

Dual Thrust Breakout

Expert Advisor Documentation

PLATFORM

MetaTrader 5 (MT5)

TYPE

Volatility Breakout

TIMEFRAME

H1 (recommended)

WEBSITE

www.algotbot.live

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Overview

Dual Thrust Breakout is a volatility-range breakout strategy in the spirit of Michael Chargin's classic *Dual Thrust* system, adapted to a single timeframe and hardened with an EMA trend filter. Rather than breaking a fixed swing high or low, it builds a volatility "band" around the current bar's open. The band width is a fraction (K) of a robust range measured over the last N bars, so the same coefficient stays meaningful whether the market is quiet or wild — that adaptability is the whole point of the approach.

A close above the upper band is an **upside thrust**; a close below the lower band is a **downside thrust**. Because raw Dual Thrust fires in both directions and gets chopped up in ranges, the strategy layers an **EMA trend filter** on top: it only takes upside thrusts while price is above the EMA, and only downside thrusts while price is below it. This aligns every breakout with the prevailing drift and cuts counter-trend false signals. Risk is defined objectively by **ATR** (stop-loss and take-profit are both multiples of ATR), and an opposite thrust reverses the position so the system is always positioned with the dominant thrust.

Key idea: the breakout band expands and contracts with realized volatility. In a calm market the band is narrow and thrusts trigger on modest moves; in a volatile market the band widens automatically, filtering out the noise. The EMA filter then ensures those thrusts are only taken in the direction of the trend.

How It Works

1. Building the volatility range

On each newly-closed bar, the EA measures a robust range over the `RangePeriod` bars *behind* the evaluated bar. Four extremes are collected across that lookback window:

- **HH** — the highest High
- **LL** — the lowest Low
- **HC** — the highest Close
- **LC** — the lowest Close

$$\text{Range} = \max(\text{HH} - \text{LC}, \text{HC} - \text{LL})$$

Using the larger of the two spreads produces a stable, noise-resistant measure of how far the market has recently travelled.

2. The thrust lines

Two breakout lines are anchored to the **open of the evaluated bar** and offset by a coefficient-scaled fraction of the range:

$$\begin{aligned}\text{Upper thrust line} &= \text{Open} + K_{\text{Upper}} \times \text{Range} \\ \text{Lower thrust line} &= \text{Open} - K_{\text{Lower}} \times \text{Range}\end{aligned}$$

Because `KUpper` and `KLower` are independent, the band can be made asymmetric — for example, requiring a stronger push to go long than to go short.

3. Trend filter and entry logic

An EMA of length `TrendEmaPeriod` defines the prevailing trend. A signal only fires when the bar's close both breaks a thrust line *and* agrees with the EMA:

- **Long signal:** `Close > Upper thrust line` *and* `Close > EMA`
- **Short signal:** `Close < Lower thrust line` *and* `Close < EMA`

If neither condition holds, the EA does nothing and waits for the next closed bar.

4. Position management & reversal

The strategy holds at most one position per direction (identified by its `Magic` number). When an opposite thrust fires, the existing position is closed and the new one opened — the system **reverses** so it is always aligned with the dominant thrust:

- A **long signal** closes any open short, then opens a long (if not already long).
- A **short signal** closes any open long, then opens a short (if not already short).

5. Risk sizing (ATR-based SL/TP)

Stops and targets are sized off the current ATR rather than fixed pip distances, so protection scales with volatility. On entry:

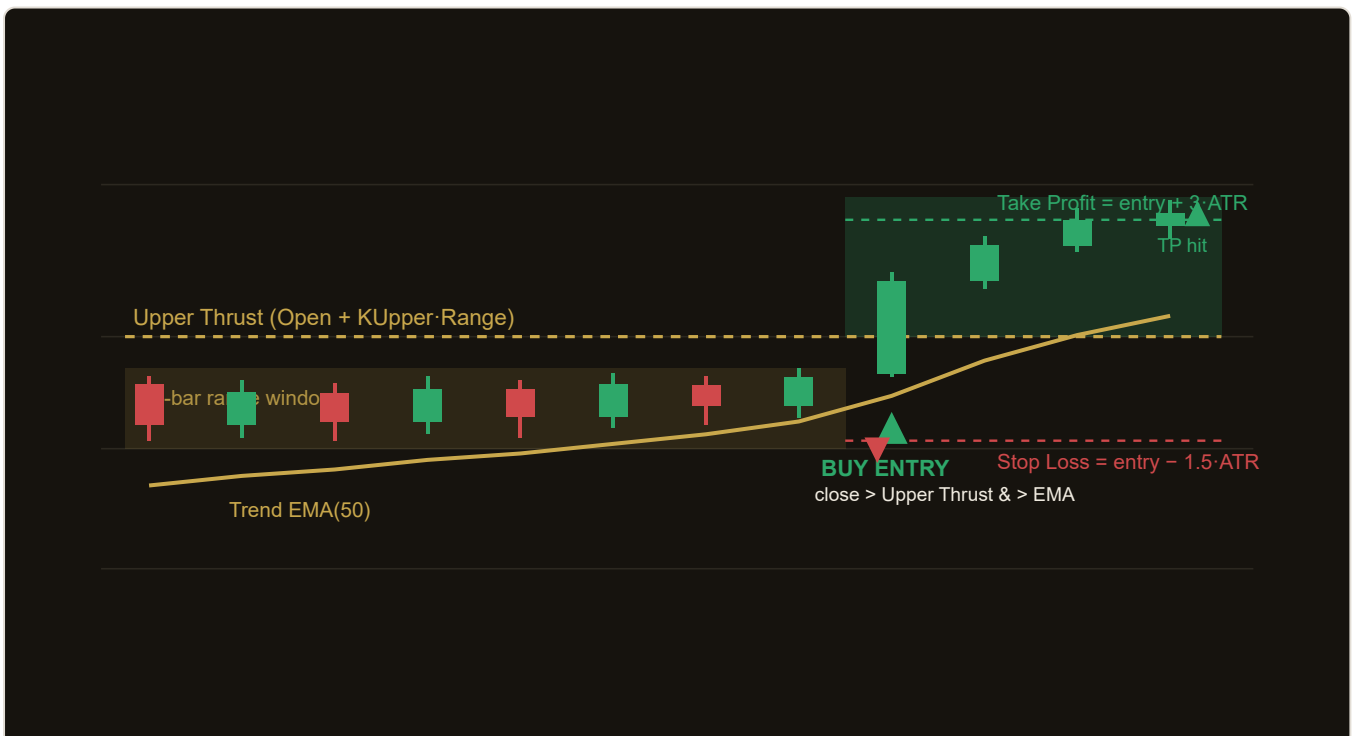
Long: $SL = \text{entry} - \text{AtrSlMult} \times \text{ATR}$ $TP = \text{entry} + \text{AtrTpMult} \times \text{ATR}$
 Short: $SL = \text{entry} + \text{AtrSlMult} \times \text{ATR}$ $TP = \text{entry} - \text{AtrTpMult} \times \text{ATR}$

