see software ICD)

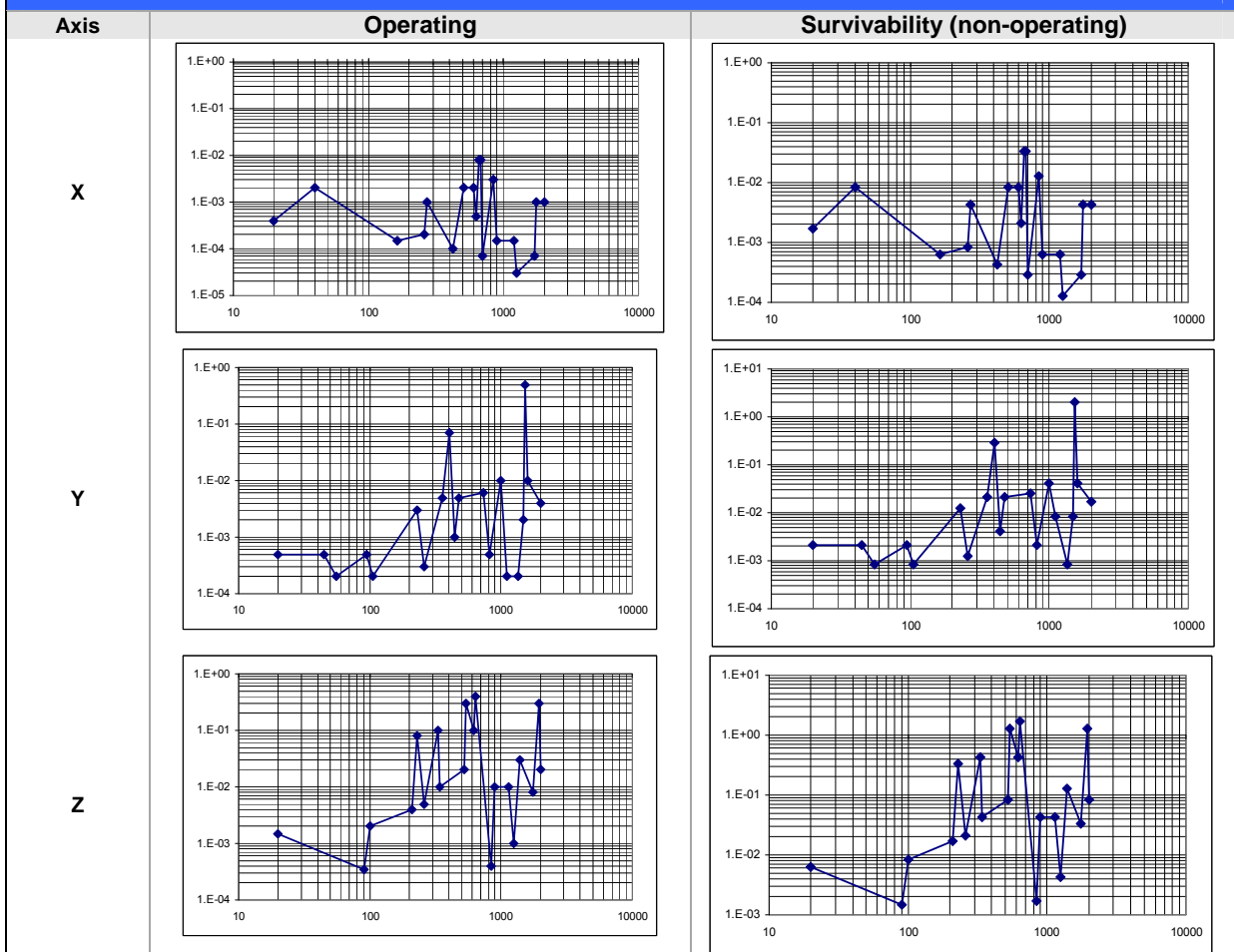
Environmental

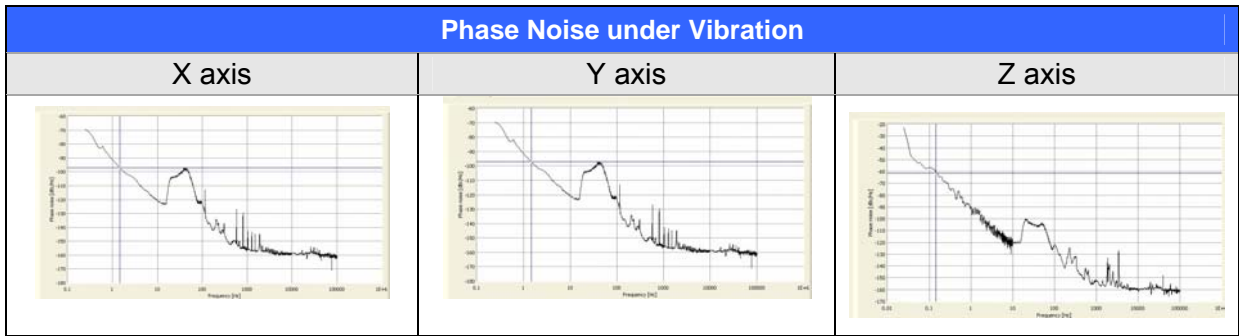
Operating Temperature	-20°C to +65 °C
Storage Temperature	-40°C to +85°C
Humidity	95% at 35°C, non-condensing
