

Coppock Curve Momentum

Expert Advisor Documentation

PLATFORM	TYPE	TIMEFRAME	WEBSITE
MetaTrader 5 (MT5)	Momentum / Trend-Following	Any (H1–H4 suggested)	www.algotbot.live

⚠ Important Disclaimer This document is for educational and informational purposes only. It does not constitute financial or investment advice. Trading forex, CFDs, and other leveraged instruments involves substantial risk of loss and is not suitable for all investors. Past backtest performance does not guarantee future results. Never trade with capital you cannot afford to lose.

Overview

The **Coppock Curve Momentum** Expert Advisor turns a classic long-term market indicator into a symmetrical, always-in momentum engine. The Coppock Curve is a smoothed momentum oscillator constructed as a Weighted Moving Average (WMA) of the *sum* of two Rate-of-Change (ROC) readings — a long ROC and a short ROC — giving three layers of smoothing (two ROCs plus a WMA) that filter out market noise.

Traditionally the Coppock Curve is used as a long-only bottom-picker on monthly data. This EA instead uses it **symmetrically as a trend/momentum filter on any timeframe**: when the curve crosses the zero line upward, momentum has turned positive and the bias flips long; when it crosses the zero line downward, momentum has turned negative and the bias flips short. Because the signal is derived from triple-smoothed momentum, crossovers tend to fire only on genuine momentum regime changes rather than on transient spikes.

The strategy holds **one position at a time** and is **always-in on a fresh flip** — a new opposite crossover reverses the current trade. Exits are handled by an ATR-based stop-loss and take-profit, and every entry is protected by a spread guard so the EA skips signals when execution cost is abnormally wide. All indicator math (ROC, WMA, ATR) is implemented locally, so the behaviour is identical between the C# research engine and the deployed MQL5 Expert Advisor.

Note: All calculations are performed on *completed* bars only. The EA evaluates a signal once per newly-closed candle, so signals never repaint and entries align with confirmed bar closes.

How It Works

Building the Coppock Curve

For each completed bar the EA computes two Rate-of-Change values against the current close and sums them, then smooths the running series of those sums with a weighted moving average:

```
ROC_long  = (Close - Close[RocLongPeriod]) / Close[RocLongPeriod] * 100
ROC_short = (Close - Close[RocShortPeriod]) / Close[RocShortPeriod] * 100
RocSum    = ROC_long + ROC_short

Coppock   = WMA( RocSum series , WmaPeriod ) // newest value carries the most weight
```

The WMA weights the newest ROC-sum most heavily (weight = `WmaPeriod`) down to the oldest (weight = 1). A non-zero reference guard skips any bar where a historical close is exactly zero, preventing division errors.

Entry Logic

The EA watches for the Coppock value crossing the zero line between the previous completed bar and the current one:

- **Cross up** — previous Coppock `< 0` and current Coppock `≥ 0`: momentum has turned positive → **go long**.
- **Cross down** — previous Coppock `> 0` and current Coppock `≤ 0`: momentum has turned negative → **go short**.

When a valid crossover fires, the EA checks the spread guard and computes ATR before acting. On entry it first closes any open position on the opposite side (reversal), then opens a new position on the signalled side. If a position is already open on the signalled side, no new order is placed — the EA does not stack positions.

Example — a long flip

The Coppock Curve has been below zero during a pullback. On the latest bar close it prints `+0.12` after the prior bar was `-0.20`. That is a zero-line cross up. The current spread (35 points) is within the `MaxSpreadPoints` limit of 60, so the EA closes any open short, then buys `0.10` lots at the Ask with an ATR-based stop and target attached.

Exit Logic

Each position is bracketed at entry with two ATR-based levels, and can also be closed by an opposing signal:

- **Stop-loss** — placed $\text{AtrSlMult} \times \text{ATR}$ away from entry (below for longs, above for shorts).
- **Take-profit** — placed $\text{AtrTpMult} \times \text{ATR}$ away from entry (above for longs, below for shorts).
- **Signal reversal** — an opposite zero-line cross closes the current trade and opens the reverse position, keeping the EA always-in on the prevailing momentum.