With the defaults ($\text{AtrSlMult} = 1.50$, $\text{AtrTpMult} = 3.00$) each trade targets a **2:1 reward-to-risk** ratio. Entries use the Ask for longs and the Bid for shorts, and SL/TP levels are normalized to the symbol's digit precision.

Bar-close discipline: the EA evaluates only once per newly-closed bar (it acts on the bar at shift 1 when a new bar forms). This avoids intrabar repainting and ensures every thrust decision is made on confirmed, finalized prices.

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

Every threshold is an exposed, tunable input. Defaults are shown below; the C# source also declares each parameter's optimization range and step for use in a strategy tester.

Parameter	Default	Description
RangePeriod	20	Lookback (bars) for the Dual Thrust range measurement. Range 5–60, step 5.
KUpper	0.50	Upper band coefficient: upside thrust line = Open + KUpper × Range. Range 0.20–1.50, step 0.10.
KLower	0.50	Lower band coefficient: downside thrust line = Open – KLower × Range. Range 0.20–1.50, step 0.10.
TrendEmaPeriod	50	EMA trend-filter period. Only thrusts aligned with this EMA are traded. Range 20–200, step 10.
AtrPeriod	14	ATR period used for risk sizing. Range 7–30, step 1.
AtrSIMult	1.50	Stop-loss distance as a multiple of ATR (SL = AtrSIMult × ATR). Range 0.50–4.00, step 0.25.
AtrTpMult	3.00	Take-profit distance as a multiple of ATR (TP = AtrTpMult × ATR). Range 1.00–6.00, step 0.50.
Lots	0.10	Position size in lots. Range 0.01–1.00, step 0.05.
Magic	5207	Magic number identifying this EA's positions so it manages only its own trades.

Volume note: `Lots` is a fixed position size. It does not scale to account equity or per-trade risk percentage. Confirm the lot size is appropriate for your account balance and your broker's minimum/maximum volume before enabling live trading.

Recommended Settings

The Dual Thrust concept is timeframe-agnostic because the band scales with realized volatility, but it works most cleanly on intraday-to-swing horizons where breakouts have room to run. A sensible starting point:

Setting	Suggested	Notes
Timeframe	H1	H1 offers a good balance of signal frequency and noise. H4 works for slower, cleaner trends.
Instruments	Major FX pairs	Liquid, trending pairs (e.g. EUR/USD, GBP/USD, USD/JPY) suit breakout logic best.
KUpper / KLower	0.50 / 0.50	Symmetric band. Raise a coefficient to demand a stronger push before entering that side.
TrendEmaPeriod	50	Lengthen it (e.g. 100–200) to trade only with the larger trend and reduce whipsaws.
AtrSIMult / AtrTpMult	1.50 / 3.00	Default 2:1 reward-to-risk. Adjust together to suit the instrument's typical follow-through.

Example configuration — EUR/USD on H1

RangePeriod = 20, KUpper = 0.50, KLower = 0.50, TrendEmaPeriod = 50, AtrPeriod = 14, AtrSIMult = 1.50, AtrTpMult = 3.00, Lots = 0.10. Start on a demo account and always validate parameters with a strategy-tester run over recent history before going live.

Tuning tip: in choppy, range-bound markets, widen the band (higher `KUpper` / `KLower`) and/or lengthen the EMA to demand more conviction before a thrust is taken. In strongly trending conditions, a tighter band captures more of the move.

How to Install on MetaTrader 5

- 1 Copy `DualThrustBreakout.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 live trading: run the EA in the MT5 Strategy Tester and on a demo account first. Verify that indicator handles initialize correctly and that the symbol provides enough bar history (the EA needs at least the largest of `RangePeriod+1`, `AtrPeriod+2`, and `TrendEmaPeriod+1` closed bars before it evaluates).

Risk Warning

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