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Global AC Current Transformers (CT) for Electrical Meters Market Size, Manufacturers, Opportunities and Forecast to 2030

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Abstracts

Summary

An AC current transformer (CT) is a transformer that is used to produce an alternating current (AC) in its secondary which is proportional to the AC current in its primary. Current transformers, together with voltage transformers (VTs) or potential transformers (PTs), which are designed for measurement, are known as instrument transformers. The Current Transformer (C.T.), is a type of “instrument transformer” that is designed to produce an alternating current in its secondary winding which is proportional to the current being measured in its primary. Current transformers reduce high voltage currents to a much lower value and provide a convenient way of safely monitoring the actual electrical current flowing in an AC transmission line using a standard ammeter. The principal of operation of a basic current transformer is slightly different from that of an ordinary voltage transformer. Unlike the voltage or power transformer, the current transformer consists of only one or very few turns as its primary winding. This primary winding can be of either a single flat turn, a coil of heavy duty wire wrapped around the core or just a conductor or bus bar placed through a central hole. Due to this type of arrangement, the current transformer is often referred to as a “series transformer” as the primary winding, which never has more than a very few turns, is in series with the current carrying conductor supplying a load. The secondary winding however, may have a large number of coil turns wound on a laminated core of low-loss magnetic material. This core has a large cross-sectional area so that the magnetic flux density created is low using much smaller cross-sectional area wire, depending upon how much the current must be stepped down as it tries to output a constant current, independent of the connected load. The secondary winding will supply a current into either a short circuit, in the form of an ammeter, or into a resistive load until the voltage induced in the

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secondary is big enough to saturate the core or cause failure from excessive voltage breakdown. Unlike a voltage transformer, the primary current of a current transformer is not dependent of the secondary load current but instead is controlled by an external load. The secondary current is usually rated at a standard 1 Ampere or 5 Amperes for larger primary current ratings. When a current is too high to measure directly or the voltage of the circuit is too high, a current transformer can be used to provide an isolated lower current in its secondary which is proportional to the current in the primary circuit. The induced secondary current is then suitable for measuring instruments or processing in electronic equipment. Current transformers also have little effect on the primary circuit. Often, in electronic equipment, the isolation between the primary and secondary circuit is the important characteristic. Current transformers are used in electronic equipment and are widely used for metering and protective relays in the electrical power industry. Like any transformer, a current transformer has a primary winding, a core and a secondary winding, although some transformers, including current transformers, use an air core. In principle, the only difference between a current transformer and a voltage transformer (normal type) is that the former is fed with a 'constant' current while the latter is fed with a 'constant' voltage, where 'constant' has the strict circuit theory meaning. The alternating current in the primary produces an alternating magnetic field in the core, which then induces an alternating current in the secondary. The primary circuit is largely unaffected by the insertion of the CT. Accurate current transformers need close coupling between the primary and secondary to ensure that the secondary current is proportional to the primary current over a wide current range. The current in the secondary is the current in the primary (assuming a single turn primary) divided by the number of turns of the secondary. Typically, current transformers consist of a silicon steel ring core wound with many turns of copper wire. The conductor carrying the primary current is then passed through the ring; the CT's primary therefore consists of a single 'turn'. The primary 'winding' may be a permanent part of the current transformer, with a heavy copper bar to carry current through the core. Window-type current transformers (aka zero sequence current transformers, or ZSCT) are also common, which can have circuit cables run through the middle of an opening in the core to provide a single-turn primary winding. To assist accuracy, the primary conductor should be central in aperture. CTs are specified by their current ratio from primary to secondary. The rated secondary current is normally standardized at 1 or 5 amperes. For example, a 4000:5 CT secondary winding will supply an output current of 5 amperes when the primary winding current is 4000 amperes. The AC Current Transformers (CT) for Electrical Meters market covers Pin, Wire, etc. The typical players include VAC, Falco Electronics, J&D Electronics, Shenke, etc.

According to APO Research, The global AC Current Transformers (CT) for Electrical

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Meters market was estimated at US$ million in 2023 and is projected to reach a revised size of US$ million by 2030, witnessing a CAGR of xx% during the forecast period 2024-2030.

North American market for AC Current Transformers (CT) for Electrical Meters is estimated to increase from $ million in 2024 to reach $ million by 2030, at a CAGR of % during the forecast period of 2025 through 2030.

Asia-Pacific market for AC Current Transformers (CT) for Electrical Meters is estimated to increase from $ million in 2024 to reach $ million by 2030, at a CAGR of % during the forecast period of 2025 through 2030.

Europe market for AC Current Transformers (CT) for Electrical Meters is estimated to increase from $ million in 2024 to reach $ million by 2030, at a CAGR of % during the forecast period of 2025 through 2030.

The major global manufacturers of AC Current Transformers (CT) for Electrical Meters include Falco Electronics, Accuenergy, VAC, TE Connectivity, Hioki E.E., Nanjing Zeming Electronic, Flex-Core, AutomationDirect and Shenke, etc. In 2023, the world's top three vendors accounted for approximately % of the revenue.

