

Portable Atomic Clock for Time & Frequency Dissemination

The **AR50-05** is a portable Rubidium Atomic Clock designed for dissemination of Time and Frequency. This capability is most needed under GPS denial scenarios. The AR50-05 loads accurate time & frequency from an external source, maintains it and disseminates it to the destination clock.



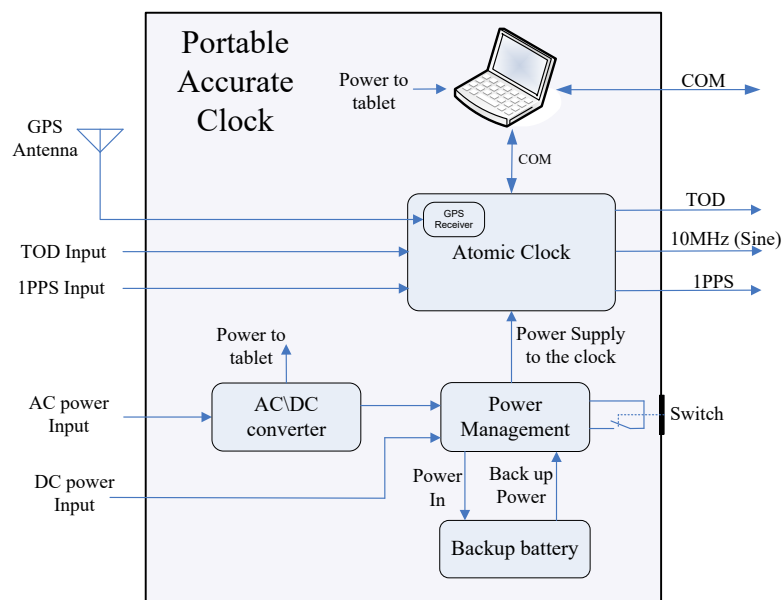
Key Features

- Portable Rubidium Atomic Clock
- Internal rechargeable backup battery
- Power supply: 110/220 VAC (50 / 60Hz), Car lighter DC voltage
- Outputs:
 - TOD: Have Quick, IRIG B (AM)
 - 1PPS
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 - 1PPS
 - GPS active antenna

Description

The AR50-05 comes fully equipped with a set of cables and will operate from either AC power, DC power or with an internal backup battery. When connecting the case to an external power supply the internal backup battery is charged. When no external power is available, the backup battery automatically supplies power to the case, thereby ensuring that the Atomic Clock is always with power and there is no break in operation. The AR50-05 comes with a ruggedized tablet and a user-friendly GUI which requires no previous knowledge. The AR50-05 can be operated by a single technician.

**Portable case –
block diagram**



All specs are @ 25°C, quiescent conditions and sea level ambient unless otherwise specified

Specifications		
Performance	Aging	5E-11 / month
	Frequency Accuracy Vs. temperature	±1E-10 over temperature range
Power Supply Inputs		<ul style="list-style-type: none"> ▪ 220 / 110 VAC (50/60Hz) ▪ 13.5-32 VDC (If the DC source is from a vehicle, then the engine must be running)
Disciplined to GPS or to an external synchronization source		50ns RMS @ 25°C (Typical: 30ns RMS) After 4 hours of continues disciplining
Internal back up battery (please see maintenance instructions in the user manual)		Internal rechargeable battery <ul style="list-style-type: none"> • Minimum 6 hours backup (at shipment ,after full charging) • Minimum 4 hours backup (after 1,000 charging and discharging cycles – estimation, after full charging)

TOD protocols (inputs and outputs)	
IRIG	IRIG B (AM)
Have Quick	Have Quick (ICD GPS 060)

1PPS (inputs and outputs)	
1PPS inputs	1 x TTL @ 50Ω
1PPS outputs	1 x PTTI (ICD GPS 060) 1 x TTL@ 50Ω
10MHz output	10MHz, sine output (option)

Power consumption	
Maximum / Power up	≤ 75 W (internal clock on power up, full charging of the internal backup battery)
Steady state @ 25°C	≤ 35 W (steady state for the internal clock, back up battery if full charged)

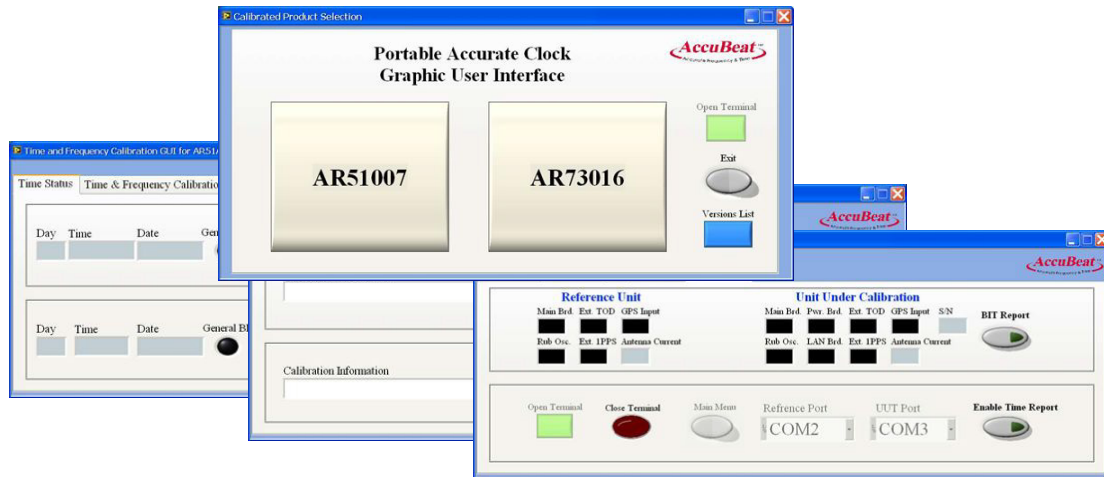
Environmental	
Temperature (operation)	-10°C to 40°C
Temperature (storage)	-25°C to 61°C
Transportation Vibration	Mil STD 810G, Meth 514.6, Cat 4