Acceleration	9g operation, 17g non-operating
Vibration	See graphs below

Vibration Levels (g RMS)

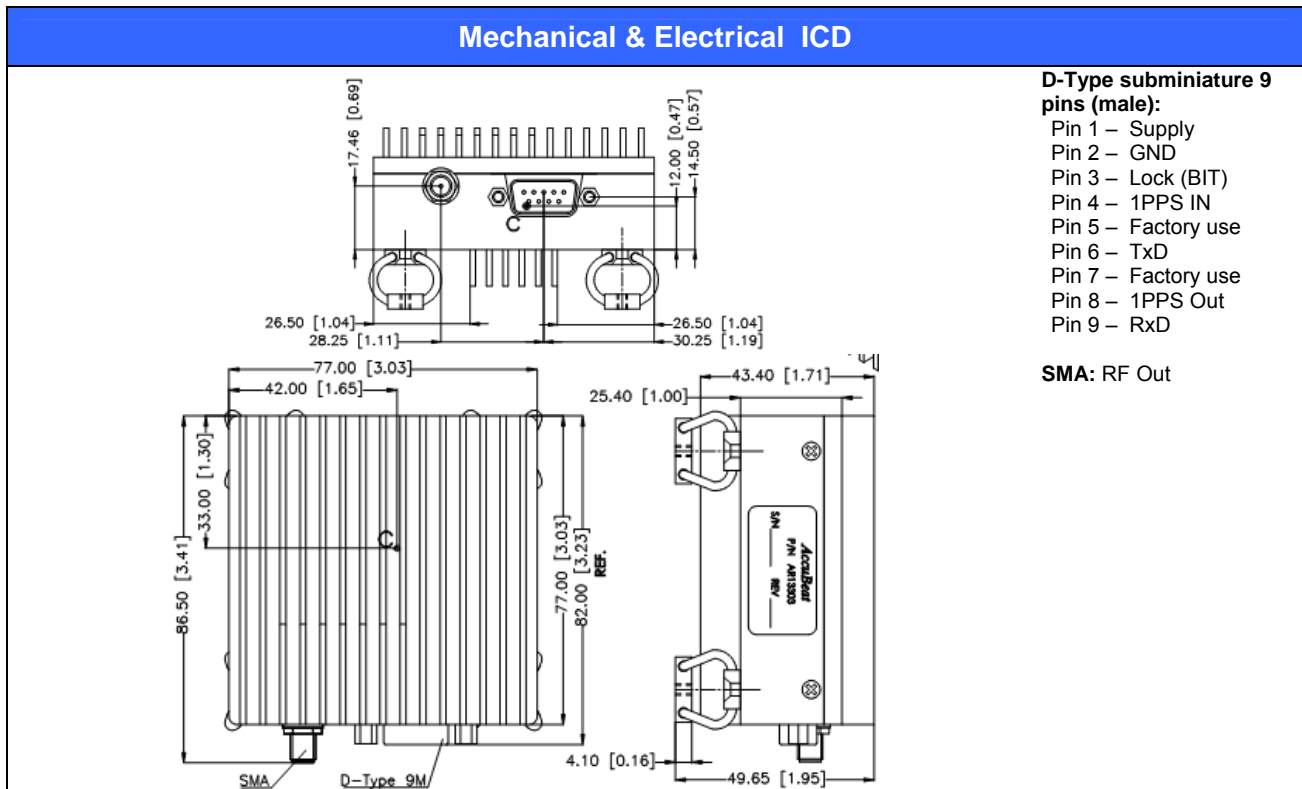
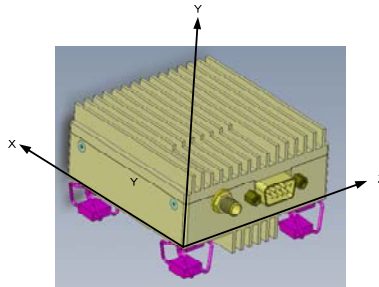
Axis	Operation	Survivability
X	1.1079	2.2713
Y	4.5346	9.2958
Z	8.376	17.1708