Report Scope

This report aims to provide a comprehensive presentation of the global market for AC Current Transformers (CT) for Electrical Meters, with both quantitative and qualitative analysis, to help readers develop business/growth strategies, assess the market competitive situation, analyze their position in the current marketplace, and make informed business decisions regarding AC Current Transformers (CT) for Electrical Meters.

The AC Current Transformers (CT) for Electrical Meters market size, estimations, and forecasts are provided in terms of sales volume (K Units) and revenue ($ millions), considering 2023 as the base year, with history and forecast data for the period from 2019 to 2030. This report segments the global AC Current Transformers (CT) for Electrical Meters market comprehensively. Regional market sizes, concerning products by Type, by Application, and by players, are also provided. For a more in-depth understanding of the market, the report provides profiles of the competitive landscape, key competitors, and their respective market ranks. The report also discusses technological trends and new product developments.

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Key Companies & Market Share Insights

In this section, the readers will gain an understanding of the key players competing. This report has studied the key growth strategies, such as innovative trends and developments, intensification of product portfolio, mergers and acquisitions, collaborations, new product innovation, and geographical expansion, undertaken by these participants to maintain their presence. Apart from business strategies, the study includes current developments and key financials. The readers will also get access to the data related to global revenue, price, and sales by manufacturers for the period 2019-2024. This all-inclusive report will certainly serve the clients to stay updated and make effective decisions in their businesses. Some of the prominent players reviewed in the research report include:

Falco Electronics

Accuenergy

VAC

TE Connectivity

Hioki E.E.

Nanjing Zeming Electronic

Flex-Core

AutomationDirect

Shenke

Omega Engineering

Oswell

Weschler Instruments

Electrohms

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Yuanxing

J&D Electronics

Electromagnetic Industries LLP

Simpson Electric

AC Current Transformers (CT) for Electrical Meters segment by Type

Pin

Wire

AC Current Transformers (CT) for Electrical Meters segment by Application

Residential

Industrial

Other

AC Current Transformers (CT) for Electrical Meters Segment by Region

North America

U.S.

Canada

Europe

Germany

France

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U.K.

Italy

Russia

Asia-Pacific

China

Japan

South Korea

India

Australia

China Taiwan

Indonesia

Thailand

Malaysia

Latin America

Mexico

Brazil

Argentina

Middle East & Africa

Turkey

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Saudi Arabia

UAE

Key Drivers & Barriers

High-impact rendering factors and drivers have been studied in this report to aid the readers to understand the general development. Moreover, the report includes restraints and challenges that may act as stumbling blocks on the way of the players. This will assist the users to be attentive and make informed decisions related to business. Specialists have also laid their focus on the upcoming business prospects.

Reasons to Buy This Report

1. This report will help the readers to understand the competition within the industries and strategies for the competitive environment to enhance the potential profit. The report also focuses on the competitive landscape of the global AC Current Transformers (CT) for Electrical Meters market, and introduces in detail the market share, industry ranking, competitor ecosystem, market performance, new product development, operation situation, expansion, and acquisition. etc. of the main players, which helps the readers to identify the main competitors and deeply understand the competition pattern of the market.

2. This report will help stakeholders to understand the global industry status and trends of AC Current Transformers (CT) for Electrical Meters and provides them with information on key market drivers, restraints, challenges, and opportunities.

3. This report will help stakeholders to understand competitors better and gain more insights to strengthen their position in their businesses. The competitive landscape section includes the market share and rank (in volume and value), competitor ecosystem, new product development, expansion, and acquisition.

4. This report stays updated with novel technology integration, features, and the latest developments in the market

5. This report helps stakeholders to gain insights into which regions to target globally

6. This report helps stakeholders to gain insights into the end-user perception

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concerning the adoption of AC Current Transformers (CT) for Electrical Meters.

7. This report helps stakeholders to identify some of the key players in the market and understand their valuable contribution.

Chapter Outline

Chapter 1: Introduces the study scope of this report, executive summary of market segments by type, market size segments for North America, Europe, Asia Pacific, Latin America, Middle East & Africa.

Chapter 2: Introduces the market dynamics, latest developments of the market, the driving factors and restrictive factors of the market, the challenges and risks faced by manufacturers in the industry, and the analysis of relevant policies in the industry.

Chapter 3: Detailed analysis of AC Current Transformers (CT) for Electrical Meters manufacturers competitive landscape, price, sales, revenue, market share and ranking, latest development plan, merger, and acquisition information, etc.

Chapter 4: Sales, revenue of AC Current Transformers (CT) for Electrical Meters in regional level. It provides a quantitative analysis of the market size and development potential of each region and introduces the future development prospects, and market space in the world.

Chapter 5: Introduces market segments by application, market size segment for North America, Europe, Asia Pacific, Latin America, Middle East & Africa.

Chapter 6: Provides profiles of key players, introducing the basic situation of the main companies in the market in detail, including product sales, revenue, price, gross margin, product introduction, recent development, etc.

Chapter 7, 8, 9, 10 and 11: North America, Europe, Asia Pacific, Latin America, Middle East & Africa, sales and revenue by country.

Chapter 12: Analysis of industrial chain, key raw materials, manufacturing cost, and market dynamics.

Chapter 13: Concluding Insights of the report.

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