VMSystem (Semi-Auto)
Indicator User Manual NT 8

Momentum & Divergence System Software

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VMSystem Concepts Explained:

The **VMSystem** is an advanced hybrid momentum & divergence (semi – auto) indicator/strategy. The divergence detection algorithm uses two different oscillators which are compared to price. The 2 momentum oscillators include a **Velocity Histogram (multiple timeframe velocity cycles)** and **MACD BB (Moving Average Convergence Divergence/Bollinger Bands).**

The indicator also uses a momentum and structure bias state dialogue box for automated graphics represented by market structure and momentum. The tool also comes equipped with excursion levels for detecting when the markets are trading at their extremes**.** The trade planning and system components will be described below in the Strategy Section.

This indicator can be used for daytrading, swing trading and investing. It can be used for trading Futures, Forex and Stocks. You can use it as a standalone product or in conjunction with other trading software.

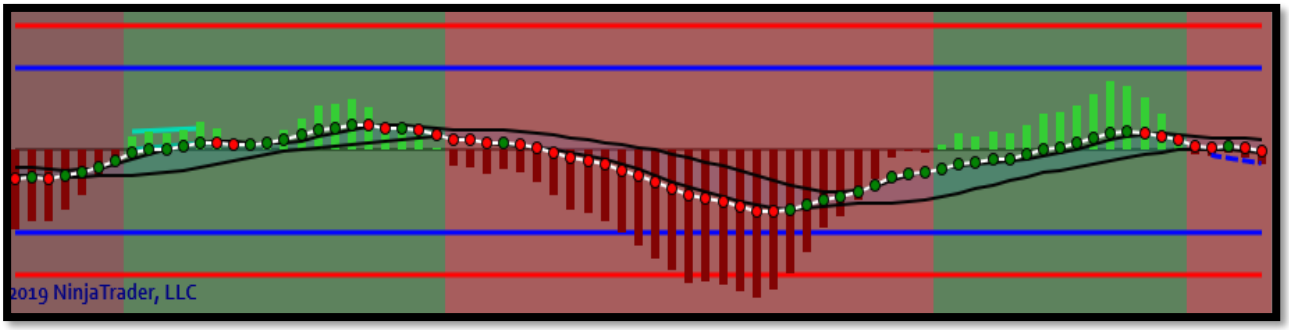
We will provide a detailed description of each component and its best practices so you can make the most of this tool moving forward with your trading. ***Please note…We provide 2 versions…The VMDSystem (includes the divergence and momentum components) the VMLSystem (only has the momentum component and is optimized for faster performance). For the sake of demonstration purposes, this manual will reference the VMDSystem as it includes all features and system parameters.***

1. The **Histogram** measures multiple timeframe cycles of price velocity (speed of price change) from both immediate and higher timeframes. The histogram represents **immediate** directional price movement that leads trend formation.

2. The **MACDBB's** are a secondary measure of **long-term** price momentum. It is made up of 2 components **(BB's & Bollinger Bands).**

    a. The **BB's** are the small dots that are each linked to the price bar above it. The BB's show us momentum represented by the price movement. The angle and distance between the BB's is another indication of strength or weakness in a trend. The BB's relate to a line that helps identify the angle and spacing between the BB's

    b. The **Bollinger Bands** act as support and resistance. If the BB dots are above the Bollinger bands the BB's use the bands as support. If the BB dots are below the Bollinger bands the BB's use the bands as resistance. When the BB dots are between the bands, the BB's will often run towards the next level of support or resistance. When the bands spread farther apart, this signals strength in momentum towards a particular direction. When the bands contract and begin to squeeze together, this identifies a breakout may be underway and may see a shift in price direction.



Indicator Components (Broken down independently)

1. **Momentum Analysis**
2. **Divergence Detection**
3. **Fake-Outs**
4. **Price Exhaustion**

In order to accurately read price direction traders, use tools to form a directional bias towards looking for long or short positions. The key factor to consider is that momentum will often lead to a change in market structure. Momentum will change before a new trend develops. This presents trading opportunities before engaging in trending or oscillating market environments.

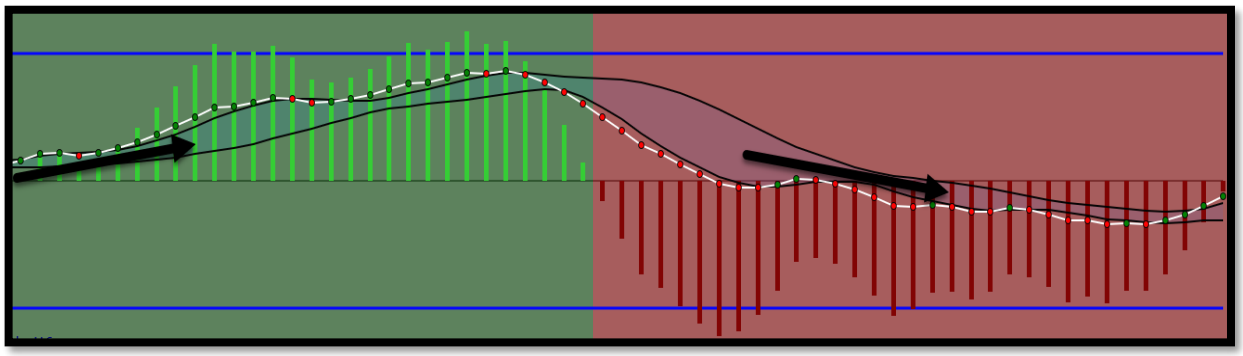
Whether you implement directional trading principles, or you prefer to fade reversals, you can use momentum to formulate a rules-based trading plan around directional bias and trade sentiment.

Momentum Analysis (Confluence & Non-Confluence)

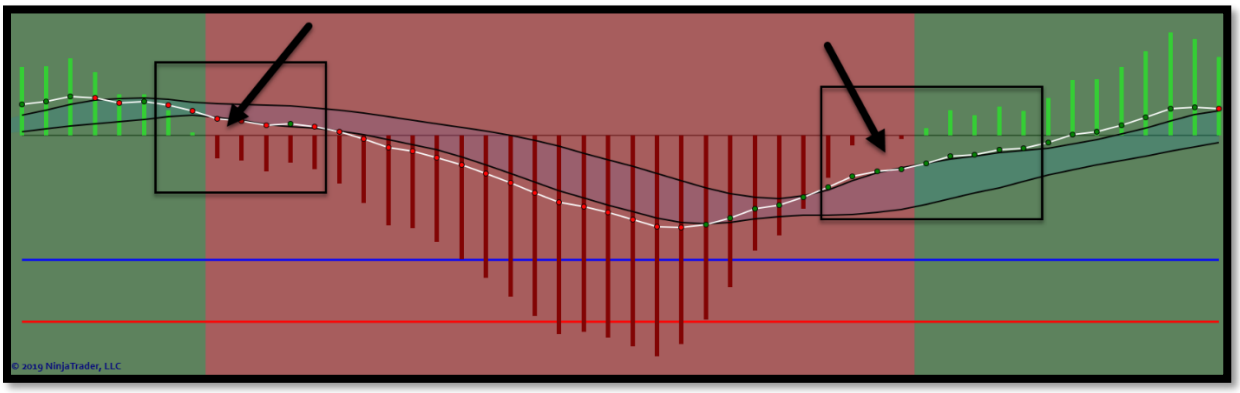
When using an oscillator to detect momentum, most traders use multiple tools to combine information. The VMSystem allows for this to be done within one product.

This is important because we can use a fast gauge of momentum (Histogram) and a slow gauge of momentum (MACD BB) to determine if they are moving together (State of Confluence) or if they are not moving together (State of Non-Confluence).

Confluence – provides evidence of a stronger moving market or if we can expect the direction of price to continue. This is represented by both oscillators moving in tandem above or below the zeroline. This is also identified when there is no GAP between the two.



