

Volatility Scaled Thrust

Expert Advisor Documentation

PLATFORM

MetaTrader 5 (MT5)

TYPE

Momentum Breakout

TIMEFRAME

H1 (Intraday)

WEBSITE

www.algoBot.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

Volatility Scaled Thrust is a momentum-ignition breakout Expert Advisor built on the **Pretty Good Oscillator (PGO)**. The PGO measures how far the current close has displaced from its own simple moving average and expresses that distance in *volatility units* by dividing it by the Average True Range (ATR):

$$\text{PGO} = (\text{Close} - \text{SMA}) / \text{ATR}$$

Because the raw displacement is divided by ATR, the reading is **self-normalising**. A "+2.5" thrust means the same thing on a quiet, narrow-range session as it does on a fast, wide-range one — so a single threshold travels across symbols and market regimes without constant re-tuning.

The strategy only acts when price **thrusts through** that threshold on the current bar: the oscillator was inside the band on the previous bar and is outside it now. This "fresh cross" requirement filters out slow drift and prevents the EA from chasing a market that is already stretched. Winners are allowed to ride the impulse, while trades whose momentum quietly dies are cut early by a mean-reversion exit.

Why volatility scaling matters. A fixed price-distance breakout that works on EURUSD will over-trade on a volatile pair like GBPJPY and under-trade on a calm one. Expressing the thrust in ATR units lets the same `ThrustThreshold` behave consistently everywhere, which is the core design goal of this EA.

How It Works

The Pretty Good Oscillator (PGO)

On every newly-closed bar the EA computes three values on the just-closed bar (shift 1):

- **SMA** — a simple moving average of the close over `BasisPeriod` bars. This defines the "mean" the price is measured against.
- **ATR** — the Average True Range over `AtrPeriod` bars. This normalises the displacement into volatility units.
- **PGO** — the displacement $(\text{Close} - \text{SMA}) / \text{ATR}$. A positive PGO means price is stretched above its mean; a negative PGO means it is stretched below.

Entry Logic

A trade is triggered only by a genuine **cross** of the volatility-scaled threshold — the oscillator must have been at or inside the band on the previous bar and moved beyond it on this bar:

- **Long entry** — PGO crosses *up* through `+ThrustThreshold` (fresh upside displacement, an ignition of upward momentum).
- **Short entry** — PGO crosses *down* through `-ThrustThreshold` (fresh downside displacement).

Entries are evaluated on the primary symbol and primary timeframe only. The EA never stacks a new entry on top of a position it is already managing within the same bar.

Example — a long ignition

With `ThrustThreshold = 2.50` : on the previous bar PGO read `+1.80` (inside the band). On the current close, price surges and the SMA-to-close gap widens to 2.7 ATRs, so PGO reads `+2.70` — a cross *up* through `+2.50`. The EA opens a long at the Ask, placing an ATR-scaled stop-loss and take-profit.

Exit Logic

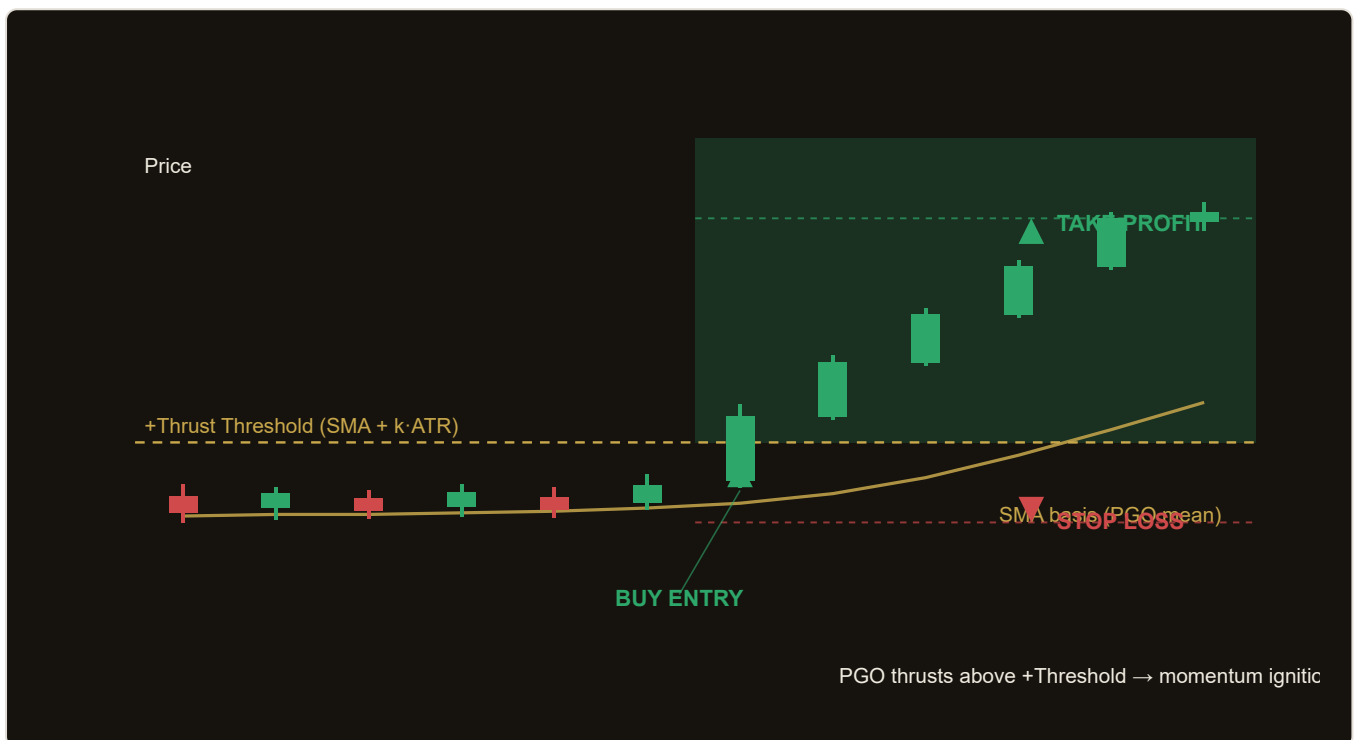
Every position carries two independent protective levels plus an early momentum exit:

