

Timing Devices Market by Type (Oscillators, Atomic Clocks, Clock Generators, Clock Buffers, Jitter Attenuators), Material (Crystal, Silicon, Ceramic), Vertical (Consumer Electronics, Automotive) and Region - Global Forecast to 2030

<https://marketpublishers.com/r/T185DE622CEEN.html>

Date: September 2023

Pages: 239

Price: US\$ 4,950.00 (Single User License)

ID: T185DE622CEEN

Abstracts

The timing devices market is projected to grow from USD 5.5 billion in 2023 and is projected to reach USD 8.9 billion by 2030; it is expected to grow at a CAGR of 7.1% from 2023 to 2030.

The advancements in the telecommunications industry, rising adoption of timing devices in smartphones and smart wearables has paved way for their growth in recent years. However, Compatibility and integration issues associated with timing devices is limiting the growth of the timing devices market.

“Telecommunications and networking vertical segment of the timing devices market to hold second largest market share during the forecast period.”

Oscillators, clock generators, and jitter attenuators play a major role in telecommunications and networking industry vertical. This industry is rapidly growing with the increasing deployment of 5G networks and the introduction of 6G networks. The deployment of 5G/6G networks has resulted in an increase in the number of telecom base stations, communication devices, and other communication infrastructure products in recent years. The number of timing components used for networking and telecommunications varies from 8 to 15 per base station, and even more in some cases. The number of crystals used in base stations varies from 8 to 10 per base station.

“Crystal Oscillators to account for the largest share of the timing devices market for

oscillators during the forecast period.” Crystal oscillators are expected to account for the largest share of the timing devices market for oscillators during the forecast period. Crystal oscillators provide high accuracy and stability in generating clock signals. The inherent properties of quartz crystals make them excellent frequency references, ensuring minimal frequency drift over time. Crystal oscillators generally exhibit low levels of jitter and phase noise, making them suitable for applications that demand clean clock signals for data integrity and system performance. Crystal oscillators are used in a wide range of applications, including consumer electronics, telecommunications, industrial automation, automotive systems, aerospace, and more. Crystal oscillators are compatible with various integrated circuits (ICs) and components, making them versatile for use with a wide range of electronic devices.

“TCXOs to exhibit highest growth for the timing devices market for crystal oscillators type during forecast period”

Temperature-compensated crystal oscillators (TCXOs) to exhibit highest growth for the timing devices market for crystal oscillators type during forecast period. TCXOs are specifically designed to be able to handle large variations in ambient temperature. TCXOs are cost-effective, consume less power, and offer a good mid-range solution to power and cost-sensitive applications. These oscillating crystals start up rapidly, require little power, and are compact, which makes them ideal for use in handheld, battery-powered communications devices. These oscillators have applications in mobile phones, wireless equipment, satellite communication, GPS, coaxial cable communication, fiber optics communication, portable telephones, cellular radios, and others.

“North America to witness significant growth for the timing devices market during the forecast period” North America is projected to exhibit significant growth for the timing devices market during the forecast period. It is the second-largest market for timing devices. The government in the region has provided a conducive environment for conducting research and innovations in terms of advancing technologies. The augmented R&D capabilities are providing new opportunities for the adoption of timing devices in various industries such as consumer electronics, automotive, and healthcare. Hence, the demand for timing devices in North America is likely to grow in the near future.

In the process of determining and verifying the market size for several segments and subsegments gathered through secondary research, extensive primary interviews have been conducted with key industry experts in the timing devices market space. The

break-up of primary participants for the report has been shown below: By Company Type: Tier 1 – 40%, Tier 2 – 40%, and Tier 3 – 20% By Designation: C-level Executives – 40%, Directors – 40%, and Others – 20% By Region: North America – 30%, Asia Pacific – 40%, Europe – 20%, and RoW – 10%

The report profiles key players in timing devices market with their respective market ranking analysis. Prominent players profiled in this report include Seiko Epson Corporation (Japan), Nihon Dempa Kogyo Co., Ltd. (Japan), TXC Corporation (Taiwan), Kyocera Corporation (Japan), Rakon Limited (New Zealand), Renesas Electronics Corporation (Japan), Infineon Technologies AG (Germany), Microchip Technology Inc. (US), Texas Instruments (US), Abracon (US), IQD Frequency Products Ltd. (UK), NXP Semiconductors N.V. (Netherlands), STMicroelectronics (Switzerland), SiTime Corporation (US), MtronPTI (US), CTS Corporation (US), Diodes Incorporated (US), ON Semiconductor (US), Crystek Corporation (US), Greenray Industries, Inc. (US), Frequency Electronics, Inc. (US), Oscilloquartz (Switzerland), AccuBeat Limited (Israel), Connor-Winfield Corporation (US), Mercury Electronic Ind. Co., Ltd. (Taiwan) .

Research Coverage: This research report categorizes the timing devices market on the basis of type, material, vertical and region. The report describes the major drivers, restraints, challenges, and opportunities pertaining to the timing devices market and forecasts the same till 2030. Apart from these, the report also consists of leadership mapping and analysis of all the companies included in the timing devices market ecosystem.

Key Benefits of Buying the Report The report will help the market leaders/new entrants in this market with information on the closest approximations of the revenue numbers for the overall timing devices market and the subsegments. This report will help stakeholders understand the competitive landscape and gain more insights to position their businesses better and to plan suitable go-to-market strategies. The report also helps stakeholders understand the pulse of the market and provides them with information on key market drivers, restraints, challenges, and opportunities.

The report provides insights on the following pointers:

Analysis of key drivers (Increasing adoption of advanced automotive electronics, Surge in the demand for healthcare and medical equipment, Advancements in the telecommunications industry, Rising adoption of timing devices in smartphones and smart wearables), restraints (Compatibility and integration issues associated with timing devices, High development costs of timing

devices), opportunities (Growing need for high-precision timing and frequency stability due to network densification, Rising need for electronic device miniaturization, improved performance, and increased functionality, Augmented global demand for networking applications) and challenges (Difficulty in achieving customizations and small form factors) influencing the growth of the timing devices market.

Product Development/Innovation: Detailed insights on upcoming technologies, research & development activities, and new product & service launches in the timing devices market.

