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# What is MACD? [Combining Exponential Moving Averages (EMA)]

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The **MACD indicator** (Moving Average Convergence Divergence) is a **trend-following indicator** used across all financial markets, including **Forex Market** and **crypto markets**.

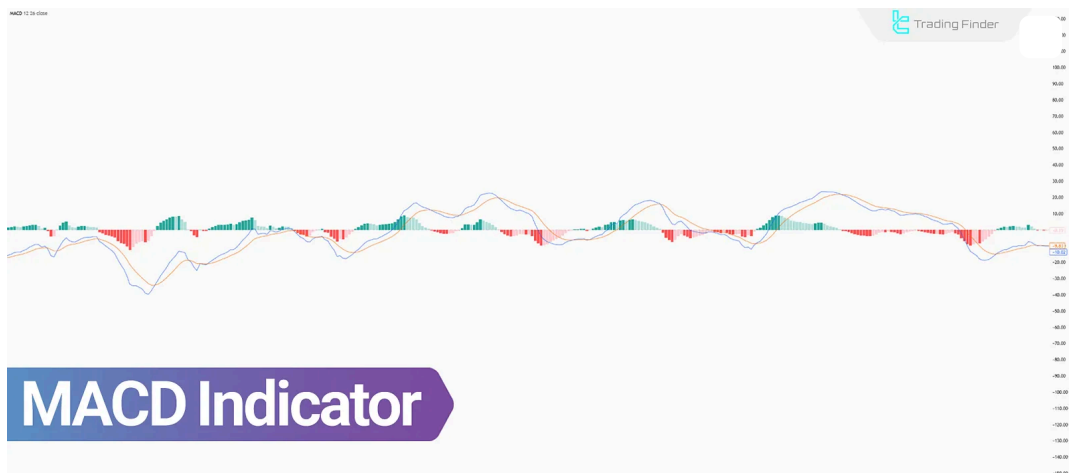
This indicator identifies the overall trend, divergence, and convergence of price using **two moving averages**.

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MACD (Moving Average Convergence Divergence) Indicator

## What is MACD?

The MACD (Moving Average Convergence Divergence) Indicator is designed based on the difference between two exponential **moving averages** (EMA) to measure price momentum.

This indicator issues signals in various ways, which are widely used in **the technical analysis of MACD indicator trading strategies**.

## Types of MACD Indicators

Numerous indicators have been developed based on the **MACD**, mostly enhanced, smart, or combined versions. These indicators typically aim to:

- ⚡ Increase signal accuracy
- ⚡ Filter out noise
- ⚡ Automatically detect divergences
- ⚡ Combine **MACD** with other tools

Among combined tools, we can refer to the **MACD, RSI, and AO Divergence Combination Indicator** within the TradingFinder (TFLAB) indicator set:

- ⚡ **MACD, RSI, and AO Divergence Combination Indicator for MT4**
- ⚡ **MACD, RSI, and AO Divergence Combination Indicator for MT5**
- ⚡ **MACD, RSI, and AO Divergence Combination Indicator for TradingView**

## Advantages and Disadvantages of MACD

Since the **MACD indicator** relies on historical market data, there is a delay in its signals; however, the combination of two EMAs offers insights not easily seen in simple chart analysis. **Pros and cons of the MACD:**

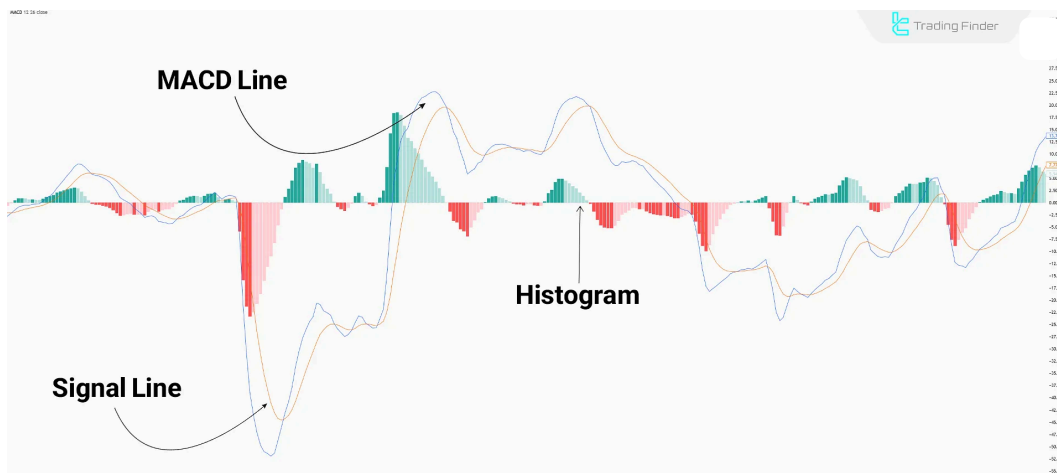
Disadvantages	Advantages
Signal delay	Strong trend identification

High signal noise	Combination of multiple tools
Requires additional confirmation	Divergence detection
Dependent on settings	Simplicity in analysis
Inefficiency in low-momentum trends	Suitable for all markets

## Components of MACD

The **MACD** consists of three main components, and their movements combined are used to analyze price momentum and trend:

- ⚡ MACD Line
- ⚡ Signal Line
- ⚡ Histogram



Visual representation of MACD components

## MACD Line

The MACD Line is the **difference between two exponential moving averages (EMA)**. It shows momentum changes.