Non-Confluence – provides evidence that the fast gauge of momentum (Histogram) moves in one direction (above/below) the zeroline, while the slow gauge of momentum (MACD BB) *has not yet closed the gap* and proven direction in this new shift of momentum. This often happens during transitional periods or in oscillating markets. To simplify this, we can identify that fast and slow



Divergence Detection:

The Divergence algorithm calculates regular divergences and hidden divergences for both the Histogram and the MACD BB's. This provides the ability to identify permissive filters for directional trading so trend and momentum traders can pass on trades entering into potential/confirmed divergences. It also provides entry signals for counter-trend trades and reversal trades.

Divergence is measurable on any timeframe and any market as it is strictly the relationship between the direction of price and the direction of momentum. **When price moves in one direction and momentum moves in the opposite direction this signals divergence.**

(Inner Workings of the Divergence Algo):

The divergence detection is based on an in-built swing trend indicator. This indicator is similar to the zigzag indicator that ships with NinjaTrader, but offers further options for adjustment of the swings. The (vertical) minimum swing size can be set as a multiple of the average true range. The (horizontal) swing strength which sets the number of prior highs or lows that a new swing high or low needs to take out, can also be set. By default, the swing trend is deactivated, but it can be activated under the display options via the indicator dialogue box.

The divergences are obtained by connecting two price highs (**bearish divergence**) or two price lows (**bullish divergence**). The divergence lines on the oscillator panel can be drawn in two different ways. The first option has the oscillator values corresponding to price highs or lows connected. The second option looks for an oscillator high or low in the proximity of the price high or low, and then draws the divergence lines between two oscillator highs or lows.

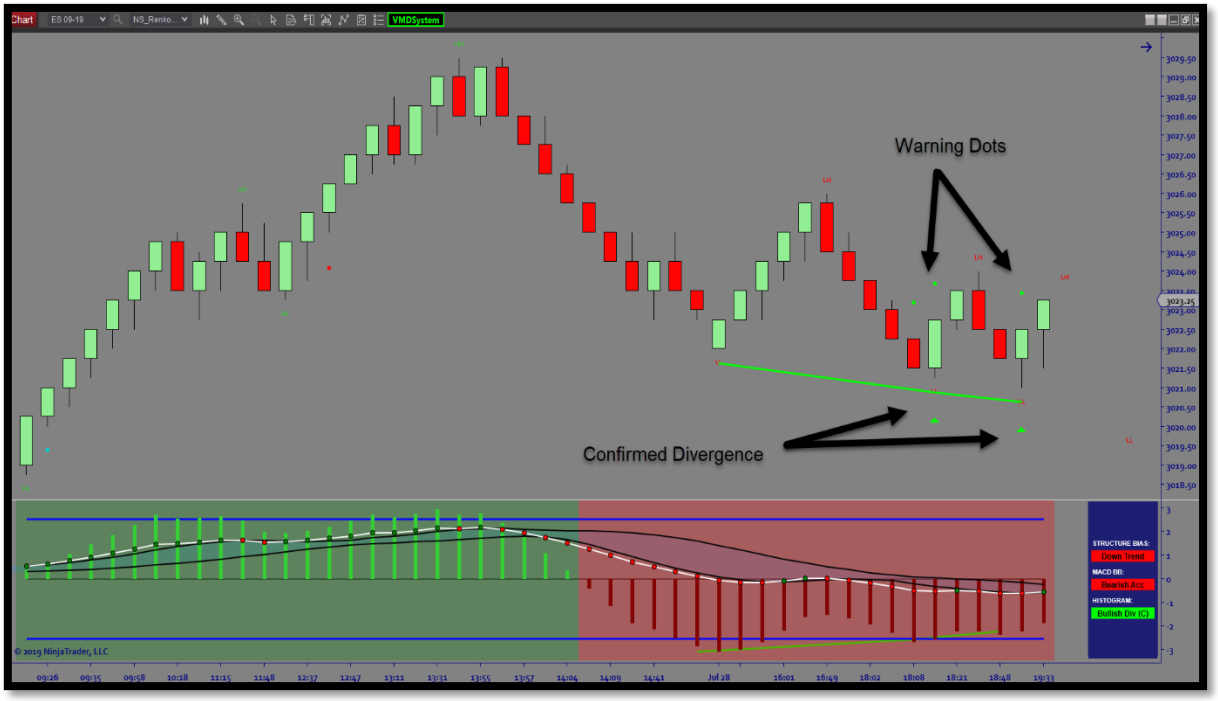
The starting point of the divergence drawn on the price panel is always a high or low identified via the swing trend indicator. Secondary peaks and troughs which could be identified via a smaller timeframe zigzag are neglected. The second peak or trough is not taken from the zigzag, as the zigzag only identifies final swing highs and lows with a considerable delay. Here the algorithm relies on the swing strength criterion and the turn of the oscillator which allows for faster signals

The indicator provides a 2-step process for identifying divergences. This can happen on one oscillator (solo divergence) or both oscillators (double divergence) at any given time. The oscillator also provides capabilities to identify these by different markers on both the chart, the sub panel and the dialogue box.

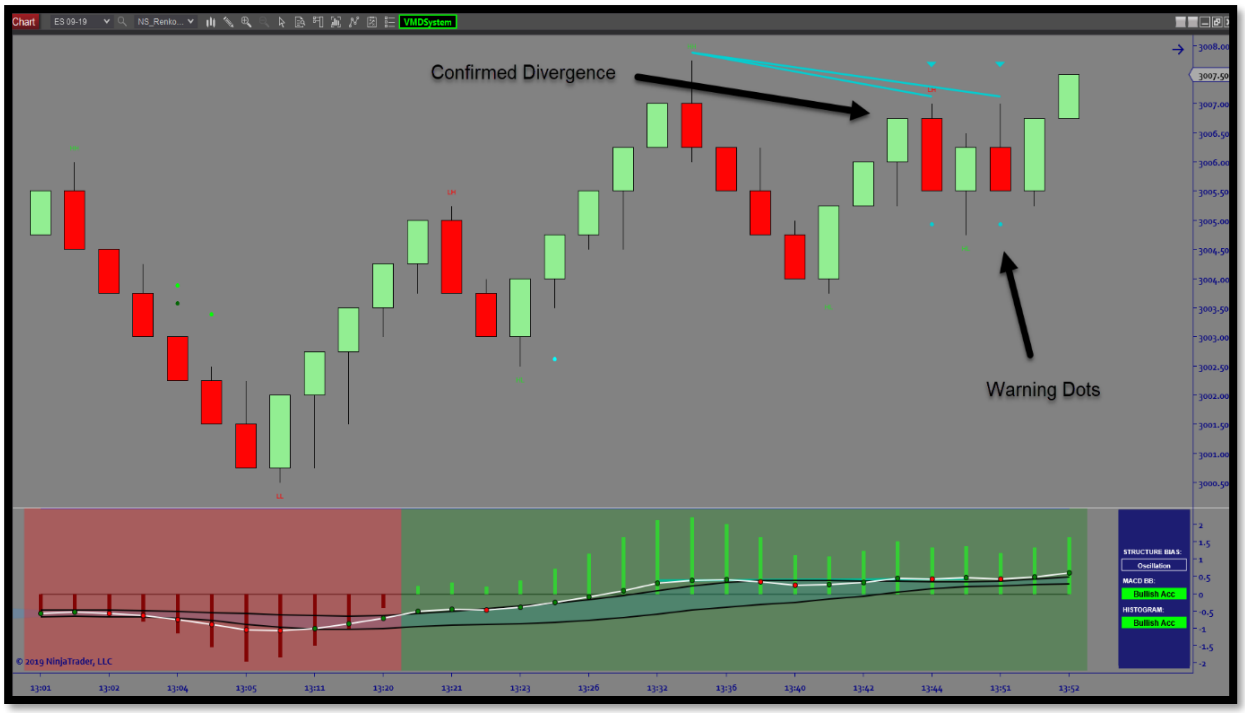
First the indicator identifies **potential** bullish or bearish divergence by plotting a warning dot on the chart as well as a dotted divergence line on the price pane and the sub panel of the chart. It is then **followed** by a confirmed bullish or bearish divergence signal which is identified by an arrow and a solid divergence line on both the price pane and sub panel of the chart. Both potential and confirmed divergences are also detected automatically via the dialogue box and will display in text whether potential or confirmed divergences are detected.