Market Development: Comprehensive information about lucrative markets – the report analyses the timing devices market across varied regions

Market Diversification: Exhaustive information about new products & services, untapped geographies, recent developments, and investments in the timing devices market.

Competitive Assessment: In-depth assessment of market shares, growth strategies and service offerings of leading players like Seiko Epson Corporation (Japan), Nihon Dempa Kogyo Co., Ltd. (Japan), TXC Corporation (Taiwan), Kyocera Corporation (Japan), Rakon Limited (New Zealand), among others in the timing devices market.

Contents

1 INTRODUCTION

1.1 STUDY OBJECTIVES

1.2 MARKET DEFINITION

1.2.1 INCLUSIONS AND EXCLUSIONS

1.3 STUDY SCOPE

1.3.1 MARKETS COVERED

FIGURE 1 TIMING DEVICES MARKET: SEGMENTATION

1.3.2 REGIONAL SCOPE

1.3.3 YEARS CONSIDERED

1.4 CURRENCY CONSIDERED

1.5 VOLUME UNIT CONSIDERED

1.6 STAKEHOLDERS

1.7 SUMMARY OF CHANGES

1.8 RECESSION IMPACT ANALYSIS

FIGURE 2 GDP GROWTH PROJECTION TILL 2023 FOR MAJOR ECONOMIES

2 RESEARCH METHODOLOGY

2.1 RESEARCH DATA

FIGURE 3 TIMING DEVICES MARKET: RESEARCH DESIGN

2.1.1 SECONDARY DATA

2.1.1.1 List of key secondary sources

2.1.1.2 Secondary sources

2.1.2 PRIMARY DATA

2.1.2.1 List of key primary interview participants

2.1.2.2 Breakdown of primaries

2.1.3 SECONDARY AND PRIMARY RESEARCH

2.1.3.1 Key industry insights

2.2 MARKET SIZE ESTIMATION

FIGURE 4 MARKET SIZE ESTIMATION METHODOLOGY: REVENUE OF MARKET PLAYERS

2.2.1 BOTTOM-UP APPROACH

2.2.1.1 Approach to estimate market size using bottom-up analysis (demand side)

FIGURE 5 MARKET SIZE ESTIMATION METHODOLOGY: BOTTOM-UP APPROACH

2.2.2 TOP-DOWN APPROACH

2.2.2.1 Approach to estimate market size using top-down analysis
(supply side)

FIGURE 6 MARKET SIZE ESTIMATION METHODOLOGY: TOP-DOWN APPROACH

2.3 MARKET BREAKDOWN AND DATA TRIANGULATION

FIGURE 7 DATA TRIANGULATION

2.4 RESEARCH ASSUMPTIONS

2.5 RISK ASSESSMENT

2.5.1 IMPACT OF RECESSION

2.6 RESEARCH LIMITATIONS

3 EXECUTIVE SUMMARY

3.1 MARKET GROWTH FORECAST

FIGURE 8 ATOMIC CLOCKS TO EXHIBIT HIGHEST CAGR IN TIMING DEVICES
MARKET, BY TYPE, DURING FORECAST PERIOD

FIGURE 9 AUTOMOTIVE SEGMENT TO RECORD FASTEST GROWTH IN TIMING
DEVICES MARKET, BY VERTICAL, FROM 2023 TO 2030

FIGURE 10 CRYSTAL-BASED TIMING DEVICES TO LEAD MARKET, BY MATERIAL,
DURING FORECAST PERIOD

FIGURE 11 ASIA PACIFIC TO BE FASTEST-GROWING MARKET FOR TIMING
DEVICES DURING FORECAST PERIOD

4 PREMIUM INSIGHTS

4.1 MAJOR OPPORTUNITIES FOR PLAYERS IN TIMING DEVICES MARKET

FIGURE 12 INCREASED DEMAND FROM CONSUMER ELECTRONICS AND
AUTOMOTIVE VERTICALS TO FUEL MARKET GROWTH

4.2 TIMING DEVICES MARKET, BY TYPE

FIGURE 13 OSCILLATORS TO DOMINATE TIMING DEVICES MARKET IN 2030

4.3 TIMING DEVICES MARKET, BY VERTICAL

FIGURE 14 CONSUMER ELECTRONICS TO BE LARGEST MARKET SEGMENT IN
2030

4.4 TIMING DEVICES MARKET, BY MATERIAL

FIGURE 15 MARKET FOR SILICON TO GROW AT HIGHEST CAGR FROM 2023 TO
2030

4.5 TIMING DEVICES MARKET IN ASIA PACIFIC, BY VERTICAL AND COUNTRY

FIGURE 16 CONSUMER ELECTRONICS VERTICAL AND CHINA ACCOUNTED FOR
LARGEST SHARES OF TIMING DEVICES MARKET IN 2022

4.6 TIMING DEVICES MARKET, BY COUNTRY

FIGURE 17 TIMING DEVICES MARKET IN CHINA TO EXHIBIT HIGHEST CAGR DURING FORECAST PERIOD

5 MARKET OVERVIEW

5.1 INTRODUCTION

5.2 MARKET DYNAMICS

FIGURE 18 TIMING DEVICES MARKET: DRIVERS, RESTRAINTS, OPPORTUNITIES, AND CHALLENGES

5.2.1 DRIVERS

5.2.1.1 Increasing adoption of advanced automotive electronics

FIGURE 19 GLOBAL VEHICLE PRODUCTION, 2017–2022 (MILLION UNITS)