When the MACD Line moves upwards, momentum is **bullish**; when it moves downwards, momentum is **bearish**.

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## Signal Line

The **Signal Line** is a **9-period EMA of the MACD Line**, which helps smooth out MACD **noise** and **reduces false signals**.

The angle and distance between the two lines represent price momentum. Their crossover is one of the most widely used **MACD indicator** signals.

## Histogram

The Histogram of the **MACD** is the difference between the MACD Line and the Signal Line, displayed as vertical bars on the chart.

Its purpose is to show the **strength** and **direction** of momentum.

When the histogram bars move **positive**, the momentum is **bullish**; when they move **negative**, momentum is **bearish**. The longer the bars, the stronger the momentum.

## MACD Settings

The default **MACD indicator** settings are suitable for long-term trading and analyzing **general price trends** and **momentum**.

For short-term and medium-term trading, adjustments are necessary:

Feature	Signal Line Settings	MACD Line Settings	Suitable Timeframes	Trading Style

High Sensitivity	EMA (5)	(5,13,16)	1 to 15 minutes	Short-term trading
Reduced False Signals	EMA (5)	(5,21,8)	15 minutes to 1 hour	Medium-term trading
High Signal Validity	EMA (9)	(9,26,12)	4H to Daily	Long-term trading

### Example of MACD Working Properly in Trading

In the 1-hour Nasdaq index (US100) chart, the price forms a lower high, but the indicator forms a higher high.

The **MACD indicator** lines also form a higher high, confirming divergence. The MACD Line crossing the Signal Line downward provides the final confirmation for a price drop, and the price eventually falls.



Example of proper MACD functioning in trading

### Comparison of MACD and RSI Indicators

The **MACD** is a hybrid **trend-following and oscillator** indicator, while the RSI is a **pure oscillator** that measures the relative **strength** of price movements.

The table below offers a full comparison:

Feature	MACD Indicator	RSI Indicator
Type	Trend + Momentum	Momentum Oscillator
Oscillation Range	No fixed range	0 to 100 (typically 70/30)

Main Signals	Crossovers/Divergence	Overbought/Oversold
Performance in Trends	Stronger in trending markets	Better in ranging markets
Delay	More, due to moving averages	Less delay
Default Settings	(12, 26, 9)	14 periods
Strengths	Identifying trend starts and ends, histogram combination	Detecting overbought/oversold easily
Weaknesses	False signals in ranging markets, need for confirmation	False signals in strong trends, noise in lower timeframes
Combination Capability	Compatible with other technical tools	Compatible with other technical tools

## Conclusion

Momentum analysis in the **MACD indicator** is based on the behavior of the MACD Line, Signal Line, and Histogram, especially when they form a valid **divergence** structure.

This indicator can be used in **long-term**, **medium-term**, and **short-term** trades with different settings.

In low-momentum markets, relying solely on **MACD** may lead to errors; combining indicators like **MACD + RSI + AO** is better under such conditions.

## FAQs

What type of indicator is MACD? ▼

MACD is a hybrid indicator with characteristics of both trend-following and oscillators.

What are the components of MACD? ▼

It consists of three main parts: MACD Line, Signal Line, and Histogram.

What is the main purpose of the Signal Line?

It smoothens the MACD Line by applying a 9-period EMA, reducing noise and filtering signals.

What does a positive histogram value mean?

This means the MACD Line is above the Signal Line, indicating bullish momentum.

Can MACD settings be changed?

Yes, depending on the timeframe and trading style, MACD settings are adjustable.

Which timeframe is better for using MACD?

For long-term trades, 4-hour to daily; for scalping, 1 to 15-minute timeframes are suitable.

Why does MACD generate false signals in ranging markets?

Because low momentum causes line crossovers without meaningful price movement.

Is MACD alone enough for trade entry?

No, it's better combined with tools like price action or RSI.

How does MACD detect divergences?

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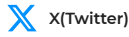


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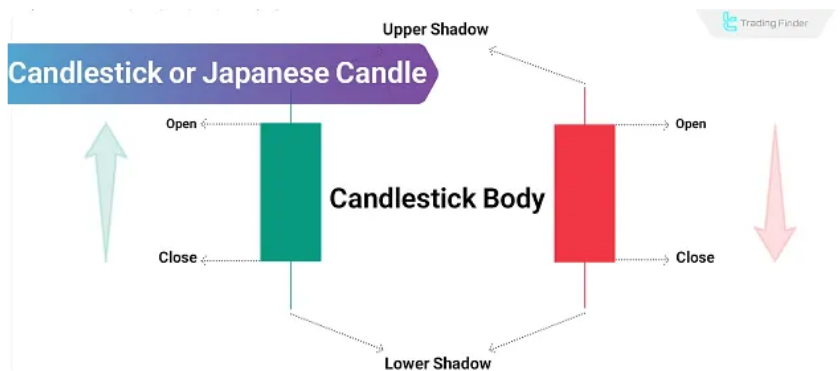
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