(Potential Bearish Divergence) is detected when price makes a new high while the oscillator makes a lower high at the same time. The setup is validated by **(Confirmed Bearish Divergence)** when a price bar with a close below its open and below the new high that prints after the oscillator value has turned down. Also, when the oscillator peak value remains below the reference value taken from the oscillator peak near the divergence starting point.

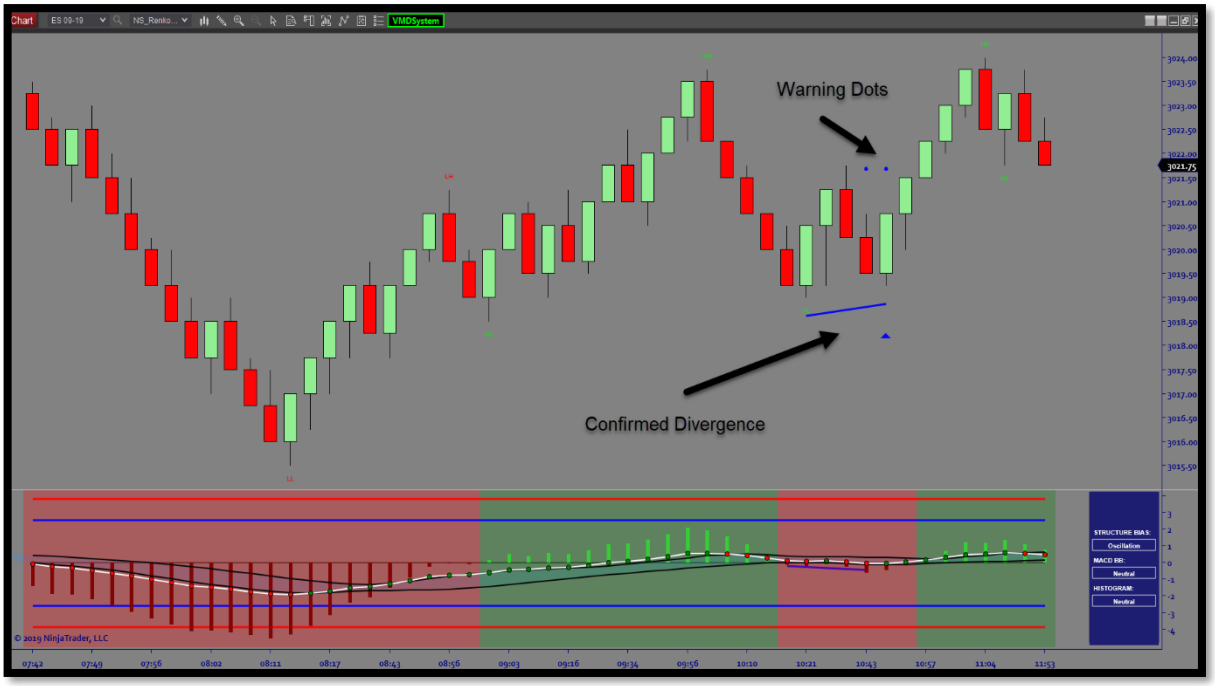
(Potential Bullish Divergence) is detected when price makes a new low while the oscillator makes a higher low at the same time. The setup is validated by **(Confirmed Bullish Divergence)** when a price bar with a close above its open and above the new low that prints after the oscillator value has turned up. Also, when the oscillator trough value remains above the reference value taken from the oscillator trough located near the divergence starting point.



(Potential Bearish Hidden Divergence) is detected when the oscillator makes a new high while price makes a lower high at the same time. The setup is validated by **(Confirmed Bearish Hidden Divergence)** when a price bar with a close below its open and below the new high that prints after the oscillator value has turned down. Also, when the price peak value remains below the reference value taken from the price peak near the divergence starting point.



(Potential Bullish Hidden Divergence) is detected when the oscillator makes a new low while price makes a higher low at the same time. The setup is validated by **(Confirmed Bullish Hidden Divergence)** when a price bar with a close above its open and above the new low that prints after the oscillator value has turned up. Also, when the price trough value remains above the reference value taken from the price trough located near the divergence starting point.



Fake-Outs:

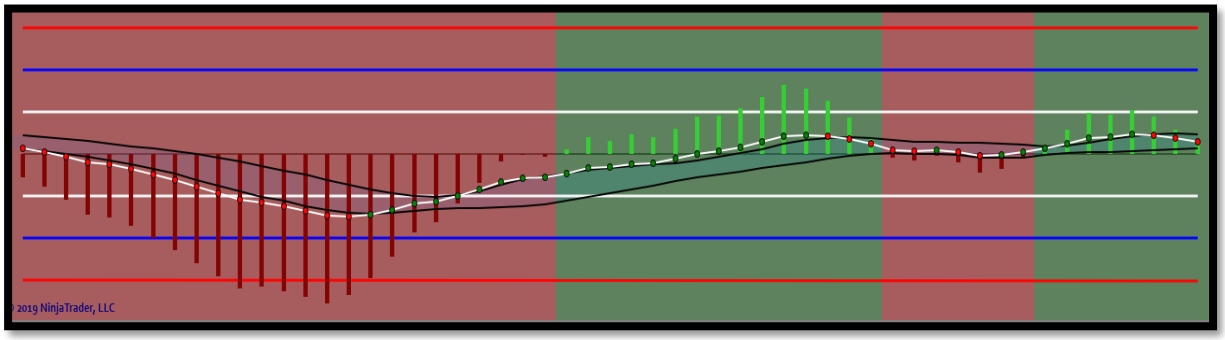
Understanding the importance of Fake-Outs is critical in using this tool to its maximum potential. The purpose for combining 2 oscillators into one is to identify when fast/slow momentum are working together or not. As mentioned previously in the manual (Confluence/Non-Confluence), we can identify when there is a change in fast momentum while the slow momentum has not yet confirmed this move in direction. This often leads to a deeper understanding of a (Fake-Out).

Fake-Outs happen when price has a small shift in direction but can often fake traders out because the move is insignificant and will not follow through often leaving traders trapped. ***This is identified when the velocity histogram shifts direction but the MACD BB's have a fair distance from the zeroline and is not connected to the histogram***. We will often see fake-outs during pull- backs, transitional periods and/or oscillating market conditions.

Price Exhaustion:

The indicator has built in price excursion levels above and below the zeroline which operates on 3 tiers (Upper Level 1, Upper Level 2, and Upper Level 3) which identifies overbought conditions and (Lower Level 1, Lower Level 2, and Lower Level 3) which identifies oversold conditions. These levels are derived from calculating multiple timeframe price excursion which measures the distance of measured moves on the Velocity Histogram. In combining these moves the algorithm detects when price has reached its maximum expected distance and is able to detect when price is expected to stop and reverse near its extremes.

By default (Upper Level 1 and Lower Level 1) are turned off (can be turned on) as the best practices are to use the more extreme levels of excursion for detecting reversals and price exhaustion points. Its usage can be for detecting an end of a move in price so directional traders can avoid trading in that direction at price extremes or to identify the beginning stages of a reversal.



White = Level 1 – Overbought/Oversold

Blue = Level 2 - Overbought/Oversold (Extended)

Red = Level 3 - Overbought/Oversold (Very Extended)

You can set the colors to your preference.

The price excursion levels can display in **(Static or Dynamic)** mode. Static mode will plot the excursion levels as (**Straight Lines**) where Dynamic mode will plot the excursion levels as (**Dynamic Lines**) that expand and contract. The dynamic lines are most noticeable on (minute, tick and volume charts) as the average true range and price movement fluctuates more noticeably on these bar types.