5.2.1.2 Surge in demand for healthcare and medical equipment

5.2.1.3 Advancements in telecommunications industry

5.2.1.4 Rising adoption of timing devices in smartphones and smart wearables

FIGURE 20 DRIVERS FOR TIMING DEVICES MARKET AND THEIR IMPACT

5.2.2 RESTRAINTS

5.2.2.1 Compatibility and integration issues associated with timing devices

5.2.2.2 High development costs of timing devices

FIGURE 21 RESTRAINTS FOR TIMING DEVICES MARKET AND THEIR IMPACT

5.2.3 OPPORTUNITIES

5.2.3.1 Growing need for high-precision timing and frequency stability due to network densification

5.2.3.2 Rising demand for miniature electronic devices with improved performance and advanced features

5.2.3.3 Augmenting global demand for networking applications

FIGURE 22 OPPORTUNITIES FOR TIMING DEVICES MARKET AND THEIR IMPACT

5.2.4 CHALLENGES

5.2.4.1 Difficulties in designing timing devices for customized applications requiring small form factors

FIGURE 23 CHALLENGES FOR TIMING DEVICES MARKET AND THEIR IMPACT

5.3 VALUE CHAIN ANALYSIS

5.3.1 VALUE CHAIN ANALYSIS OF TIMING DEVICES

FIGURE 24 TIMING DEVICES MARKET: VALUE CHAIN ANALYSIS, 2022

5.4 ECOSYSTEM MAPPING

FIGURE 25 ECOSYSTEM ANALYSIS

TABLE 1 ROLE OF PARTICIPANTS IN ECOSYSTEM

5.5 TRENDS AND DISRUPTIONS IMPACTING CUSTOMER BUSINESS

FIGURE 26 REVENUE SHIFTS AND NEW REVENUE POCKETS FOR MARKET

PLAYERS

5.6 TECHNOLOGY ANALYSIS

5.6.1 KEY TECHNOLOGIES

5.6.1.1 Green crystal technology

5.6.1.2 Bulk acoustic wave (BAW) resonators and surface acoustic wave (SAW) resonators

5.6.1.3 Chip-scale atomic clock (CSAC)

5.6.2 ADJACENT TECHNOLOGIES

5.6.2.1 Quantum-secure timing systems

5.6.2.2 Integration with IoT and Edge computing

5.7 PORTER'S FIVE FORCES ANALYSIS

TABLE 2 TIMING DEVICES MARKET: PORTER'S FIVE FORCES ANALYSIS

FIGURE 27 TIMING DEVICES MARKET: PORTER'S FIVE FORCES ANALYSIS

5.7.1 INTENSITY OF COMPETITIVE RIVALRY:

5.7.2 BARGAINING POWER OF SUPPLIERS:

5.7.3 BARGAINING POWER OF BUYERS:

5.7.4 THREAT OF SUBSTITUTES:

5.7.5 THREAT OF NEW ENTRANTS:

5.8 KEY STAKEHOLDERS AND BUYING CRITERIA

5.8.1 KEY STAKEHOLDERS IN BUYING PROCESS

FIGURE 28 KEY STAKEHOLDERS IN BUYING PROCESS

TABLE 3 INFLUENCE OF STAKEHOLDERS ON BUYING PROCESS, BY VERTICAL (%)

5.8.2 BUYING CRITERIA

FIGURE 29 KEY BUYING CRITERIA, BY VERTICAL

TABLE 4 KEY BUYING CRITERIA, BY VERTICAL

5.9 CASE STUDY ANALYSIS

5.9.1 TIMING DEVICES FOR TELECOMMUNICATIONS APPLICATIONS

5.9.2 TIMING DEVICES FOR INDUSTRIAL APPLICATIONS

5.9.3 TIMING DEVICES FOR AUTOMOTIVE APPLICATIONS

5.9.4 TIMING DEVICES FOR MILITARY APPLICATIONS

5.9.5 TIMING DEVICES FOR TEST & MEASUREMENT APPLICATIONS

5.10 TRADE ANALYSIS

5.10.1 IMPORT SCENARIO

5.10.1.1 Import scenario for mounted piezoelectric crystals

TABLE 5 IMPORT DATA FOR HS CODE 854160, BY COUNTRY, 2018–2022 (USD MILLION)

5.10.2 EXPORT SCENARIO

5.10.2.1 Export scenario for mounted piezoelectric crystals

TABLE 6 EXPORT DATA FOR HS CODE 854160, BY COUNTRY, 2018–2022 (USD MILLION)