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Standard Product Specifications

GUI

Operational GUI which runs on the tablet, manages the synchronization process.



Tablet

8.1" touch screen tablet
No camera, BT or WiFi elements

Mechanical dimensions

Width

569 mm

High

155 mm

Depth

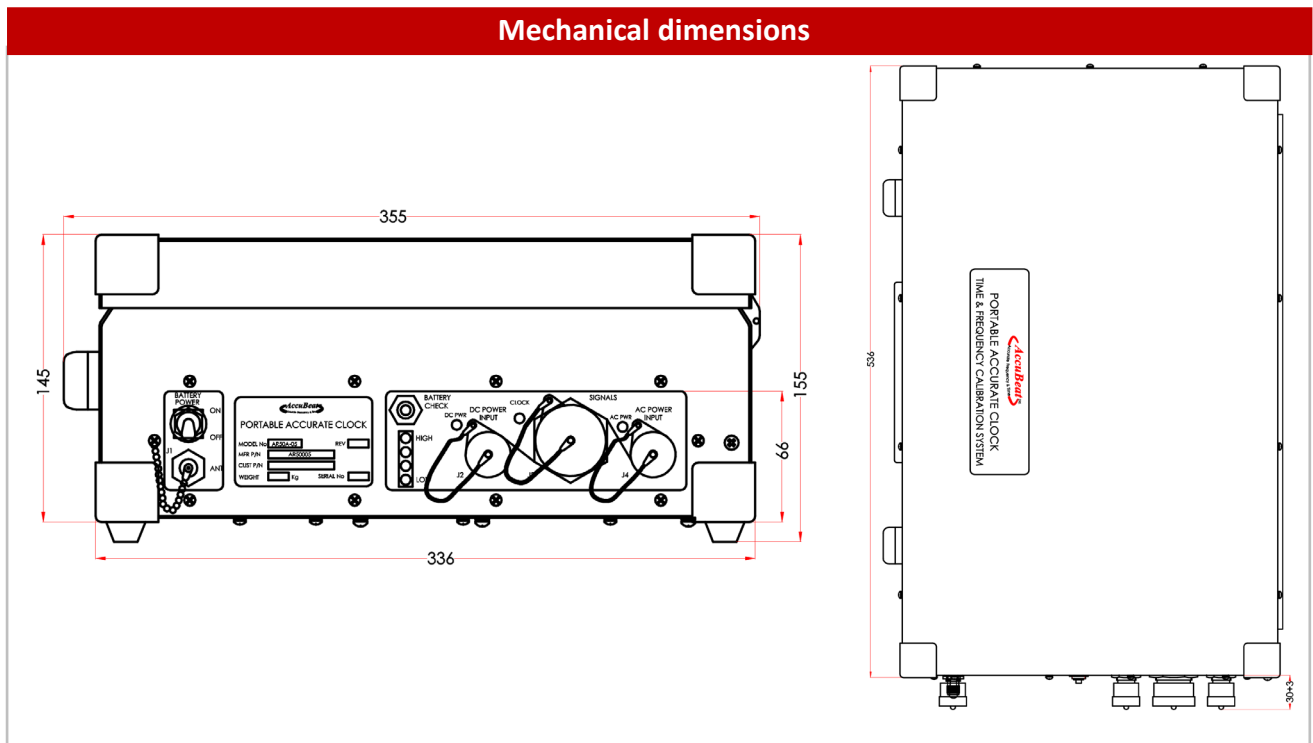
355 mm

Weight

13 Kg ± 0.5kg



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Cables list (included within the PAC)

AccuBeat P/N	Description	Comments
EM30087	GPS antenna & cable, (3 meter cable length)	L1 magnetic antenna, 26dB gain Active antenna (the DC operation power supplies from the PAC)
AC50586	Vehicle DC power cable (2 meter cable length)	Connector D38999 3 pins to vehicle power plug
AC50583	AC power cable (1.8 meter cable length)	Connector D38999 3 pins to AC connector (Israeli plug)
AC50601	Signals cable (3 meter cable length)	Connector D38999 55 pins to D38999 55 pins & 3 x TNC connectors

How to Order

AccuBeat P/N	Description	Supported AccuBeat's clocks
AR50005	PORTABLE ACCURATE TIME & FREQUENCY DISSEMINATION SYSTEM	AR51A-07-05 AR73A-16-00 AR76RA1-G0A00B AR78RCA-1C0A00B AR78RCA-1BA0001

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AR50-05 DATA SHEET 6/23

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