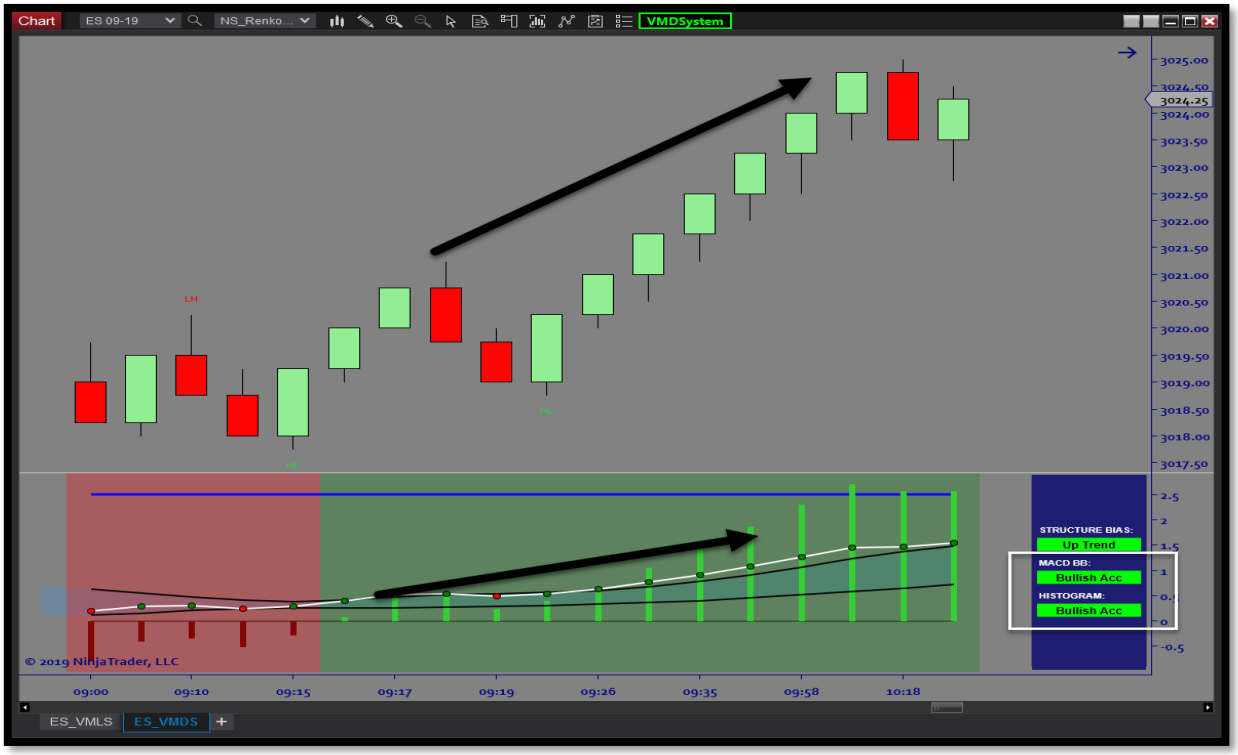
To set this parameter please visit the indicator settings:

(Price Excursion: Plot Parameters) – Plot Style for Level Lines

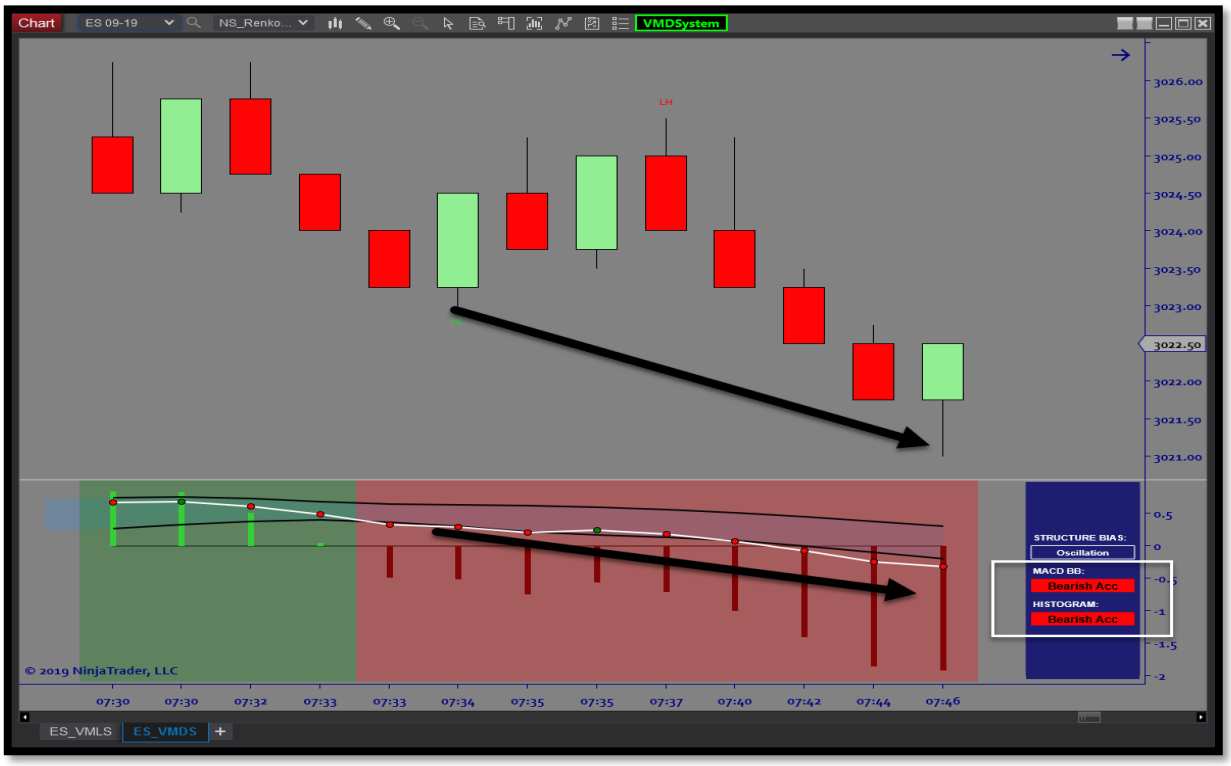
The main difference between (Static and Dynamic) mode is the visual representation of the data. When set to dynamic, the excursion levels tend to be more flexible to price movement, where static holds a fixed variable that produces very responsive signals. Both are viable options and are merely a preference around visuals.

Understanding Oscillator States (Sentiment/Dialogue Box)

Bullish Acceleration: The state where both price and oscillator make higher (swing) highs and higher (swing) lows, where swing highs and swing lows are based on the parameter's minimum deviation and swing strength for the selected market structure.



Bearish Acceleration: The state where both price and oscillator make lower (swing) lows and lower (swing) highs, where swing highs and swing lows are based on the parameter's minimum deviation and swing strength for the selected market structure.



Background Flooding:

The indicator comes with a Background Flooding feature that can help you to visualize historical and real-time Sentiment, extracted from the Sentiment Box. There are 3 kinds of flooding:

1. **Histogram flooding**: This is based on the histogram oscillator state. When the histogram is above 0, the background becomes green, when it is below 0, it becomes red.

2. **<u>Structure flooding:</u>** This is based on the Structure Bias. When the Structure Bias is “Uptrend” then the background is green. When it is “Downtrend” it is Red. When it is “Oscillation” it is transparent.

3. **<u>Both:</u>** This option allows you to mix the two previous types of flooding. When:

- Histogram is above 0 and Structure Bias is Uptrend, background is Dark Green.
- Histogram is above 0 and Structure Bias is Oscillation, background is Green,
- Histogram is above 0 and Structure Bias is Downtrend, background is Grey,
- Histogram is below 0 and Structure Bias is Uptrend, background is Grey,
- Histogram is below 0 and Structure Bias is Oscillation, background is Red,
- Histogram is below 0 and Structure Bias is Downtrend, background is Dark Red.

Structure Bias:

The indicator comes with a new tool called the "Structure Bias". The goal is to provide an indication with regards to the market structure and its sequence.

The Structure Bias detects 3 states: **Downtrend** / **Oscillation** / **Uptrend**

Oscillation State: this state means there is no real direction in the market. Structure doesn't break the highs or the lows with momentum.