5.11 TARIFF ANALYSIS

TABLE 7 TARIFF FOR MOUNTED PIEZOELECTRIC CRYSTALS EXPORTED BY US, 2023

TABLE 8 TARIFF FOR MOUNTED PIEZOELECTRIC CRYSTALS EXPORTED BY CHINA, 2023

TABLE 9 TARIFF FOR MOUNTED PIEZOELECTRIC CRYSTALS EXPORTED BY GERMANY, 2023

5.12 PATENT ANALYSIS

TABLE 10 NUMBER OF PATENTS REGISTERED RELATED TO TIMING DEVICES FROM 2013 TO 2022

FIGURE 30 TOP 10 COMPANIES WITH HIGHEST NUMBER OF PATENT APPLICATIONS BETWEEN 2013 AND 2022

FIGURE 31 TIMING DEVICES MARKET PATENTS PUBLISHED BETWEEN 2013 AND 2023

TABLE 11 PATENTS RELATED TO TIMING DEVICES

5.13 KEY CONFERENCES AND EVENTS, 2023–2024

5.14 STANDARDS AND REGULATORY LANDSCAPE

5.14.1 REGULATORY BODIES, GOVERNMENT AGENCIES, AND OTHER ORGANIZATIONS

TABLE 12 NORTH AMERICA: LIST OF REGULATORY BODIES, GOVERNMENT AGENCIES, AND OTHER ORGANIZATIONS

TABLE 13 EUROPE: LIST OF REGULATORY BODIES, GOVERNMENT AGENCIES, AND OTHER ORGANIZATIONS

TABLE 14 ASIA PACIFIC: LIST OF REGULATORY BODIES, GOVERNMENT AGENCIES, AND OTHER ORGANIZATIONS

TABLE 15 ROW: LIST OF REGULATORY BODIES, GOVERNMENT AGENCIES, AND OTHER ORGANIZATIONS

5.14.2 GOVERNMENT REGULATIONS

5.14.2.1 US regulations

5.14.2.1.1 California Consumer Privacy Act

5.14.2.1.2 Anti Cybersquatting Consumer Protection Act

5.14.2.2 EU regulations

5.14.2.2.1 General Data Protection Regulation

5.14.3 STANDARDS

5.14.3.1 CEN/ISO

5.14.3.2 ISO/IEC JTC 1

5.14.3.2.1 ISO/IEC JTC 1/SC 3 1

5.14.3.2.2 ISO/IEC JTC 1/SC 27

5.14.3.2.3 IEC 62595-2-3

5.15 PRICING ANALYSIS

TABLE 16 PRICE OF OSCILLATORS, BY COMPANY

TABLE 17 PRICE OF CLOCK GENERATORS, BY COMPANY

TABLE 18 PRICE OF CLOCK BUFFERS, BY COMPANY

TABLE 19 PRICE OF JITTER ATTENUATORS, BY COMPANY

TABLE 20 PRICE OF RESONATORS, BY COMPANY

TABLE 21 PRICE OF ATOMIC CLOCKS, BY COMPANY

5.15.1 AVERAGE SELLING PRICE OF OSCILLATORS OFFERED BY MARKET PLAYERS, BY TYPE

FIGURE 32 AVERAGE SELLING PRICE OF PRODUCTS OFFERED BY KEY PLAYERS, BY OSCILLATOR TYPE

FIGURE 33 AVERAGE SELLING PRICE OF OTHER PRODUCTS OFFERED BY KEY PLAYERS, BY TYPE

TABLE 22 AVERAGE SELLING PRICE OF PRODUCTS OFFERED BY KEY PLAYERS, BY TYPE

6 TIMING DEVICES MARKET, BY TYPE

6.1 INTRODUCTION

FIGURE 34 OSCILLATORS TO DOMINATE TIMING DEVICES MARKET DURING FORECAST PERIOD

TABLE 23 TIMING DEVICES MARKET, BY TYPE, 2019–2022 (USD MILLION)

TABLE 24 TIMING DEVICES MARKET, BY TYPE, 2023–2030 (USD MILLION)

TABLE 25 TIMING DEVICES MARKET, BY TYPE, 2019–2022 (MILLION UNITS)

TABLE 26 TIMING DEVICES MARKET, BY TYPE, 2023–2030 (MILLION UNITS)

6.2 OSCILLATORS

TABLE 27 OSCILLATORS: TIMING DEVICES MARKET, BY TYPE, 2019–2022 (USD MILLION)

TABLE 28 OSCILLATORS: TIMING DEVICES MARKET, BY TYPE, 2023–2030 (USD MILLION)

TABLE 29 OSCILLATORS: TIMING DEVICES MARKET, BY VERTICAL, 2019–2022 (USD MILLION)

TABLE 30 OSCILLATORS: TIMING DEVICES MARKET, BY VERTICAL, 2023–2030 (USD MILLION)

6.2.1 MEMS OSCILLATORS

6.2.1.1 Case study: Adoption of new MEMS oscillator technology by Oregano Systems

TABLE 31 MEMS OSCILLATORS: TIMING DEVICES MARKET, BY CIRCUITRY TYPE, 2019–2022 (USD MILLION)

TABLE 32 MEMS OSCILLATORS: TIMING DEVICES MARKET, BY CIRCUITRY TYPE, 2023–2030 (USD MILLION)

6.2.1.2 Simple packaged MEMS oscillators

6.2.1.2.1 Cost-effective option for applications wherein extreme accuracy/precision is not primary requirement to drive segment

6.2.1.3 Temperature-compensated MEMS oscillators

6.2.1.3.1 Increasing use in power- and cost-sensitive applications to support segmental growth

6.2.1.4 Voltage-controlled MEMS oscillators

6.2.1.4.1 Growing utilization to synchronize devices and demodulate switchboards to propel segmental growth

6.2.1.5 Frequency select MEMS oscillators

6.2.1.5.1 Integration into Ethernet, fiber channels, servers and storage devices, and HD video systems to boost demand

6.2.1.6 Digitally controlled MEMS oscillators

6.2.1.6.1 High flexibility and outstanding performance offering linear and low-noise solutions to drive market

6.2.1.7 Spread-spectrum MEMS oscillators

6.2.1.7.1 Pressing need to reduce EMI emissions in electronic systems to fuel market growth

6.2.2 CRYSTAL OSCILLATORS

TABLE 33 CRYSTAL OSCILLATORS: TIMING DEVICES MARKET, BY CIRCUITRY TYPE, 2019–2022 (USD MILLION)

TABLE 34 CRYSTAL OSCILLATORS: TIMING DEVICES MARKET, BY CIRCUITRY TYPE, 2023–2030 (USD MILLION)

6.2.2.1 Simple packaged crystal oscillators

6.2.2.1.1 Significant demand from automotive applications to contribute to market growth

6.2.2.2 Temperature-compensated crystal oscillators

6.2.2.2.1 Increasing adoption in mobile phones, wireless equipment, and satellite communication systems to facilitate market growth

6.2.2.3 Voltage-controlled crystal oscillators

6.2.2.3.1 Rising deployment in wireless equipment, synthesizers, and FPGAs to contribute to market growth

6.2.2.4 Frequency-controlled crystal oscillators

6.2.2.4.1 Growing use in automotive and RADAR systems to drive market

6.2.2.5 Oven-controlled crystal oscillators

6.2.2.5.1 Extensive demand from satellite and telecommunications applications to support segment growth

6.2.2.6 Others

6.2.3 CERAMIC OSCILLATORS

6.2.3.1 Advantages such as cost-efficiency, compactness, and reliability to drive segment

6.3 ATOMIC CLOCKS

6.3.1 LARGE-SCALE DEPLOYMENT IN SCIENTIFIC RESEARCH TO PROPEL MARKET

6.3.1.1 Case study: Utilization of Global Navigation Satellite Systems

6.3.1.2 Case study: Deployment of atomic clocks in satellite communications and space exploration applications

TABLE 35 ATOMIC CLOCKS: TIMING DEVICES MARKET, BY VERTICAL, 2019–2022 (USD MILLION)

TABLE 36 ATOMIC CLOCKS: TIMING DEVICES MARKET, BY VERTICAL, 2023–2030 (USD MILLION)

6.4 RESONATORS

6.4.1 INCREASING ADOPTION IN TELECOMMUNICATIONS & NETWORKING TO CONTRIBUTE TO MARKET DEMAND

TABLE 37 RESONATORS: TIMING DEVICES MARKET, BY VERTICAL, 2019–2022 (USD MILLION)

