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Disparity Band Reversion

Expert Advisor Documentation

PLATFORM	TYPE	TIMEFRAME	WEBSITE
MetaTrader 5 (MT5)	Mean Reversion	M15 – H1	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

Disparity Band Reversion is a mean-reversion Expert Advisor built on the classic *Disparity Index* — a normalized measure of how far price has stretched away from a short exponential moving average (EMA):

```
disparity% = (Close / EMA(short) − 1) × 100
```

The core idea is simple: when price snaps a set percentage away from its short-term mean, it tends to revert back toward that mean. The EA quantifies that stretch with the disparity reading and enters against the extreme, aiming to capture the "snap-back" toward the EMA.

To avoid the most common failure mode of naive mean reversion — fighting a strong trend all the way down (or up) — the strategy layers a **regime filter** on top. The slope of a longer EMA classifies the market as *up*, *down*, or *flat*, and the EA only takes reversion trades that are not fighting a confirmed trend. A candle-body confirmation and ATR-based risk control complete the system.

> **In one sentence:** buy dips that have stretched below the mean (as long as the market is not in a confirmed downtrend), sell rallies that have stretched above the mean (as long as it is not in a confirmed uptrend), and exit as price reclaims the mean or hits its ATR stop / target.

How It Works

Signal cadence — one decision per closed bar

The EA evaluates its logic **once per completed bar** using new-bar detection. All calculations reference the just-closed bar (shift 1), never the still-forming bar. This keeps signals stable and objective — a setup that is valid at bar close cannot "repaint" away intra-bar. The strategy operates on a single timeframe (the chart it is attached to).

The three building blocks

- **Disparity Index** — `(Close / EMA(EmaPeriod) − 1) × 100`, the percentage stretch of the last close from the short EMA.
- **Regime filter** — the slope of the long EMA (`TrendPeriod`), measured over `SlopeLookback` bars and normalized into ATR units so it adapts to volatility.
- **ATR** — Average True Range (`AtrPeriod`), used both to normalize the slope and to size the stop-loss and take-profit.

Regime classification

The normalized slope is compared against `SlopeThreshold` to label the market:

- **Up regime** (`slopeNorm > +SlopeThreshold`) → only **BUY** negative-disparity dips (with-trend pullback buys).
- **Down regime** (`slopeNorm < −SlopeThreshold`) → only **SELL** positive-disparity rallies (with-trend fades).
- **Flat regime** (neither) → fade **both** extremes (pure mean reversion).

Entry logic

With no open position, the EA opens a trade only when all conditions align:

LONG (BUY)

- Disparity is stretched below the mean: `disparity ≤ −DisparityThreshold`
- The just-closed candle is bullish (`Close > Open`) — body confirmation
- The market is **not** in a down regime (up or flat only)

SHORT (SELL)

- Disparity is stretched above the mean: `disparity ≥ +DisparityThreshold`
- The just-closed candle is bearish (`Close < Open`) — body confirmation
- The market is **not** in an up regime (down or flat only)

Worked example (long)

Say `EmaPeriod = 20` gives EMA = 1.09500 and the last close is 1.09100. Disparity = (1.09100 / 1.09500 − 1) × 100 = `-0.365%`. That is below the `-0.35` threshold, so price is "stretched low." If that closing candle is green and the long-EMA slope is not negative (up or flat), the EA buys at the ask, expecting a snap back up toward 1.09500.

Exit logic

A position can leave the market three ways, whichever comes first:

- **Mean reclaim** — the primary exit. A long is closed as soon as the last close returns to or above the short EMA (`lastClose ≥ emaShort`); a short is closed when the last close returns to or below it (`lastClose ≤ emaShort`). This banks the reversion once price is back at the mean.
- **Take-profit** — a fixed ATR target placed `TpMultiplier × ATR` away from entry.
- **Stop-loss** — a protective stop placed `SlMultiplier × ATR` away from entry, capping the loss if price keeps stretching instead of reverting.