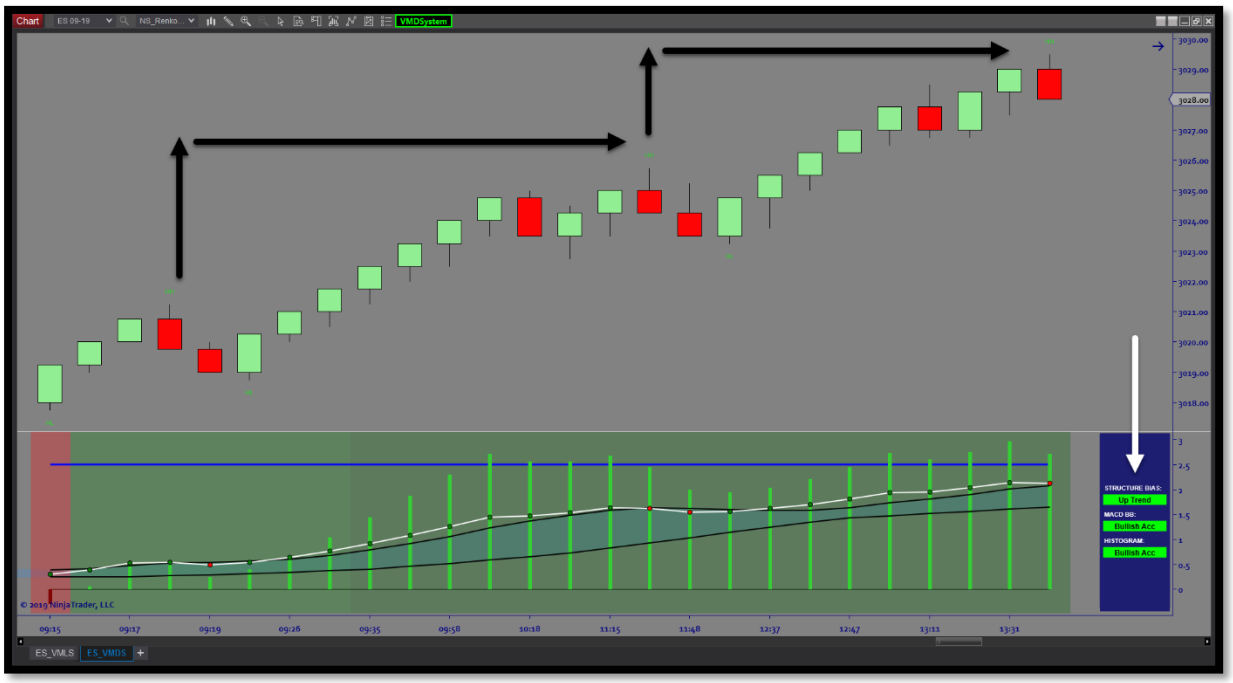
- This normally occurs when we transition from a (LL to HH or HH to LL)
- If in an uptrend making HH then we transition to a LL this is Oscillation
- If in a downtrend and making LL, then we transition to a HH this is Oscillation.

Uptrend State: this state means price are in an uptrend, and the lows are always higher.

⇨ To enter in an uptrend, the state must be in Oscillation. Then, there are 2 possibilities:

1. A Higher High is broken by a new Higher High with no Lower Low between them. There is a strong momentum.
2. A High (LH/DT) is broken by a Higher High, and the two previous lows were not Lower Low.

⇨ **At any moment, if a Lower Low is made in an uptrend, the uptrend is finished, and the structure bias goes in "Oscillation State". <u>There is no Lower Low in an uptrend.</u>**

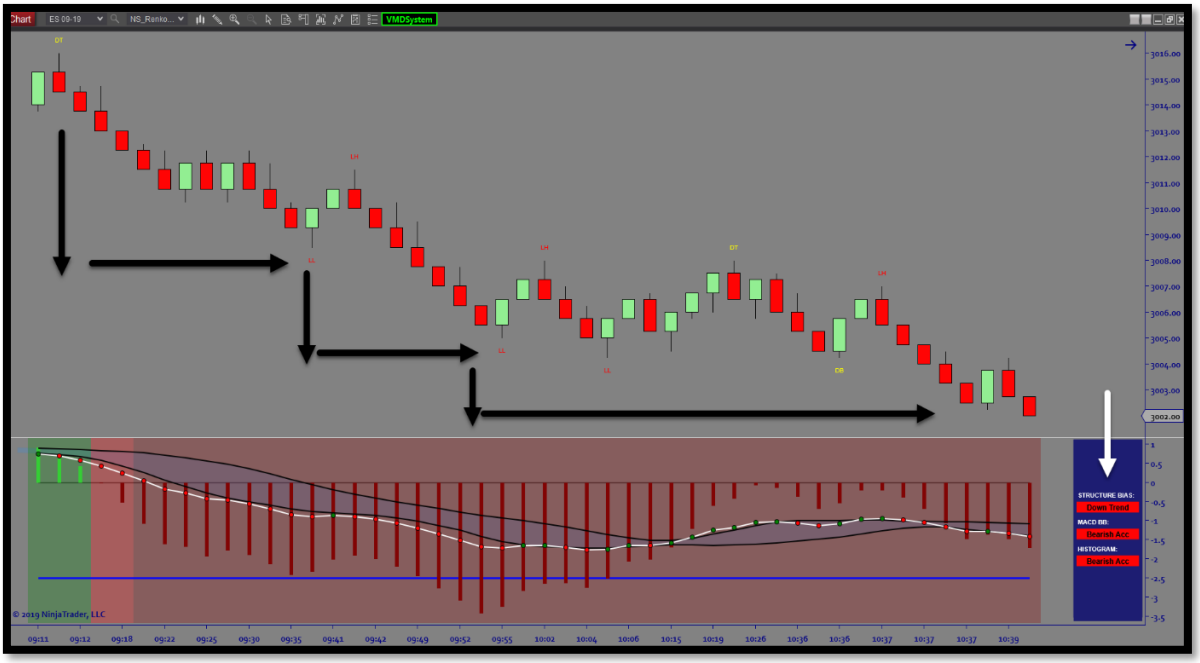


Downtrend State: this state means price are in a downtrend, and the highs are always lower.

⇨ To enter in a downtrend, the state must be in Oscillation. Then, there are 2 possibilities:

1. A Lower Low is broken by a new Lower Low with no Higher High between them. There is a strong momentum.
2. A Low (HL/DB) is broken by a Lower Low, and the two previous highs were not Higher High. This corresponds to a triangle formation with down breakout.

⇨ **At any moment, if a Higher High is made in a downtrend, the downtrend is finished, and the structure bias goes in "Oscillation State". <u>There is no Higher High in a downtrend.</u>**

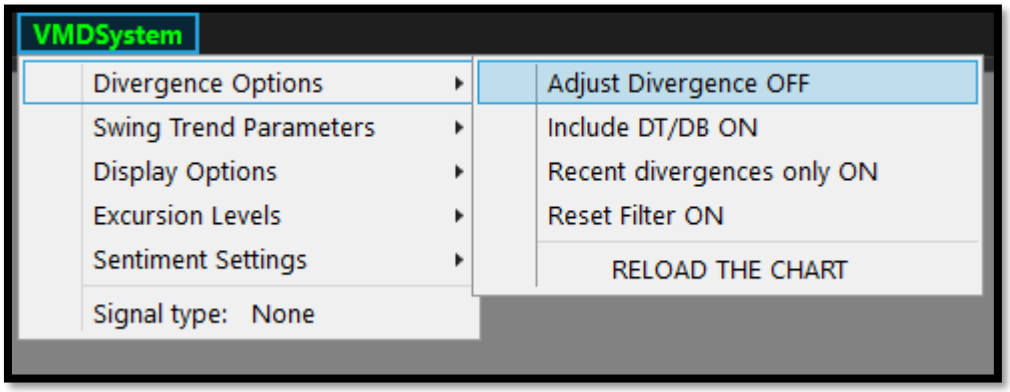


Main Drop-Down Menu:

The indicator comes with a dropdown integrated in the chart's toolbar. This allow the user to change the settings more rapidly without having to open the indicator window. Some Settings need a chart reload, others are changed in real-time.