TABLE 38 RESONATORS: TIMING DEVICES MARKET, BY VERTICAL, 2023–2030 (USD MILLION)

6.5 CLOCK GENERATORS

6.5.1 RAPID IMPLEMENTATION INTO TELECOMMUNICATIONS SYSTEMS, DIGITAL SWITCHING SYSTEMS, AND MECHANICAL DEVICES TO DRIVE MARKET

TABLE 39 CLOCK GENERATORS: TIMING DEVICES MARKET, BY VERTICAL, 2019–2022 (USD MILLION)

TABLE 40 CLOCK GENERATORS: TIMING DEVICES MARKET, BY VERTICAL, 2023–2030 (USD MILLION)

6.6 CLOCK BUFFERS

6.6.1 EXECUTION OF CLOCK BUFFERS IN HIGH-SPEED SERIAL COMMUNICATION SYSTEMS TO FUEL MARKET GROWTH

TABLE 41 CLOCK BUFFERS: TIMING DEVICES MARKET, BY VERTICAL, 2019–2022 (USD MILLION)

TABLE 42 CLOCK BUFFERS: TIMING DEVICES MARKET, BY VERTICAL, 2023–2030 (USD MILLION)

6.7 JITTER ATTENUATORS

6.7.1 INCREASING DEMAND IN HIGH-SPEED APPLICATIONS, INCLUDING

SYNCHRONOUS ETHERNET AND SDI VIDEO, TO SUPPORT MARKET GROWTH
TABLE 43 JITTER ATTENUATORS: TIMING DEVICES MARKET, BY VERTICAL,
2019–2022 (USD MILLION)

TABLE 44 JITTER ATTENUATORS: TIMING DEVICES MARKET, BY VERTICAL,
2023–2030 (USD MILLION)

7 TIMING DEVICES MARKET, BY MATERIAL

7.1 INTRODUCTION

FIGURE 35 CRYSTALS TO LEAD TIMING DEVICES MARKET DURING FORECAST PERIOD

TABLE 45 TIMING DEVICES MARKET, BY MATERIAL, 2019–2022 (USD MILLION)

TABLE 46 TIMING DEVICES MARKET, BY MATERIAL, 2023–2030 (USD MILLION)

7.2 CRYSTAL

7.2.1 PIEZOELECTRIC PROPERTY OF CRYSTALS TO DRIVE USE IN TIMING DEVICES

7.3 CERAMIC

7.3.1 GOOD CHEMICAL AND THERMAL STABILITY OF CERAMIC TO BOOST ADOPTION IN TIMING DEVICES

7.4 SILICON

7.4.1 READY AVAILABILITY AND AFFORDABILITY TO INCREASE UTILIZATION IN TIMING DEVICES

8 TIMING DEVICES MARKET, BY VERTICAL

8.1 INTRODUCTION

FIGURE 36 CONSUMER ELECTRONICS VERTICAL TO DOMINATE TIMING DEVICES MARKET IN 2030

TABLE 47 TIMING DEVICES MARKET, BY VERTICAL, 2019–2022 (USD MILLION)

TABLE 48 TIMING DEVICES MARKET, BY VERTICAL, 2023–2030 (USD MILLION)

8.2 CONSUMER ELECTRONICS

8.2.1 RISING INTEGRATION OF TIMING DEVICES INTO CONSUMER ELECTRONICS TO DRIVE MARKET

8.2.1.1 Use case: Use of timing solutions for smart home systems

TABLE 49 CONSUMER ELECTRONICS: TIMING DEVICES MARKET, BY TYPE, 2019–2022 (USD MILLION)

TABLE 50 CONSUMER ELECTRONICS: TIMING DEVICES MARKET, BY TYPE, 2023–2030 (USD MILLION)

TABLE 51 CONSUMER ELECTRONICS: TIMING DEVICES MARKET, BY REGION,

2019–2022 (USD MILLION)

TABLE 52 CONSUMER ELECTRONICS: TIMING DEVICES MARKET, BY REGION,
2023–2030 (USD MILLION)

8.3 ENTERPRISE ELECTRONICS

8.3.1 HIGHER ADOPTION OF TIMEKEEPING AND ATTENDANCE TRACKING
SYSTEMS TO SUPPORT MARKET GROWTH

TABLE 53 ENTERPRISE ELECTRONICS: TIMING DEVICES MARKET, BY TYPE,
2019–2022 (USD MILLION)

TABLE 54 ENTERPRISE ELECTRONICS: TIMING DEVICES MARKET, BY TYPE,
2023–2030 (USD MILLION)

TABLE 55 ENTERPRISE ELECTRONICS: TIMING DEVICES MARKET, BY REGION,
2019–2022 (USD MILLION)

TABLE 56 ENTERPRISE ELECTRONICS: TIMING DEVICES MARKET, BY REGION,
2023–2030 (USD MILLION)

8.4 TELECOMMUNICATIONS & NETWORKING

8.4.1 DEPLOYMENT OF 5G NETWORK TO DRIVE DEMAND FOR TIMING
DEVICES

TABLE 57 TELECOMMUNICATIONS & NETWORKING: TIMING DEVICES MARKET,
BY TYPE, 2019–2022 (USD MILLION)

TABLE 58 TELECOMMUNICATIONS & NETWORKING: TIMING DEVICES MARKET,
BY TYPE, 2023–2030 (USD MILLION)

TABLE 59 TELECOMMUNICATIONS & NETWORKING: TIMING DEVICES MARKET,
BY REGION, 2019–2022 (USD MILLION)

TABLE 60 TELECOMMUNICATIONS & NETWORKING: TIMING DEVICES MARKET,
BY REGION, 2023–2030 (USD MILLION)

8.5 AUTOMOTIVE

8.5.1 TECHNOLOGICAL ADVANCEMENTS IN AUTOMOTIVE SECTOR TO
PROVIDE MARKET GROWTH OPPORTUNITIES

TABLE 61 AUTOMOTIVE: TIMING DEVICES MARKET, BY TYPE, 2019–2022 (USD
MILLION)

