

# Trend Acceleration Momentum

Expert Advisor Documentation

PLATFORM	TYPE	TIMEFRAME	WEBSITE
MetaTrader 5 (MT5)	Trend-Following Momentum	M15 – H1	<a href="http://www.algotbot.live">www.algotbot.live</a>

**⚠ 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

**Trend Acceleration Momentum** is a trend-following momentum-ignition Expert Advisor. Most trend filters only check that a moving average is sloping the right way — the *first derivative* of trend. This strategy goes one step further and measures whether that slope is itself **increasing** — the *second derivative*, i.e. acceleration.

Trends tend to pay best while momentum is still building; once the slope flattens, the easy move is usually over. By requiring positive acceleration, the EA enters early in the impulsive leg and sits out the exhausted, decelerating tail. A Relative Strength Index (RSI) filter confirms momentum direction, while an over-extension guard refuses to chase an already-climaxed move.

Positions are protected with volatility-scaled ATR stops and targets, plus an optional chandelier-style ATR trailing stop that only ever tightens. The system trades a single symbol on a single timeframe, holds at most one position per magic number, and uses fixed-lot sizing with few, broadly-ranged parameters to resist curve-fitting. It was designed with liquid trend markets in mind, such as EUR/USD or XAU/USD on the M15–H1 timeframes.

# How It Works

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## The Acceleration Signal

On every completed bar the EA samples an EMA of the closing price at three equally spaced points and derives the trend's speed and its rate of change:

```
emaNow    = EMA at the just-closed bar
emaMid     = EMA SlopeBars bars earlier
emaFar     = EMA 2*SlopeBars bars earlier

slopeNow   = emaNow - emaMid      (recent trend speed)
slopePrev  = emaMid - emaFar      (earlier trend speed)
accel      = slopeNow - slopePrev (is the trend speeding up?)
```

A positive `accel` means the trend is not just moving in one direction but is **gaining pace** — the hallmark of an impulsive leg rather than a tired drift.

## Entry Logic

The long and short rules are distinct and perfectly symmetric. All conditions are evaluated on the candle that has just closed (shift 1); nothing is read from the still-forming bar.

### LONG ENTRY

- **Up-trend accelerating:** `slopeNow > 0` and `accel > 0`
- **Price confirms:** the just-closed candle closes **above** the EMA
- **Momentum confirms:** `RSI ≥ RsiTrigger`
- **Not over-extended:** `RSI < 80` (OverboughtGuard)

### SHORT ENTRY

- **Down-trend accelerating:** `slopeNow < 0` and `accel < 0`
- **Price confirms:** the just-closed candle closes **below** the EMA
- **Momentum confirms:** `RSI ≤ 100 - RsiTrigger`
- **Not over-extended:** `RSI > 20` (OversoldGuard)

**Why the guard matters.** The over-extension guard skips entries when RSI is already at an extreme. The goal is to *ignite with momentum* — not to buy the top or sell the bottom of a climax bar where reversal risk is highest.

## Exit Logic — Stops & Targets

Every position is opened with a fixed, volatility-scaled stop-loss and take-profit derived from the Average True Range (ATR), so the risk-to-reward ratio adapts automatically to any market or timeframe:

- **Long:**  $SL = \text{entry} - \text{AtrSlMult} \times \text{ATR}$ ,  $TP = \text{entry} + \text{AtrTpMult} \times \text{ATR}$
- **Short:**  $SL = \text{entry} + \text{AtrSlMult} \times \text{ATR}$ ,  $TP = \text{entry} - \text{AtrTpMult} \times \text{ATR}$

With the defaults ( $SL = 2.0 \times \text{ATR}$ ,  $TP = 3.5 \times \text{ATR}$ ) each trade targets roughly a **1 : 1.75** reward-to-risk ratio.