- **Divergence Options**

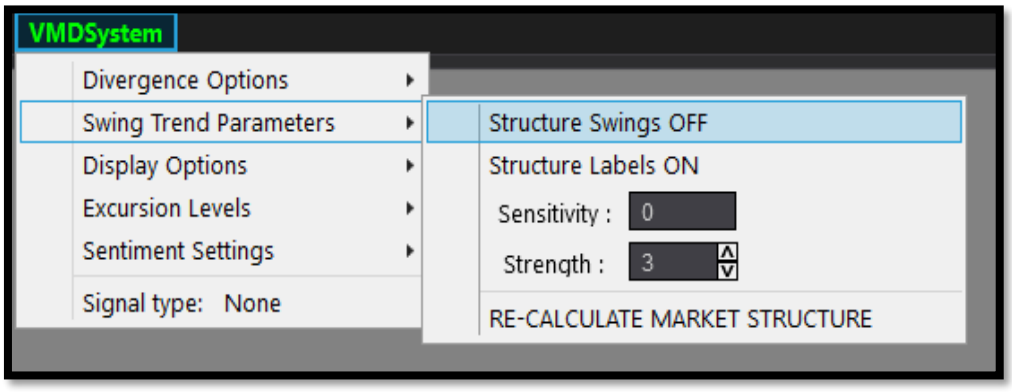
  You can change the settings of the divergence algorithm from the menu below. **In order to apply the settings, the chart needs to be reloaded.**



- **Adjust divergence** - is to choose divergence without the Zero line reset (no used much)
- **Include DT/DB** – is to chose double tops and bottoms in the divergence calculation
- **Recent Divergence** – is to chose to only display the most recent divergences
- **Reset filter** – uses the zero line to reset the structure algo for divergence

- **Swing Trend Parameters**

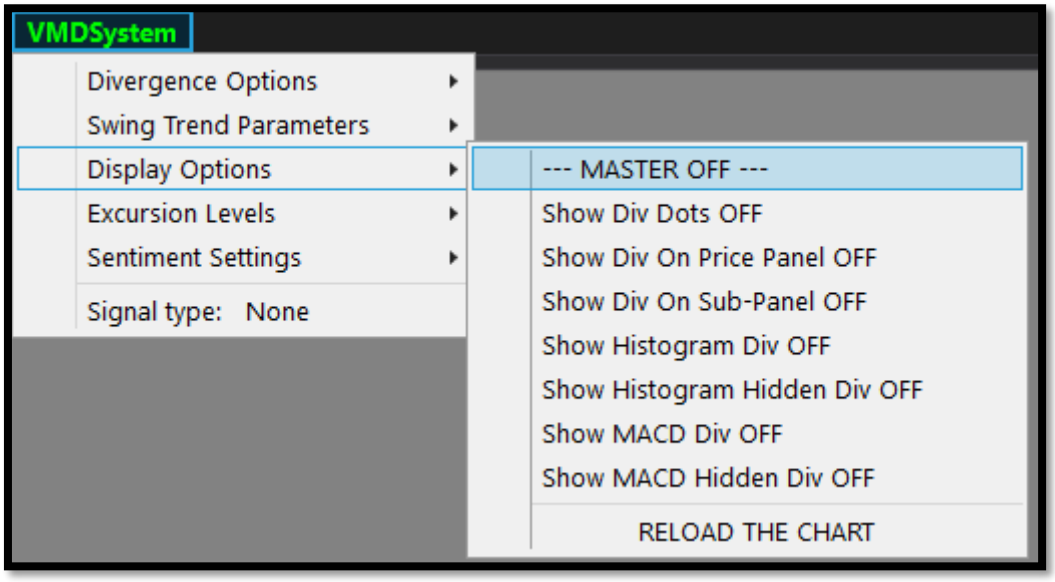
  This setting controls the structure display and the settings used to calculate the structure. **In order to apply the settings, the chart needs to be reloaded.**



- **Structure Swings** – This turns the price action swing trend (zig/zag) indicator on/off
- **Structure Labels** – This turns on the labels for HH/LL or DT/DB
- **Sensitivity** – This allows us to set a (#) setting for the swing detection at the Highs/lows. It is a number set to ticks as this identifies how much above a swing high or below a swing low, we use to detect the DT and DB or HH and LL. We set this to (0) by default.
- **Strength** – This allows us to set the swing strength for the market structure.

- **Display Options**

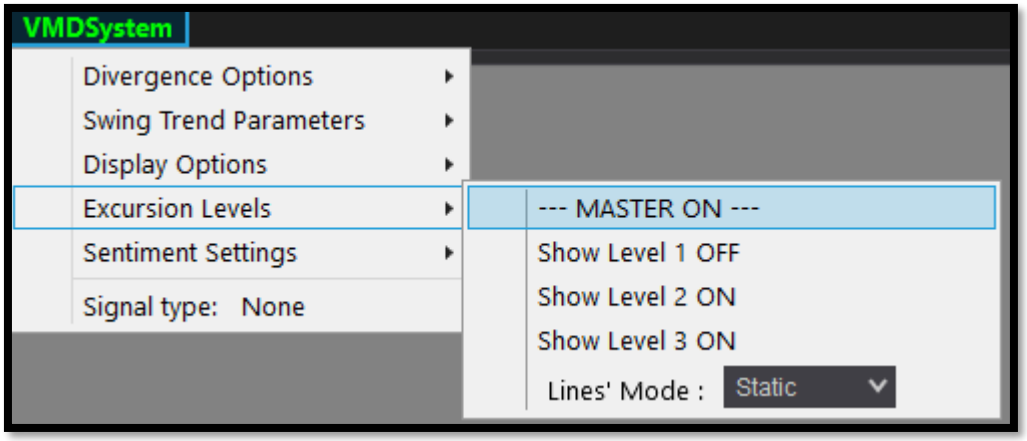
  This setting allows you to show hide each type of divergence. The Master bouton enable or disable all the divergences. **In order to apply the settings, the chart needs to be reloaded.**



The above settings are for the divergence dots, arrows and lines. This is for both potential and confirmed. It is also to chose to display the divergence on the price panel, the subpanel or both. It also controls the divergence for the Histogram and the Macd BB. It is also to control the display for regular and hidden divergence.

- **Excursion Levels**

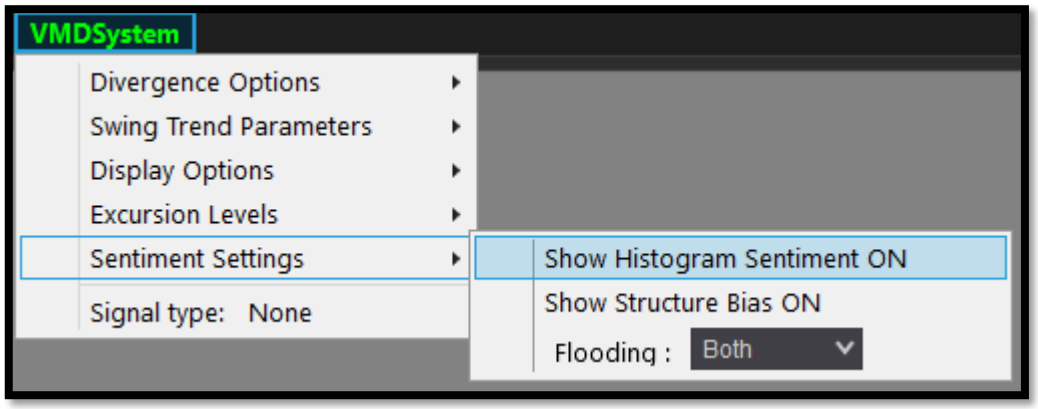
  These settings control the excursion levels located on the oscillator panel for OBOS (overbought/oversold). They are modified in real time and do not need a chart reload. The master button enables or disables them all.



