

South America Atomic Clock Market Forecast to 2028 – COVID-19 Impact and Regional Analysis – by Type (Rubidium Atomic Clock and CSAC, Cesium Atomic Clock, and Hydrogen Maser Atomic Clock) and Application (Space and Military/Aerospace, Scientific and Metrology Research, Telecom and Broadcasting, and Other Applications)

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Abstracts

The South America atomic clock market is expected to grow from US\$ 24.80 million in 2022 to US\$ 33.09 million by 2028. It is estimated to grow at a CAGR of 4.9% from 2022 to 2028.

Atomic Clocks based on Optical Lattices of Strontium, Ytterbium and Gadolinium Atoms will be Driving the South America Atomic Clock Market

Atomic clocks operate at a much higher rate than microwave clocks, which is why many researchers are exploring their potential with new rare earth alkaline elements, such as ytterbium, strontium, and gadolinium. The Sr-grid clock is viewed as the world's steadiest nuclear optical clock. It has an accuracy timekeeping component, which depends on a narrow electronic transition in Sr atoms trapped inside an optical lattice to separate both the internal and external atomic degrees of freedom during the clock's measurement. An optical atom clock's primary feature is that a relatively large number of quantum frequency references (QFRs) are used simultaneously (~104), resulting in a high signal-to-noise ratio. Thus, leading to short-term stability, which is higher than that obtainable with single ion-based optical atomic clocks.

Further, physicists have combined two experimental atomic clocks based on ytterbium

atoms at the National Institute of Standards and Technology (NIST) to set another world record for clock stability. In nature photonics, the experiment demonstrating the double-clock design is reported. Thus, atomic clocks based on optical lattices of atoms of strontium, ytterbium, and gadolinium are among the major trends expected to propel the growth of the South America atomic clock market during the forecast period.

South America Atomic Clock Market Overview

The South America atomic clock market is further segmented into Brazil, Argentina, and the Rest of South America. South America is characterized by a mixed growth scenario, with a few countries showcasing complex macroeconomic and political environments. Despite many challenges, government-led positive initiatives help most economies in this region grow at a reasonable pace over the forecast period. Brazil, Argentina, Chile, and Peru are among the SAM countries making substantial investments in infrastructure and industrial development. In 2019, 3,319,361 vehicle units were produced in South America. In addition to the growing vehicle production and rising investments by vehicle OEMs in their expansion in the region, the escalating use of atomic clocks in telecommunications, navigation, etc., is contributing to the SAM atomic clock market growth in South America. A few of the popular atomic clock suppliers operating in SAM are DEX International – Denise, and VS-IMPOTRACAO & EXPORTACAO. Further, Brazil leads the South America atomic clock market. For research and technological development, the construction and usage of atomic clocks in Brazil is fundamental. Further, in the National Observatory, Rio de Janeiro, there are more than 300 atomic clocks, which are spread over 50 countries, including Brazil, indicates the official time across the globe.

South America Atomic Clock Market Revenue and Forecast to 2028 (US\$ Million)

South America Atomic Clock Market Segmentation

The South America atomic clock market is segmented into type, application, and country.

Based on type, the South America atomic clock market is segmented into rubidium atomic clock and CSAC, cesium atomic clock, and hydrogen maser atomic clock. In 2022, the rubidium atomic clock and CSAC segment registered a largest share in the South America atomic clock market.

Based on application, the South America atomic clock market is segmented into space and military/aerospace, scientific and metrology research, telecom and broadcasting, and other applications. In 2022, space and military/aerospace segment registered a largest share in the South America atomic clock market.

Based on country, the South America atomic clock market is segmented into Brazil, Argentina, the Rest of South America. In 2022, Brazil segment registered a largest share in the Asia Pacific atomic clock market.

Excelitas Technologies Corp; IQD Frequency Products Ltd; Leonardo SpA; Microchip Technology Inc; Oscilloquartz SA; Stanford Research Systems Inc; and Tektron International Ltd are the leading companies operating in the South America atomic clock market.

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