## Chandelier ATR Trailing Stop

When  $\text{TrailAtrMult} > 0$ , an optional chandelier-style trailing stop is applied on every new bar while a position is open. It trails price by  $\text{TrailAtrMult} \times \text{ATR}$  and **only ever tightens** toward price — it is never loosened. This locks in open profit as a winner runs while still giving the trade room to breathe. Setting  $\text{TrailAtrMult} = 0$  disables trailing entirely, leaving the fixed ATR stop and target in charge.

### Worked example (long)

Suppose EUR/USD closes a bar at 1.09500 with the EMA accelerating upward, price above the EMA, and RSI at 58. With  $\text{ATR} = 0.00120$  and default multipliers:

• Entry (Ask)  $\approx 1.09500$  • Stop =  $1.09500 - 2.0 \times 0.00120 =$   
**1.09260**

• Target =  $1.09500 + 3.5 \times 0.00120 =$   
**1.09920**

As price advances, the chandelier stop trails  $2.5 \times \text{ATR}$  below the Bid, ratcheting the stop up bar by bar to protect the gain.

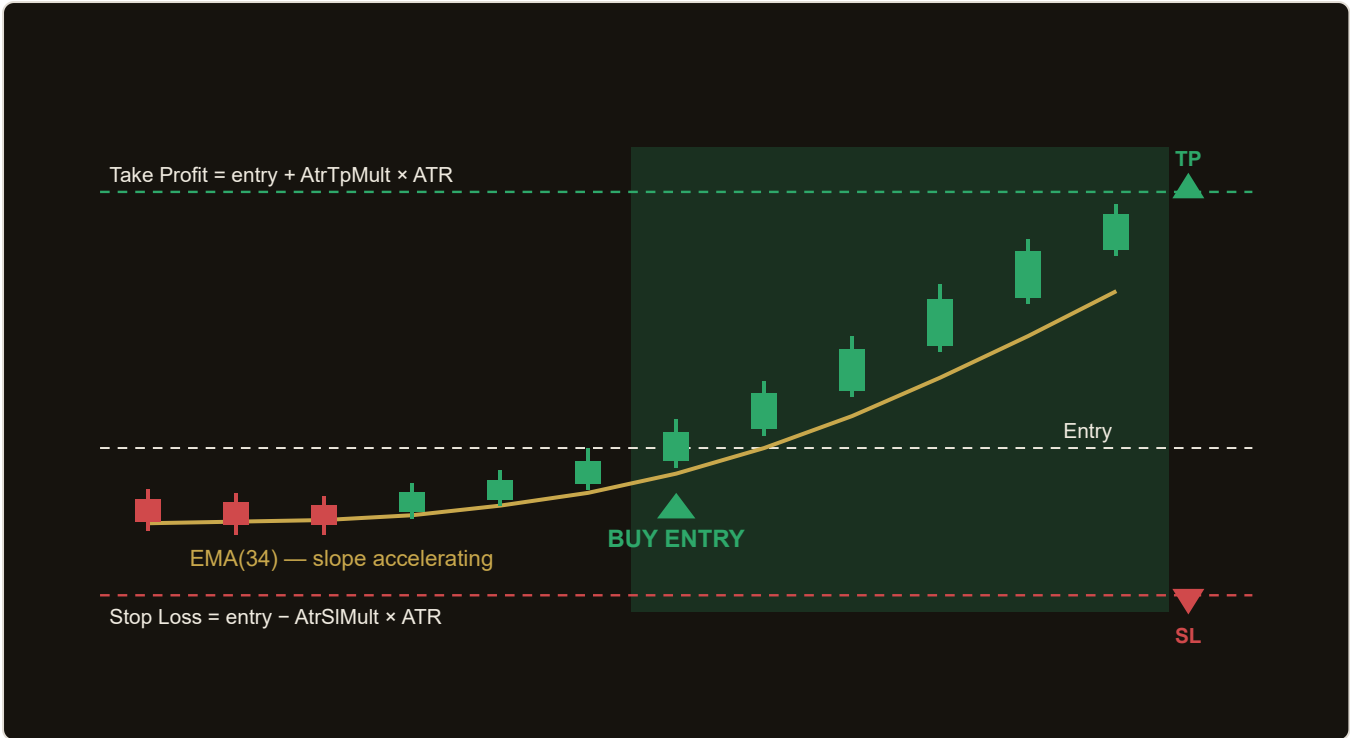
## Position Management Rules

- **One position per magic** at a time — no pyramiding or hedging.
- **Fixed-lot sizing** via the `Lots` input.
- **New-bar execution** — signals are checked once per completed bar, avoiding intrabar noise.
- **Single symbol / single timeframe** — the EA runs on whatever chart and timeframe it is attached to.

## Strategy in Action

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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.



*Illustrative example only. Actual market behaviour varies.*

## Parameters

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Parameter	Default	Description
EmasPeriod	34	EMA length whose slope acceleration drives the signal. Range 10–80, step 2.
SlopeBars	3	Spacing, in bars, between the three EMA samples used to measure slope and acceleration. Range 1–10, step 1.
RsiPeriod	14	RSI length for the momentum-confirmation filter. Range 5–30, step 1.
RsiTrigger	53	Momentum trigger: a long needs $RSI \geq$ this value; a short needs $RSI \leq 100 -$ this value. Range 50–65, step 1.
AtrPeriod	14	ATR length used for the stop, target, and trail distances. Range 7–30, step 1.
AtrSIMult	2.0	Stop-loss distance in ATRs: $SL = \text{entry} \mp \text{AtrSIMult} \times \text{ATR}$ . Range 1.0–4.0, step 0.5.