- **Level 1 = OBOS (weakest)**
- **Level 2 = OBOS (stronger)**
- **Level 3 = OBOS (strongest)**
- **Lines Mode = Static/Dynamic**

- **Sentiment Settings**

These settings control the sentiment box, the displayed information in it as well as the flooding background. When both Histogram Sentiment and Structure Bias are OFF, the sentiment box is hidden. Otherwise the corresponding information is displayed in the sentiment box. The Flooding option can be set to None/Histogram/Structure/Both. **These settings are modified in real time**



Additional Notes: (Indicator Sections)

Detection of class A, class B and hidden divergences:

The indicator detects both class A, class B and hidden divergences. When the setting “Include double tops and bottoms” is set to “False”, it only detects class A and hidden divergences.

Drawing divergences on indicator panel:

By default divergences are drawn by connecting the oscillator values associated with the peaks or troughs on the price panel. Alternatively, divergences can be drawn by connecting oscillator peaks or lows. In this case you need to set “Adjust divergence” to “True”.

Drawing divergences from the most recent swings of the swing trend indicator:

By default the indicator only draws divergences starting with the most recent confirmed swing high or swing low. If you wish to include divergences drawn from prior swing highs or lows, you may set “Recent divergences only” to “False”. Such divergences will only be drawn, if there is no recent divergence. All divergences are drawn back from the ending point to the start point. In case that there are two divergences with the same ending point, only one of them will be displayed. Usually, the divergence that is displayed is the most recent one.

Invalidation of divergences when the oscillator crosses the zeroline:

By default a bearish divergence is only valid, as long as all oscillator values between the two connected peaks remain positive. In case that the oscillator crosses the zeroline between the peaks, the divergence is no longer valid. Accordingly, a bullish divergence is only valid, as long as all oscillator values between the two connected troughs remain negative. This restriction can be removed by setting the “Reset filter” to “False”.

Data input:

Swing highs and lows on the price panel may be calculated from different input series. It is possible to calculate the swing trend from the high and lows (default option), the closes, the medians or the typical prices. This setting has no impact on how the oscillator values are calculated.

Divergence size:

The technical minimum size for any divergence is 3 bars, as it is not possible to construct two peaks or troughs from 2 bars. The indicator allows for setting the maximum and minimum size for a divergence. The default values are 3 and 55 bars. These settings should be in line with the swing trend parameters. For example, if you set “Recent divergences” to True” then select a high resolution zigzag and set the minimum size for a divergence to 30 bars, it is unlikely that there will be any divergences on the chart.

Number of bars between setup and validation of a divergence:

The indicator has an option to limit the number of bars between a divergence setup and the validation of the divergence. The default value for “Max trigger bars” is 20. With this setting next to all divergences that are validated will pass the filter.

Sentiment box/Dialog box:

The indicator comes with a little box that is displayed on the right side of the oscillator panel. This box is meant as guidance when trade entries should be taken and/or avoided. A bullish divergence setup, a completed bullish divergence or a state of bullish acceleration (higher highs for both price and oscillator) are shown via a lime box. A bearish divergence setup, a completed bearish divergence or a state of bearish acceleration (lower lows for both price and oscillator) are shown via a red box. When lime boxes are appearing, short entries should be avoided. Accordingly, when red boxes are shown, long entries are less likely to succeed. When the box is transparent and is “Neutral” this simply means that price and the oscillator are in transition to either bullish or bearish acceleration.
The sentiment box comes also with a Structure Bias display. When the Structure Bias is in oscillation mode, the box is transparent. When the structure enters in an uptrend, the box becomes Lime with “Uptrend” displayed. When the structure enters in a down trend, the box becomes Red with “Downtrend” displayed.

VMSystem (Concepts Explained)

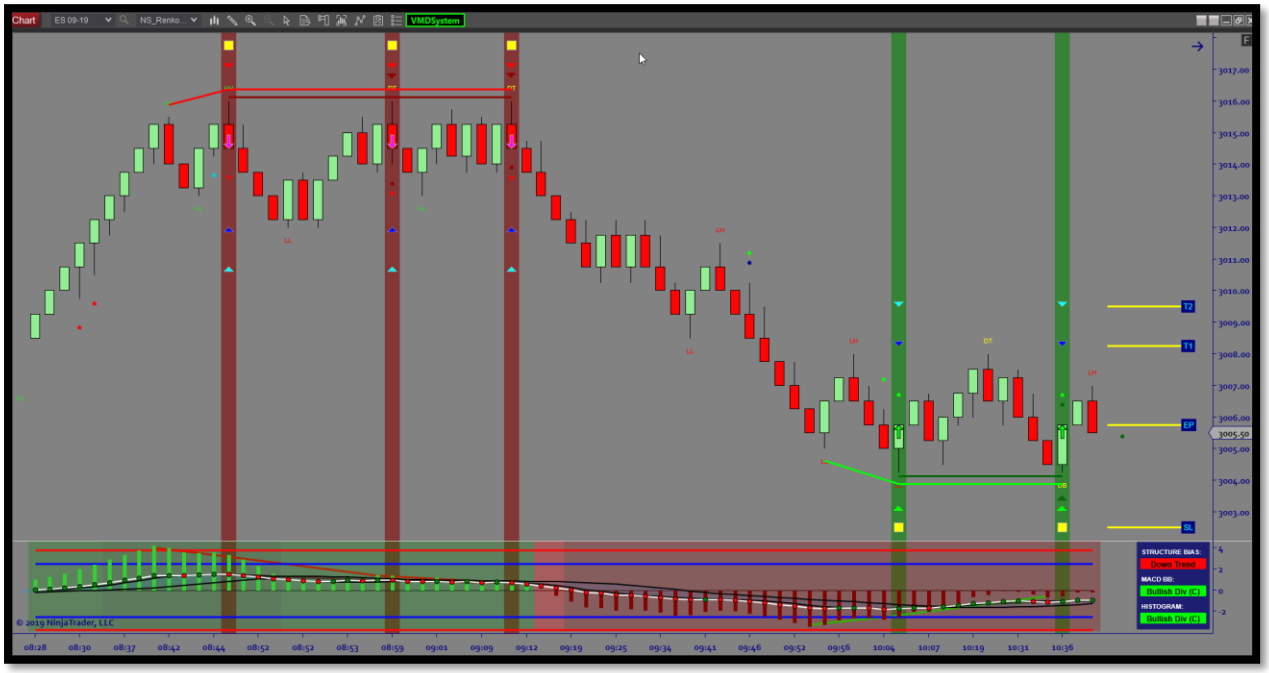
The VMSystem is a combination of 2 trading systems built into one toolset. The focus for this was to deliver both a directional momentum trade signal and a non-directional reversal trade signal. Both are driven by price and momentum**. These setups are (Semi-Auto) meaning that we produce the (Entry) and you can control the (Stop and Target) locations**. Below we will describe each aspects of the trading signals and all components towards user interface (UI) and controls. It is very important that we identify we have created 2 versions of the indicator

VMLSystem (lean version – only includes TERMITE SIGNAL) / Faster PC Performance
VMDSystem (Classic version – includes both TERMITE and DIVERGENCE SIGNALS)

SPECIAL NOTE: The VMSystem software is the (Signal Generator) for the Termite Strategy used during the promotional release of this software/indicator.