Risk placement

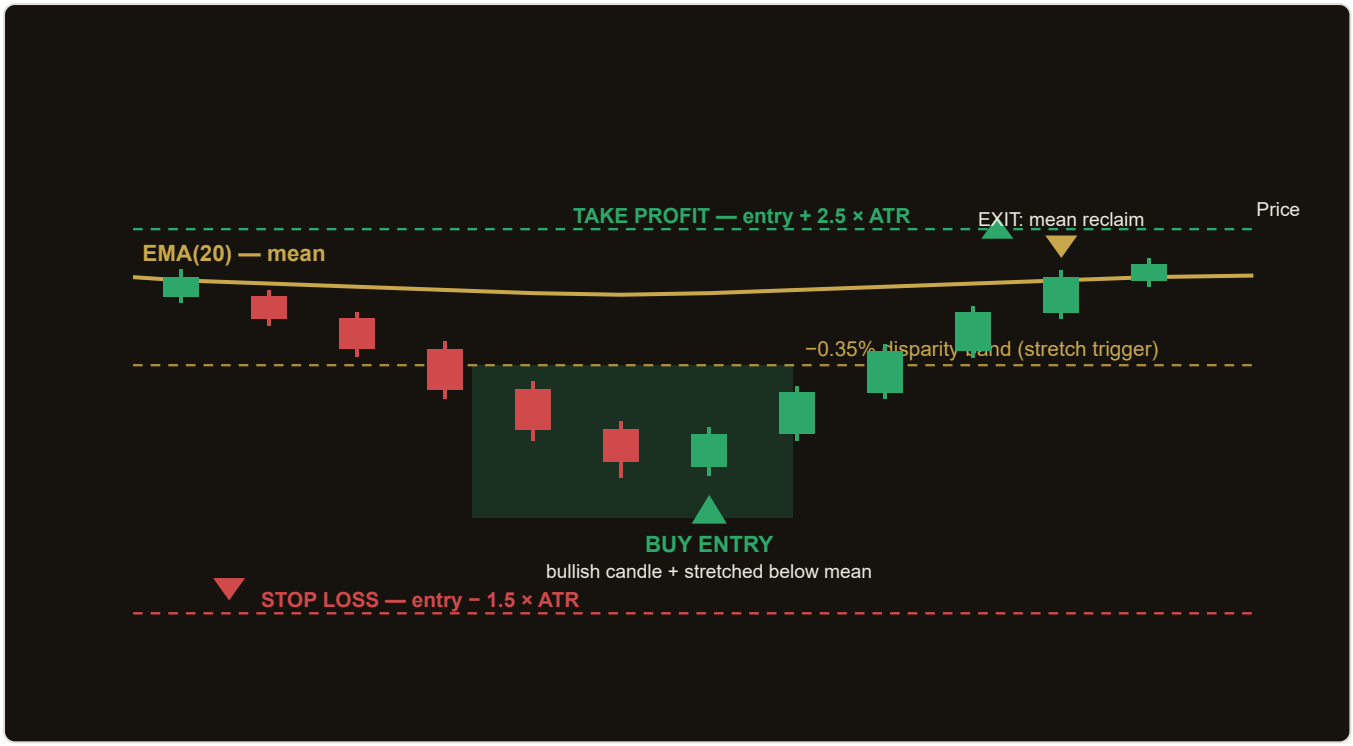
```
Long:   SL = entry − ATR × SlMultiplier
        TP = entry + ATR × TpMultiplier

Short:  SL = entry + ATR × SlMultiplier
        TP = entry − ATR × TpMultiplier
```

Because both the stop and target scale with ATR, the EA automatically widens its risk during volatile conditions and tightens it when the market is calm. Only **one position per magic number** is held at a time; while a trade is open the EA only manages the mean-reclaim exit and takes no new entries.

> **Why the regime filter matters:** a stretched reading during a strong trend is often just the trend accelerating, not an exhaustion. By refusing to buy dips inside a confirmed downtrend (or fade rallies inside a confirmed uptrend), the filter removes the reversion signals most likely to be run over.

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
EmaPeriod	`20`	Short EMA period that serves as the mean for the disparity calculation. Range 10–60, step 5.
DisparityThreshold	`0.35`	Absolute disparity percentage that must be exceeded for price to count as "stretched" from the mean. Range 0.10–2.00, step 0.05.
TrendPeriod	`100`	Long EMA period whose slope defines the market regime (up / down / flat). Range 50–300, step 25.
SlopeLookback	`5`	Number of bars back used to measure the long EMA slope. Range 2–20, step 1.
SlopeThreshold	`0.05`	Minimum normalized slope (in ATR units) required to classify a regime as trending rather than flat. Range 0.00–0.50, step 0.01.
AtrPeriod	`14`	ATR period used for slope normalization and for sizing the stop-loss and take-profit. Range 7–30, step 1.
SlMultiplier	`1.5`	ATR multiplier for the protective stop-loss distance. Range 0.5–4.0, step 0.25.
TpMultiplier	`2.5`	ATR multiplier for the take-profit distance. Range 0.5–6.0, step 0.25.
Lots	`0.10`	Fixed trade volume, in lots, for each position. Range 0.01–1.0, step 0.05.
Magic	`42071`	Unique identifier tagging this EA's orders so it manages only its own positions. Fixed input.

Recommended Settings

The defaults above are a balanced starting point. Because the strategy is pure mean reversion with an ATR-scaled risk envelope, it tends to behave best on liquid instruments and intraday timeframes where short-term stretches revert cleanly.

- **Symbols:** major FX pairs (EUR/USD, GBP/USD, USD/JPY) or liquid indices with tight spreads.
- **Timeframe:** M15 to H1. Lower timeframes generate more setups but are more spread-sensitive; higher timeframes give fewer, cleaner reversions.
- **Disparity threshold:** raise `DisparityThreshold` on volatile symbols so only genuine extremes trigger; lower it on quiet, ranging markets.

- **Regime sensitivity:** increase `SlopeThreshold` to make the trend filter stricter (more flat-regime, two-sided trades); decrease it to more aggressively block counter-trend entries.

> **Tuning tip:** the take-profit multiplier (2.5) is intentionally wider than the stop multiplier (1.5), but many reversions are actually closed earlier by the *mean-reclaim* exit. Always backtest and forward-test on a demo account before committing real capital, and optimize the risk multipliers together rather than in isolation.

> **Spread & broker note:** mean-reversion entries fire at extremes where spreads can widen. Test with realistic spread and commission settings, and confirm your broker's minimum stop distance is compatible with small ATR values before going live.

How to Install on MetaTrader 5

1. Copy `DisparityBandReversion.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.