TABLE 62 AUTOMOTIVE: TIMING DEVICES MARKET, BY TYPE, 2023–2030 (USD
MILLION)

TABLE 63 AUTOMOTIVE: TIMING DEVICES MARKET, BY REGION, 2019–2022 (USD
MILLION)

TABLE 64 AUTOMOTIVE: TIMING DEVICES MARKET, BY REGION, 2023–2030 (USD
MILLION)

8.6 BFSI

8.6.1 ACCURATE TIMEKEEPING REQUIREMENTS FROM BFSI VERTICAL TO
PROPEL MARKET

TABLE 65 BFSI: TIMING DEVICES MARKET, BY TYPE, 2019–2022 (USD MILLION)

TABLE 66 BFSI: TIMING DEVICES MARKET, BY TYPE, 2023–2030 (USD MILLION)

TABLE 67 BFSI: TIMING DEVICES MARKET, BY REGION, 2019–2022 (USD MILLION)

TABLE 68 BFSI: TIMING DEVICES MARKET, BY REGION, 2023–2030 (USD MILLION)

8.7 MILITARY & AEROSPACE

8.7.1 ONGOING DEVELOPMENT OF SOPHISTICATED MISSILES AND WEAPONS TO DRIVE MARKET

TABLE 69 MILITARY & AEROSPACE: TIMING DEVICES MARKET, BY TYPE, 2019–2022 (USD MILLION)

TABLE 70 MILITARY & AEROSPACE: TIMING DEVICES MARKET, BY TYPE, 2023–2030 (USD MILLION)

TABLE 71 MILITARY & AEROSPACE: TIMING DEVICES MARKET, BY REGION, 2019–2022 (USD MILLION)

TABLE 72 MILITARY & AEROSPACE: TIMING DEVICES MARKET, BY REGION, 2023–2030 (USD MILLION)

8.8 INDUSTRIAL

8.8.1 UTILIZATION IN INDUSTRIAL APPLICATIONS TO ACHIEVE FREQUENCY STABILITY TO FUEL MARKET GROWTH

TABLE 73 INDUSTRIAL: TIMING DEVICES MARKET, BY TYPE, 2019–2022 (USD MILLION)

TABLE 74 INDUSTRIAL: TIMING DEVICES MARKET, BY TYPE, 2023–2030 (USD MILLION)

TABLE 75 INDUSTRIAL: TIMING DEVICES MARKET, BY REGION, 2019–2022 (USD MILLION)

TABLE 76 INDUSTRIAL: TIMING DEVICES MARKET, BY REGION, 2023–2030 (USD MILLION)

8.9 MEDICAL & HEALTHCARE

8.9.1 ADVANCEMENTS IN MEDICAL TECHNOLOGY TO LEAD TO RISING ADOPTION OF TIMING DEVICES

TABLE 77 MEDICAL & HEALTHCARE: TIMING DEVICES MARKET, BY TYPE, 2019–2022 (USD MILLION)

TABLE 78 MEDICAL & HEALTHCARE: TIMING DEVICES MARKET, BY TYPE, 2023–2030 (USD MILLION)

TABLE 79 MEDICAL & HEALTHCARE: TIMING DEVICES MARKET, BY REGION, 2019–2022 (USD MILLION)

TABLE 80 MEDICAL & HEALTHCARE: TIMING DEVICES MARKET, BY REGION, 2023–2030 (USD MILLION)

9 TIMING DEVICES MARKET, BY REGION

9.1 INTRODUCTION

FIGURE 37 TIMING DEVICES MARKET, BY REGION

FIGURE 38 TIMING DEVICES MARKET IN ASIA PACIFIC TO GROW AT HIGHEST CAGR DURING FORECAST PERIOD

TABLE 81 TIMING DEVICES MARKET, BY REGION, 2019–2022 (USD MILLION)

TABLE 82 TIMING DEVICES MARKET, BY REGION, 2023–2030 (USD MILLION)

9.2 NORTH AMERICA

9.2.1 IMPACT OF RECESSION ON TIMING DEVICES MARKET IN NORTH AMERICA

FIGURE 39 NORTH AMERICA: TIMING DEVICES MARKET SNAPSHOT

9.2.2 US

9.2.2.1 Ongoing automation of industries to drive market

9.2.3 CANADA

9.2.3.1 Surging investments in advanced technologies to contribute to market growth

9.2.4 MEXICO

9.2.4.1 Participation in FTAs to create lucrative opportunities for timing device vendors

TABLE 83 NORTH AMERICA: TIMING DEVICES MARKET, BY COUNTRY, 2019–2022 (USD MILLION)

TABLE 84 NORTH AMERICA: TIMING DEVICES MARKET, BY COUNTRY, 2023–2030 (USD MILLION)

TABLE 85 NORTH AMERICA: TIMING DEVICES MARKET, BY APPLICATION, 2019–2022 (USD MILLION)

TABLE 86 NORTH AMERICA: TIMING DEVICES MARKET, BY APPLICATION, 2023–2030 (USD MILLION)

9.3 EUROPE

9.3.1 IMPACT OF RECESSION ON TIMING DEVICES MARKET IN EUROPE

FIGURE 40 EUROPE: TIMING DEVICES MARKET SNAPSHOT

9.3.2 GERMANY

9.3.2.1 Flourishing automotive industry to contribute to market growth

9.3.3 UK

9.3.3.1 Advancements in electronics and networking to drive demand for crystal oscillators

9.3.4 FRANCE

9.3.4.1 Surging demand for electric vehicles to fuel market growth

9.3.5 ITALY

9.3.5.1 Ongoing technological advancements in healthcare sector to foster market growth

9.3.6 REST OF EUROPE (ROE)

TABLE 87 EUROPE: TIMING DEVICES MARKET, BY COUNTRY, 2019–2022 (USD MILLION)

TABLE 88 EUROPE: TIMING DEVICES MARKET, BY COUNTRY, 2023–2030 (USD MILLION)

TABLE 89 EUROPE: TIMING DEVICES MARKET, BY APPLICATION, 2019–2022 (USD MILLION)

TABLE 90 EUROPE: TIMING DEVICES MARKET, BY APPLICATION, 2023–2030 (USD MILLION)