- **Stop-loss** — placed `StopAtrMult × ATR` away from entry (below for longs, above for shorts).
- **Take-profit** — placed `TargetAtrMult × ATR` away from entry (above for longs, below for shorts).
- **Momentum-exhaustion (zero-cross) exit** — a long is closed as soon as PGO falls back through zero (price has returned to its mean, the impulse is spent); a short is closed when PGO climbs back through zero. This releases capital from trades whose momentum quietly dies before the stop or target is reached.

Non-repainting by design. All signals are evaluated on the just-closed bar (shift 1). Indicator values and crosses are read from confirmed, fully-formed data, so a signal never changes after the fact. The EA acts once per newly-closed bar via a new-bar gate.

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.

Parameters

Parameter	Default	Description
BasisPeriod	21	SMA length that defines the "mean" the close is measured against (the PGO basis). Range 8–60, step 1. Shorter values react faster and fire more often; longer values track a smoother mean.
AtrPeriod	14	ATR length that normalises the displacement into volatility units and sizes the stop/target. Range 7–40, step 1.
ThrustThreshold	2.50	Volatility-scaled displacement (in ATR units) a thrust must cross to trigger an entry. Range 1.00–5.00, step 0.25. Higher values demand stronger, rarer ignitions.
StopAtrMult	2.00	Stop-loss distance as a multiple of ATR. Range 0.50–5.00, step 0.25.
TargetAtrMult	3.50	Take-profit distance as a multiple of ATR. Range 1.00–8.00, step 0.25. With the defaults this gives a reward-to-risk ratio of roughly 1.75 : 1.
Lots	0.10	Position size in lots. Range 0.01–1.00, step 0.05. Set this to match your account size and risk tolerance.
Magic	1001	Magic number used to identify and manage this EA's own positions. Assign a unique value if you run several EAs on the same account.

Recommended Settings

The defaults are a balanced starting point designed to work across symbols thanks to the ATR normalisation. Because the thrust is measured in volatility units, the same **ThrustThreshold** can be carried between instruments without rescaling.

- **Timeframe:** H1 is a good intraday balance between signal frequency and noise. Higher timeframes (H4) produce fewer, cleaner ignitions.
- **Symbols:** Liquid FX majors (EURUSD, GBPUSD, USDJPY) and index CFDs where clean directional thrusts are common.
- **Thrust sensitivity:** Raise **ThrustThreshold** toward 3.0–3.5 to trade only the strongest ignitions; lower it toward 1.75–2.0 for more frequent, earlier entries.
- **Risk shaping:** Keep **TargetAtrMult** above **StopAtrMult** so winners more than pay for stops; the momentum-exhaustion exit will often close trades before either level is reached.

Tip. Always validate any parameter set in the MT5 Strategy Tester on your chosen broker's data before trading it live. Spread, commission, and execution quality all affect an ATR-scaled breakout, and different brokers quote ATR differently.

How to Install on MetaTrader 5

- 1 Copy `VolatilityScaledThrust.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.