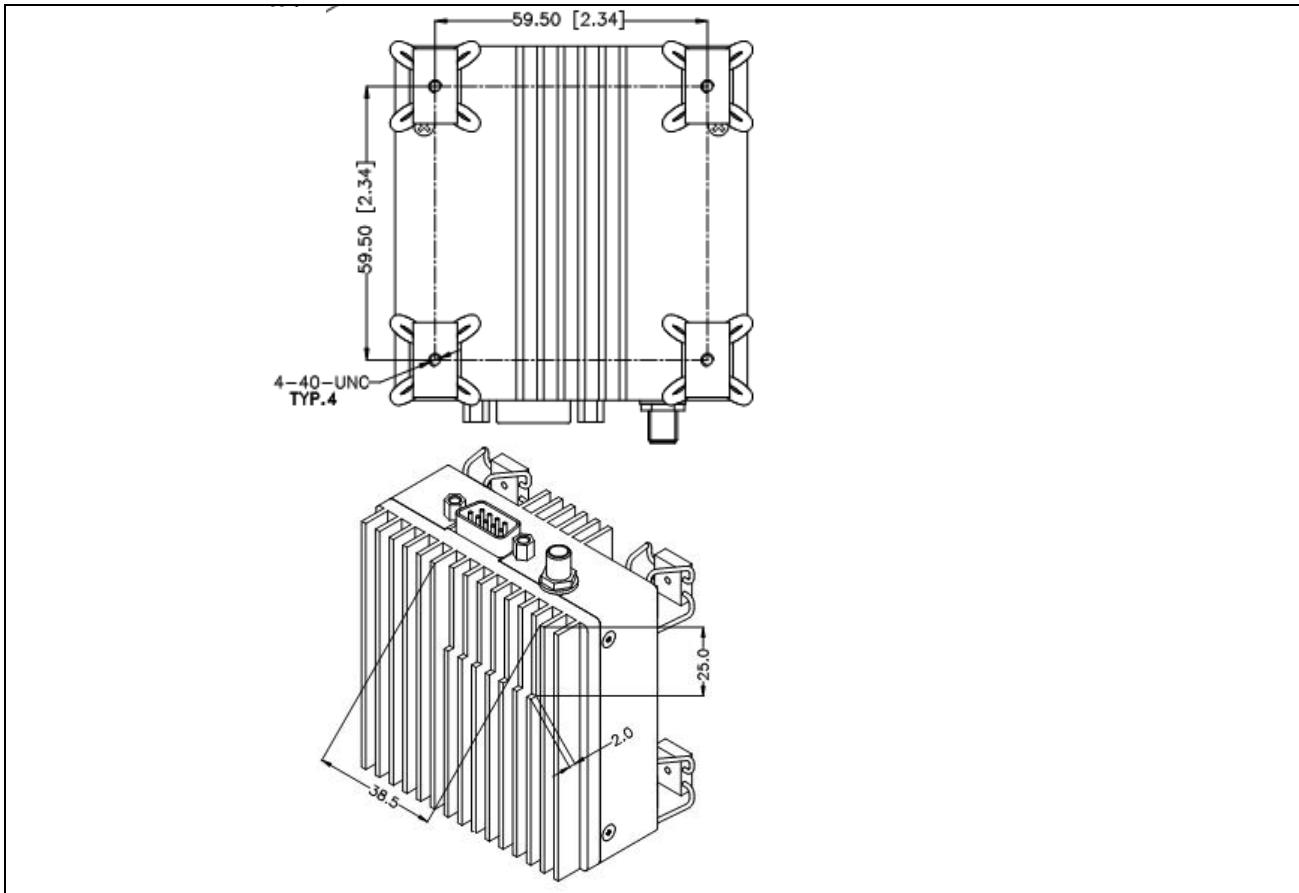
Vibration Profiles





(*) The above plots are measurement results obtained with one of the units.





HOW TO ORDER

Description	AccuBeat P/N	Note
Improved	AR13303	AR133A-03 WITH VIBRATION ISOLATOR & IMPROVED ADEV
Standard	AR13303-01	AR133A-03 WITH VIBRATION ISOLATOR, STANDARD PERFORMANCES

ACCESSORIES (OPTION)

Description	AccuBeat P/N	Note
GUI (Graphic User Interface)	SW50029	CUSTOMER GUI FOR AR133A
OPERATION CABLE	AC50549	OPERATION CABLE FOR AR133A WITH RS232 COM.