9.4 ASIA PACIFIC

9.4.1 IMPACT OF RECESSION ON TIMING DEVICES MARKET IN ASIA PACIFIC

FIGURE 41 ASIA PACIFIC: TIMING DEVICES MARKET SNAPSHOT

9.4.2 CHINA

9.4.2.1 Rapid industrial development to fuel market growth

9.4.3 JAPAN

9.4.3.1 Rising adoption of precision automation and robotics to contribute to market growth

9.4.4 SOUTH KOREA

9.4.4.1 Growing demand from automotive and consumer electronics industries to propel market

9.4.5 INDIA

9.4.5.1 Government initiatives to support development of automotive industry to fuel market growth

9.4.6 REST OF ASIA PACIFIC

TABLE 91 ASIA PACIFIC: TIMING DEVICES MARKET, BY COUNTRY, 2019–2022 (USD MILLION)

TABLE 92 ASIA PACIFIC: TIMING DEVICES MARKET, BY COUNTRY, 2023–2030 (USD MILLION)

TABLE 93 ASIA PACIFIC: TIMING DEVICES MARKET, BY APPLICATION, 2019–2022 (USD MILLION)

TABLE 94 ASIA PACIFIC: TIMING DEVICES MARKET, BY APPLICATION, 2023–2030 (USD MILLION)

9.5 ROW

9.5.1 IMPACT OF RECESSION ON TIMING DEVICES MARKET IN ROW

FIGURE 42 ROW: TIMING DEVICES MARKET SNAPSHOT

9.5.2 SOUTH AMERICA

9.5.2.1 Growing investments in manufacturing sector to contribute to market growth

9.5.3 MIDDLE EAST & AFRICA

9.5.3.1 Growing consumer electronics industry to contribute to market growth

TABLE 95 ROW: TIMING DEVICES MARKET, BY REGION, 2019–2022 (USD MILLION)

TABLE 96 ROW: TIMING DEVICES MARKET, BY REGION, 2023–2030 (USD MILLION)

TABLE 97 ROW: TIMING DEVICES MARKET, BY APPLICATION, 2019–2022 (USD MILLION)

TABLE 98 ROW: TIMING DEVICES MARKET, BY APPLICATION, 2023–2030 (USD MILLION)

10 COMPETITIVE LANDSCAPE

10.1 OVERVIEW

10.1.1 KEY GROWTH STRATEGIES ADOPTED BY MAJOR COMPANIES

TABLE 99 OVERVIEW OF KEY GROWTH STRATEGIES ADOPTED BY MAJOR COMPANIES

10.2 REVENUE ANALYSIS, 2020–2022

FIGURE 43 THREE-YEAR REVENUE ANALYSIS OF TOP FIVE PLAYERS IN TIMING DEVICES MARKET

10.3 MARKET SHARE ANALYSIS, 2022

TABLE 100 TIMING DEVICES MARKET: MARKET SHARE ANALYSIS

FIGURE 44 MARKET SHARE, 2022

10.4 KEY COMPANY EVALUATION MATRIX, 2022

10.4.1 STARS

10.4.2 EMERGING LEADERS

10.4.3 PERVASIVE PLAYERS

10.4.4 PARTICIPANTS

FIGURE 45 TIMING DEVICES MARKET (GLOBAL): KEY COMPANY EVALUATION MATRIX, 2022

10.5 SMALL AND MEDIUM-SIZED ENTERPRISES/STARTUPS EVALUATION MATRIX, 2022

10.5.1 PROGRESSIVE COMPANIES

10.5.2 RESPONSIVE COMPANIES

10.5.3 DYNAMIC COMPANIES

10.5.4 STARTING BLOCKS

FIGURE 46 TIMING DEVICES MARKET (GLOBAL): SMES/STARTUPS EVALUATION MATRIX, 2022

TABLE 101 LIST OF KEY STARTUPS/SMES

TABLE 102 TIMING DEVICES MARKET: COMPETITIVE BENCHMARKING OF KEY STARTUPS/SMES

TABLE 103 TIMING DEVICES MARKET: COMPANY FOOTPRINT

TABLE 104 TIMING DEVICES MARKET: TYPE FOOTPRINT

TABLE 105 TIMING DEVICES MARKET: VERTICAL FOOTPRINT

TABLE 106 TIMING DEVICES MARKET: REGIONAL FOOTPRINT

10.6 COMPETITIVE SCENARIOS AND TRENDS

10.6.1 PRODUCT LAUNCHES

TABLE 107 TIMING DEVICES MARKET: PRODUCT LAUNCHES, SEPTEMBER 2019–JUNE 2023

10.6.2 DEALS

TABLE 108 TIMING DEVICES MARKET: DEALS, MAY 2019–AUGUST 2023

10.6.3 OTHERS

TABLE 109 TIMING DEVICES MARKET: OTHERS, APRIL 2022–JUNE 2023

11 COMPANY PROFILES

(Business Overview, Products/Services/Solutions Offered, Recent Developments, and MnM View (Key strengths/Right to Win, Strategic Choices Made, and Weaknesses and Competitive Threats))*

