

Relative Vigor Trend Shift

Expert Advisor Documentation

PLATFORM

MetaTrader 5 (MT5)

TYPE

Trend-Following Momentum

TIMEFRAME

M15 / H1

WEBSITE

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

Relative Vigor Trend Shift is a momentum Expert Advisor built around the Relative Vigor Index (RVI) — an oscillator that measures market *conviction* rather than price level. The core premise is simple: in a genuine up move price tends to close near the **top** of each bar's range, and in a down move near the **bottom**. RVI captures exactly this by comparing where price closes within the bar $(\text{Close} - \text{Open})$ to the bar's full range $(\text{High} - \text{Low})$.

When RVI crosses **up** through its own signal line, closing pressure is flipping bullish; when it crosses **down**, pressure is flipping bearish. That crossover is the "vigor shift" the strategy trades. To avoid the classic weakness of any raw oscillator — whipsaw in flat, directionless tape — every signal is filtered through a single slow **trend EMA**: longs are only taken while price is above it, shorts only while price is below it. One filter, one job: trade vigor shifts that agree with the prevailing drift, and skip the counter-trend flips that tend to be noise.

The EA is deliberately compact. A small parameter set (oscillator length, ATR window, two ATR multiples, one trend length) keeps the search space honest and resists over-fitting, while ATR-based stops and targets make the risk profile volatility-adaptive across any symbol and timeframe.

Design intent. Because RVI reads real order-flow conviction — where price actually commits to close — and the trend EMA keeps the EA on the side that pays, the strategy is intended for liquid, trending instruments such as EURUSD or XAUUSD on the M15 or H1 timeframe.

How It Works

The Relative Vigor Index

Each bar contributes two quantities: the close-vs-open displacement `co = Close - Open` and the bar range `hl = High - Low`. Both are smoothed with a 4-bar triangular weighting, averaged over `RviPeriod`, and divided to normalise vigor by range:

```
co = Close - Open           // where price closed within the bar
hl = High - Low            // the bar's full range

num = (co0 + 2·co-1 + 2·co-2 + co-3) / 6    // 4-bar triangular smoothing
den = (hl0 + 2·hl-1 + 2·hl-2 + hl-3) / 6

RVI = SMA(num, RviPeriod) / SMA(den, RviPeriod)
Signal = (RVI0 + 2·RVI-1 + 2·RVI-2 + RVI-3) / 6 // RVI's own trigger line
```

The Signal line is a triangular-weighted average of the last four RVI values and acts as the trigger. A cross of RVI through Signal is the raw entry event.

MT5 equivalence. The C# reference builds RVI by hand as `SMA(num)/SMA(den)`. Because the averaging period cancels in a ratio, `SMA(num)/SMA(den) = SUM(num)/SUM(den)` — which is exactly MetaTrader's built-in `iRVI`. The MQL5 EA therefore uses `iRVI` directly (buffer 0 = Main/RVI, buffer 1 = Signal) as a mathematically exact equivalent.

Entry Logic

Signals are evaluated once per newly-closed bar. Both the vigor cross and the trend gate must agree:

- **Long entry** — RVI crosses **up** through its Signal line *and* the closed price is **above** the trend EMA.
- **Short entry** — RVI crosses **down** through its Signal line *and* the closed price is **below** the trend EMA.

A cross is detected by comparing the current and previous readings: `crossUp = rviPrev ≤ sigPrev && rviNow > sigNow`, and the mirror condition for `crossDown`. Before any order is sent, the current spread must be at or below `MaxSpreadPoints`; wider spreads are skipped.

Exit Logic

A live trade can close in three ways:

- **Take-profit** — price reaches $\text{TakeProfitAtr} \times \text{ATR}$ from entry.
- **Stop-loss** — price reaches $\text{StopLossAtr} \times \text{ATR}$ against entry.
- **Vigor rollover** — the *opposite* vigor cross fires before the stop or target is hit. A long is flattened on a cross-down, a short on a cross-up. Vigor has rolled over, so the EA stops paying to hold the position.

Risk & Position Management

Every entry receives an ATR-based protective stop and take-profit, so the reward-to-risk ratio is fixed and volatility-adaptive on any symbol or timeframe. With the defaults ($\text{StopLossAtr} = 2.0$, $\text{TakeProfitAtr} = 3.0$) the target sits at 1.5× the risk distance.