AtrTpMult	3.5	Take-profit distance in ATRs: $TP = \text{entry} \pm \text{AtrTpMult} \times \text{ATR}$ . Range 1.5–7.0, step 0.5.
TrailAtrMult	2.5	Chandelier trailing-stop distance in ATRs. Set to 0 to disable trailing. Range 0.0–5.0, step 0.5.
Lots	0.10	Fixed lot size for each position. Range 0.01–1.0, step 0.05.
Magic	5290	Magic number identifying this EA's positions, so trailing and the one-position rule act only on its own trades.

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**Tip.** The two acceleration inputs work together. A larger `SlopeBars` smooths the acceleration reading and reduces false ignitions on choppy data, while a shorter `EmasPeriod` reacts faster to fresh trends. Change one at a time and re-test.

## Recommended Settings

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The defaults are a balanced starting point for liquid trend markets on intraday timeframes. The following are sensible starting profiles — always validate on your own broker's data before going live.

Setting	Suggested	Notes
Symbols	EUR/USD, XAU/USD	Liquid, trend-prone instruments suit a momentum-ignition approach.
Timeframe	M15 – H1	Enough bars for clean acceleration readings without excessive noise.
EmaPeriod	34	Lower toward 20 for faster markets; raise toward 50 to demand stronger, more established trends.
RsiTrigger	53	Raise toward 60 for stricter, higher-conviction entries; fewer but cleaner signals.
AtrSIMult / AtrTpMult	2.0 / 3.5	Roughly 1:1.75 reward-to-risk. Widen the stop on volatile symbols such as gold.
TrailAtrMult	2.5	Set to 0 to rely purely on the fixed ATR target instead of trailing.

**Test before live trading.** Always run a full backtest and a period of forward testing on a demo account with your broker's spreads and execution before committing real capital. Optimise across the broad parameter ranges rather than fitting a single narrow peak.

## How to Install on MetaTrader 5

- 1 Copy `TrendAccelerationMomentum.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

**Note.** To edit or recompile the source, place `TrendAccelerationMomentum.mq5` in the same `MQL5\Experts\` folder and compile it in MetaEditor to regenerate the `.ex5`.

## Risk Warning

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