11.1 INTRODUCTION

11.2 KEY PLAYERS

11.2.1 SEIKO EPSON CORPORATION

TABLE 110 SEIKO EPSON CORPORATION: BUSINESS OVERVIEW

FIGURE 47 SEIKO EPSON CORPORATION: COMPANY SNAPSHOT

TABLE 111 SEIKO EPSON CORPORATION: PRODUCTS/SERVICES/SOLUTIONS OFFERED

TABLE 112 SEIKO EPSON CORPORATION: PRODUCT LAUNCHES

TABLE 113 SEIKO EPSON CORPORATION: DEALS

11.2.2 NIHON DEMP A KOGYO CO., LTD.

TABLE 114 NIHON DEMP A KOGYO CO., LTD.: BUSINESS OVERVIEW

FIGURE 48 NIHON DEMP A KOGYO CO., LTD.: COMPANY SNAPSHOT

TABLE 115 NIHON DEMP A KOGYO CO., LTD.: PRODUCTS/SERVICES/SOLUTIONS OFFERED

TABLE 116 NIHON DEMP A KOGYO CO., LTD.: PRODUCT LAUNCHES

11.2.3 TXC CORPORATION

TABLE 117 TXC CORPORATION: BUSINESS OVERVIEW

FIGURE 49 TXC CORPORATION: COMPANY SNAPSHOT

TABLE 118 TXC CORPORATION: PRODUCTS/SERVICES/SOLUTIONS OFFERED

TABLE 119 TXC CORPORATION: PRODUCT LAUNCHES**11.2.4 KYOCERA CORPORATION****TABLE 120 KYOCERA CORPORATION: BUSINESS OVERVIEW****FIGURE 50 KYOCERA CORPORATION: COMPANY SNAPSHOT****TABLE 121 KYOCERA CORPORATION: PRODUCTS/SERVICES/SOLUTIONS OFFERED****TABLE 122 KYOCERA CORPORATION: PRODUCT LAUNCHES****TABLE 123 KYOCERA CORPORATION: DEALS****TABLE 124 KYOCERA CORPORATION: OTHERS****11.2.5 RAKON LIMITED****TABLE 125 RAKON LIMITED: BUSINESS OVERVIEW****FIGURE 51 RAKON LIMITED: COMPANY SNAPSHOT****TABLE 126 RAKON LIMITED: PRODUCTS/SERVICES/SOLUTIONS OFFERED****TABLE 127 RAKON LIMITED: PRODUCT LAUNCHES****TABLE 128 RAKON LIMITED: OTHERS****11.2.6 RENESAS ELECTRONICS CORPORATION****TABLE 129 RENESAS ELECTRONICS CORPORATION: BUSINESS OVERVIEW****FIGURE 52 RENESAS ELECTRONICS CORPORATION: COMPANY SNAPSHOT****TABLE 130 RENESAS ELECTRONICS CORPORATION: PRODUCTS/SERVICES/SOLUTIONS OFFERED****TABLE 131 RENESAS ELECTRONICS CORPORATION: PRODUCT LAUNCHES****11.2.7 INFINEON TECHNOLOGIES AG****TABLE 132 INFINEON TECHNOLOGIES AG: BUSINESS OVERVIEW****FIGURE 53 INFINEON TECHNOLOGIES AG: COMPANY SNAPSHOT****TABLE 133 INFINEON TECHNOLOGIES AG: PRODUCTS/SERVICES/SOLUTIONS OFFERED****TABLE 134 INFINEON TECHNOLOGIES AG: DEALS****11.2.8 MICROCHIP TECHNOLOGY INC.****TABLE 135 MICROCHIP TECHNOLOGY INC.: BUSINESS OVERVIEW****FIGURE 54 MICROCHIP TECHNOLOGY INC.: COMPANY SNAPSHOT****TABLE 136 MICROCHIP TECHNOLOGY INC.: PRODUCTS/SERVICES/SOLUTIONS OFFERED****TABLE 137 MICROCHIP TECHNOLOGY INC.: OTHERS****11.2.9 TEXAS INSTRUMENTS****TABLE 138 TEXAS INSTRUMENTS: BUSINESS OVERVIEW****FIGURE 55 TEXAS INSTRUMENTS: COMPANY SNAPSHOT****TABLE 139 TEXAS INSTRUMENTS: PRODUCTS/SERVICES/SOLUTIONS OFFERED****TABLE 140 TEXAS INSTRUMENTS: OTHERS****11.2.10 ABRACON**

TABLE 141 ABRACON: BUSINESS OVERVIEW

TABLE 142 ABRACON: PRODUCTS/SERVICES/SOLUTIONS OFFERED

TABLE 143 ABRACON: PRODUCT LAUNCHES

TABLE 144 ABRACON: DEALS

11.3 OTHER PLAYERS

11.3.1 IQD FREQUENCY PRODUCTS LTD

11.3.2 NXP SEMICONDUCTORS

11.3.3 STMICROELECTRONICS

11.3.4 SITIME CORP.

11.3.5 MTRONPTI

11.3.6 CTS CORPORATION

11.3.7 DIODES INCORPORATED

11.3.8 ON SEMICONDUCTOR

11.3.9 CRYSTEK CORPORATION

11.3.10 GREENRAY INDUSTRIES, INC.

11.3.11 FREQUENCY ELECTRONICS, INC.

11.3.12 OSCILLOQUARTZ

11.3.13 ACCUBEAT LTD

11.3.14 CONNOR-WINFIELD CORPORATION

11.3.15 MERCURY INC.

*Details on Business Overview, Products/Services/Solutions Offered, Recent Developments, and MnM View (Key strengths/Right to Win, Strategic Choices Made, and Weaknesses and Competitive Threats) might not be captured in case of unlisted companies.

12 APPENDIX

12.1 DISCUSSION GUIDE

12.2 KNOWLEDGESTORE: MARKETSANDMARKETS' SUBSCRIPTION PORTAL

12.3 CUSTOMIZATION OPTIONS

12.4 RELATED REPORTS

12.5 AUTHOR DETAILS

I would like to order

Product name: Timing Devices Market by Type (Oscillators, Atomic Clocks, Clock Generators, Clock Buffers, Jitter Attenuators), Material (Crystal, Silicon, Ceramic), Vertical (Consumer Electronics, Automotive) and Region - Global Forecast to 2030

Product link: <https://marketpublishers.com/r/T185DE622CEEN.html>

Price: US\$ 4,950.00 (Single User License / Electronic Delivery)

If you want to order Corporate License or Hard Copy, please, contact our Customer Service:

info@marketpublishers.com

Payment

To pay by Credit Card (Visa, MasterCard, American Express, PayPal), please, click button on product page <https://marketpublishers.com/r/T185DE622CEEN.html>

To pay by Wire Transfer, please, fill in your contact details in the form below:

First name:
Last name:
Email:
Company:
Address:
City:
Zip code:
Country:
Tel:
Fax:
Your message:

****All fields are required**

Customer signature _____

Please, note that by ordering from marketpublishers.com you are agreeing to our Terms & Conditions at <https://marketpublishers.com/docs/terms.html>

To place an order via fax simply print this form, fill in the information below

and fax the completed form to +44 20 7900 3970