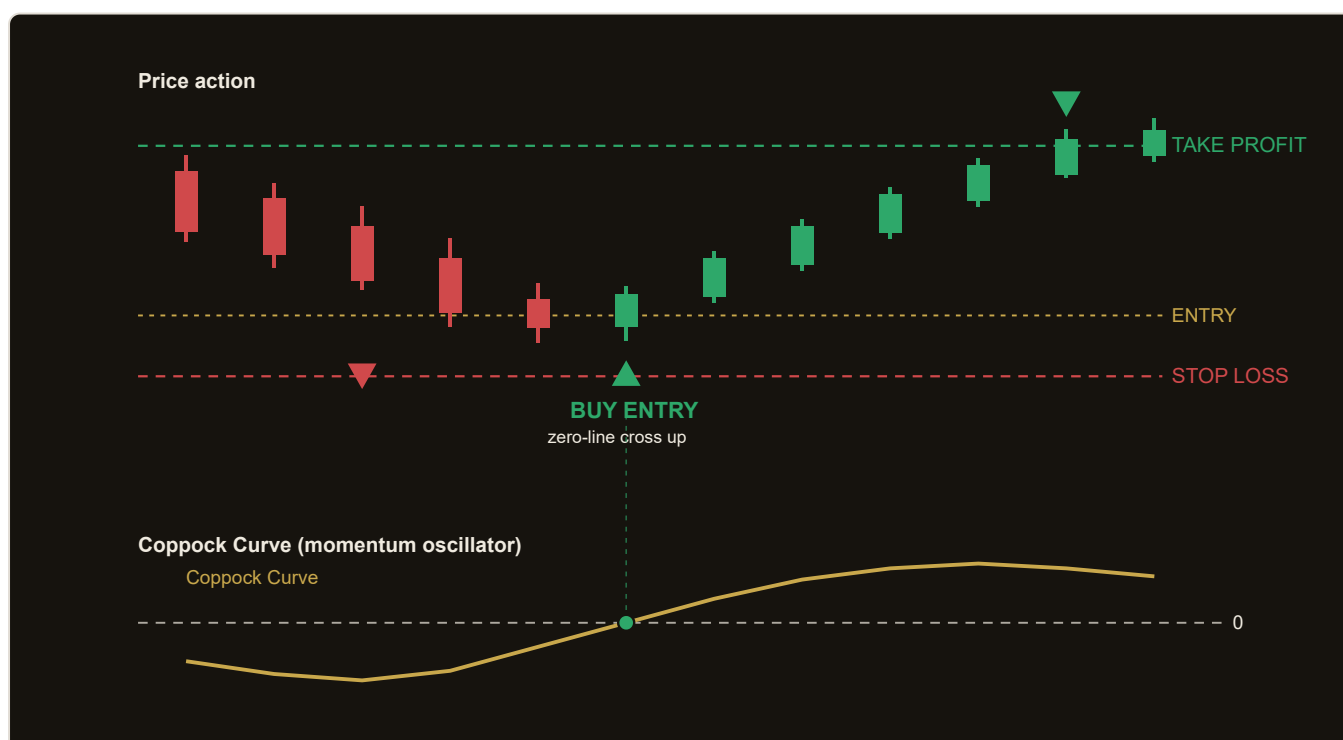
The ATR used for sizing the stop and target is a *simple* average of True Range over `AtrPeriod` completed bars (using the previous bar's close), matching the local implementation exactly rather than Wilder's smoothing.

Risk Management

- **Spread guard** — entries are skipped whenever the current spread exceeds `MaxSpreadPoints`, avoiding trades during abnormally wide, illiquid conditions.
- **Single-position cap** — only one position at a time; the EA never pyramids.
- **Fixed lot sizing** — every trade uses the same `Lots` volume for predictable, transparent exposure.
- **Magic number isolation** — only positions tagged with the configured `Magic` are managed, so the EA coexists safely with other strategies on the same account.

Strategy in Action

The illustration below shows an example of how the strategy identifies a setup and triggers its entry and exit. This is a simplified, illustrative example for educational purposes — not real market data.



Parameters

The table below lists every input exposed by the Expert Advisor, with its default value and permitted range.

Parameter	Default	Description
RocLongPeriod	14	Lookback (bars) for the long Rate-of-Change term. Range 6–30, step 1.
RocShortPeriod	11	Lookback (bars) for the short Rate-of-Change term. Range 4–24, step 1.
WmaPeriod	10	Weighted-moving-average smoothing window applied to the summed ROC series. Range 4–20, step 1.
AtrPeriod	14	Number of completed bars used for the simple ATR that sizes the stop and target. Range 7–30, step 1.
AtrSIMult	2.0	Stop-loss distance as a multiple of ATR. Range 1.0–5.0, step 0.25.
AtrTpMult	3.0	Take-profit distance as a multiple of ATR. Range 1.0–8.0, step 0.25.
MaxSpreadPoints	60	Spread guard, in points. Entries are skipped when the current spread exceeds this value. Range 5–300, step 5.
Lots	0.10	Fixed order volume in lots for every trade. Range 0.01–1.0, step 0.01.
Magic	1001	Magic number used to tag and identify this EA's positions so it manages only its own trades.

Tip: Keep `RocShortPeriod` strictly below `RocLongPeriod`. The two ROC terms are meant to capture different momentum horizons; setting them equal collapses the curve into a single doubled ROC and weakens the noise filtering.

Recommended Settings

The defaults are a balanced starting point suitable for most liquid FX pairs, metals, and indices. Because the strategy is timeframe-agnostic, always backtest on your intended symbol and timeframe before live use.

STARTING POINT (BALANCED)

- **Timeframe:** H1–H4 offers a good balance between signal frequency and noise. Lower timeframes generate more crossovers but more whipsaw.

- **ROC / WMA:** defaults of `14 / 11 / 10` deliver smooth, deliberate signals. Reduce the WMA period for faster, more reactive flips.
- **ATR exits:** a `2.0` SL and `3.0` TP give a 1:1.5 reward-to-risk profile that pairs well with a momentum reversal system.
- **Spread guard:** tighten `MaxSpreadPoints` for major FX pairs; loosen it for wider-spread instruments such as indices or exotics.

MORE CONSERVATIVE (FEWER, HIGHER-QUALITY SIGNALS)

- Increase `WmaPeriod` toward 14–20 to further smooth the curve.
- Widen `AtrTpMult` to 4.0–5.0 to let winners run in strong trends.

Optimisation caution: Momentum-reversal systems are sensitive to over-fitting. Prefer parameter *plateaus* (regions where nearby values all perform reasonably) over isolated peaks, and always validate on out-of-sample data.

How to Install on MetaTrader 5

- 1 Copy `CoppockCurveMomentum.ex5` to your MT5 `MQL5\Experts\` folder
- 2 Restart MetaTrader 5 and refresh the Navigator panel
- 3 Drag the EA onto a chart matching the recommended symbol and timeframe
- 4 Configure the input parameters and click **OK**
- 5 Enable **Algo Trading** in the MT5 toolbar

Before going live: Run the EA in the MT5 Strategy Tester on your chosen symbol and timeframe, then forward-test on a demo account. Confirm the spread guard and lot size match your broker's conditions and account size.

Risk Warning

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