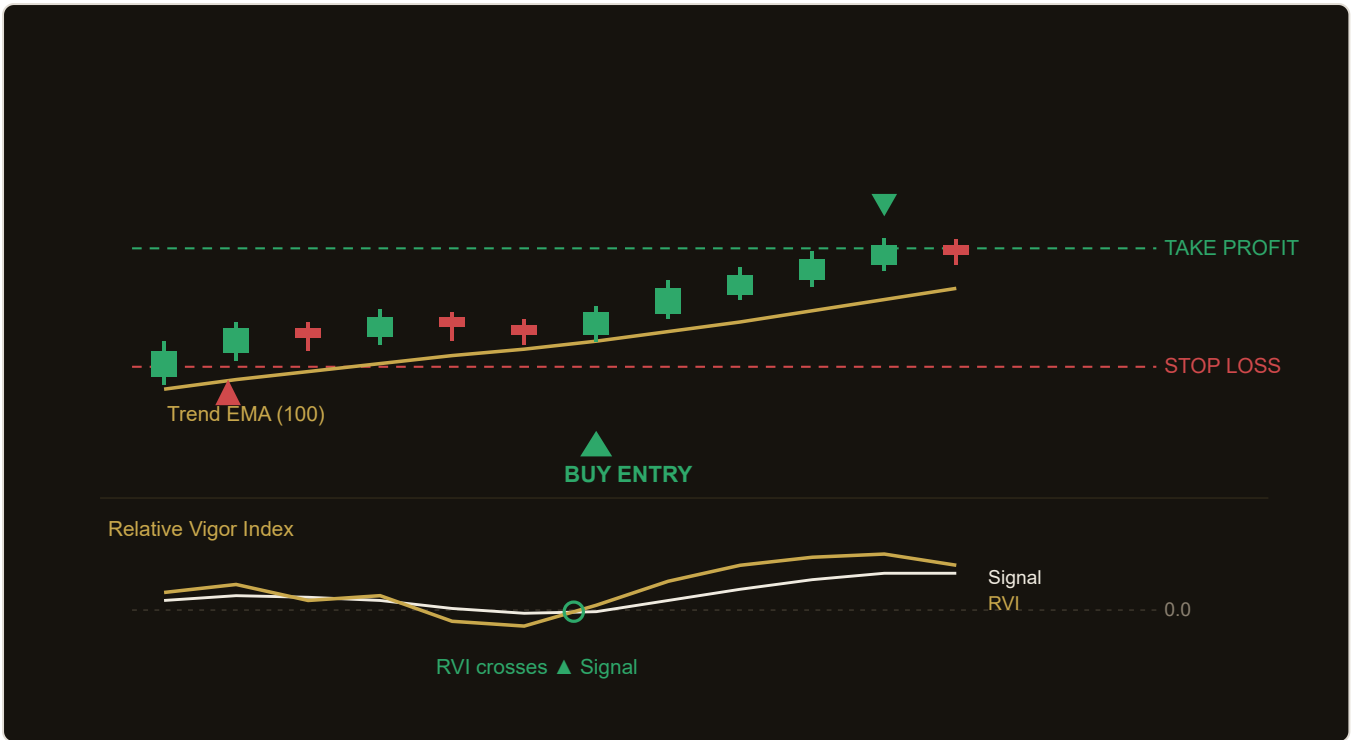
- **One position per Magic** — no pyramiding; exposure and drawdown stay bounded.
- **No new entry while a trade is live** — the EA only manages the open position until it closes.
- **Volume normalisation** — the base Lots value is rounded to the symbol's volume step and clamped to its min/max limits.

Worked example (EURUSD, ATR = 0.0012)

A long entry at 1.09500 with the default multiples places the stop at $1.09500 - 2.0 \times 0.0012 = 1.09260$ (24 pips) and the target at $1.09500 + 3.0 \times 0.0012 = 1.09860$ (36 pips) — a fixed 1 : 1.5 risk-to-reward that automatically widens or tightens as volatility changes.

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.



Illustrative example only. Actual market behaviour varies.

In the illustration, price consolidates but holds **above** the trend EMA (the long gate stays open). When RVI turns up and crosses its Signal line, the vigor shift confirms a bullish entry. An ATR-based stop sits below and a take-profit at 1.5× the risk distance sits above; here price rallies into the target.

Parameters

Parameter	Default	Description
RviPeriod	10	Averaging length of the RVI oscillator and its num/den smoothing base. Range 4–30, step 1.
AtrPeriod	14	ATR window used to size the protective stop and take-profit. Range 7–30, step 1.
StopLossAtr	2.00	Protective stop distance as a multiple of ATR. Range 0.50–5.00, step 0.25.
TakeProfitAtr	3.00	Take-profit distance as a multiple of ATR. Range 0.50–8.00, step 0.25.
TrendEmaPeriod	100	Trend regime filter: EMA on closes. Longs only above it, shorts only below it. Range 20–250, step 10.
MaxSpreadPoints	30	Skip the trade if the current spread (in points) is wider than this. Range 1–200, step 1.
Lots	0.10	Base order volume, normalised to the symbol's lot step and min/max limits. Range 0.01–1.00, step 0.05.
Magic	7310	Magic number identifying this EA's positions. Range 0–9,999,999, step 1.

Recommended Settings

The defaults are tuned for a liquid trending instrument on an intraday timeframe. Use them as a starting point, then adjust to the symbol and your risk tolerance.

INSTRUMENT & TIMEFRAME

- **Symbols:** liquid trenders such as EURUSD or XAUUSD.
- **Timeframe:** M15 or H1 — trend-following momentum style.

TUNING NOTES

- **RviPeriod** — lower values (4–8) react faster but generate more crosses; higher values (12–20) are smoother and fewer.
- **TrendEmaPeriod** — the regime filter's backbone. A longer EMA (150–250) demands a stronger prevailing trend before any signal is taken; a shorter one (20–60) is more permissive.
- **StopLossAtr / TakeProfitAtr** — keep the target above the stop for a favourable reward-to-risk ratio. The defaults give 1 : 1.5.

- **MaxSpreadPoints** — tighten this on tight-spread majors; widen it for instruments with naturally higher spreads such as gold.

Tip. Always validate any parameter set in the MT5 Strategy Tester on your specific broker's data before considering live deployment. Spread, swap, and execution differ between brokers and materially affect an ATR-based system.

How to Install on MetaTrader 5

- 1 Copy `RelativeVigorTrendShift.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

Risk Warning

Trading foreign exchange, CFDs, and other leveraged financial instruments involves substantial risk of loss and is not suitable for all investors. The strategies and tools described in this document are provided for **educational purposes only** and do not constitute financial advice, investment recommendations, or solicitation to trade. Always consult a qualified financial adviser before making trading decisions. Past backtest performance is not indicative of future results.