Termite Example:

Divergence Example:

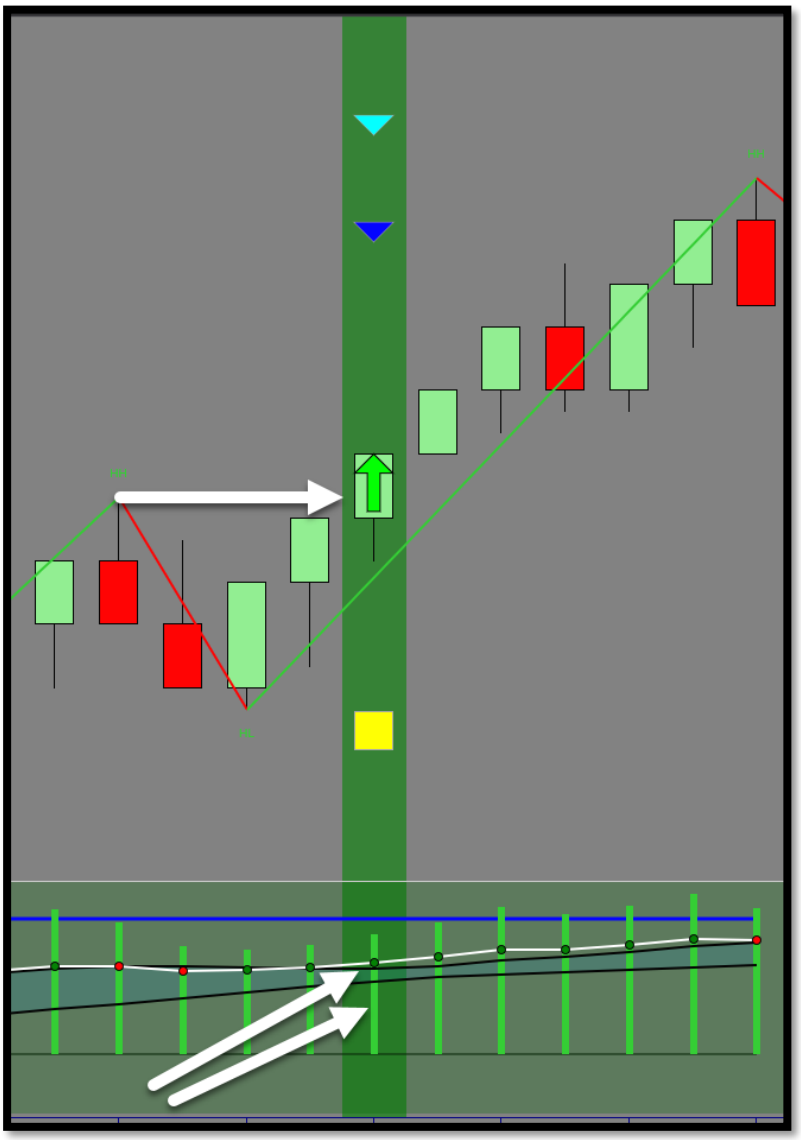


Termite Trade Signal:

- The termite signal is a Momentum Confluence Break-Out Signal that involves a combination of both the histogram, the macd bb's and price action market structure. Below is a complete breakdown of the setup for longs and shorts:

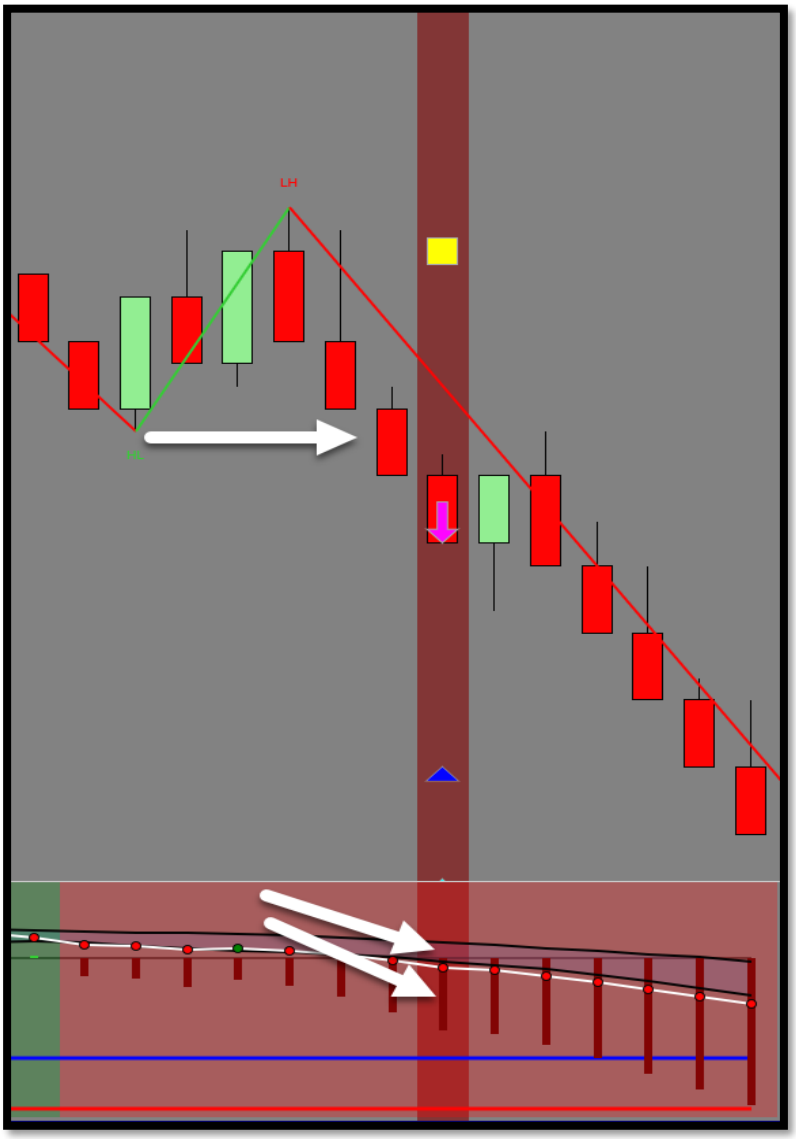
Long:

- Histo > 0-line
- BB > 0-line
- BB > top bollinger
- Top Bollinger > 0-line
- Entry Bar must close/break Structure Swing High (swing trend indicator
- HH/LL etc.) (swing strength is important here!)
- Low of b/o bar must be below swing high structure
- Must be up close
- Can be any structure high



Short:

- Histo < 0-line
- BB < 0-line
- BB < Bottom Bollinger
- Bottom Bollinger < 0-line
- Entry Bar must close/break Structure Swing Low (swing trend indicator
- HH/LL etc.) (swing strength is important here!)
- high of b/o bar must be above swing low structure
- Must be down close
- Can be any structure low



Signal UI (User Interface) Control:

- The termite has a UI interface that allows us to control visual aspects of the signal and its trade plan.
- Its design is a (Semi-Auto) trade plan in nature, meaning that the signal is automated, and we provide you the trade plan components to visually map out the Stop and Target locations.

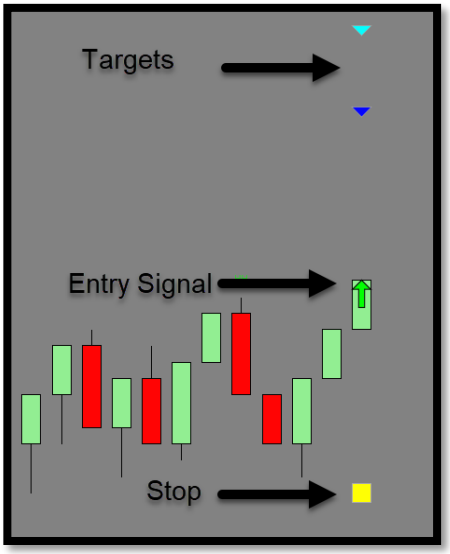
EP = Entry Price
SP = Stop Price
T1 = Target 1
T2 = Target 2

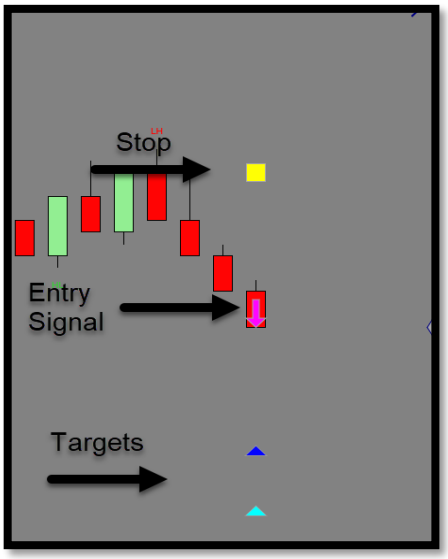
Below is an example of a complete Long Plan (Entry, Stop, Targets & Signal)

Below is an example of a complete Short Plan (Entry, Stop, Targets & Signal)

Markers (Current & Historical)

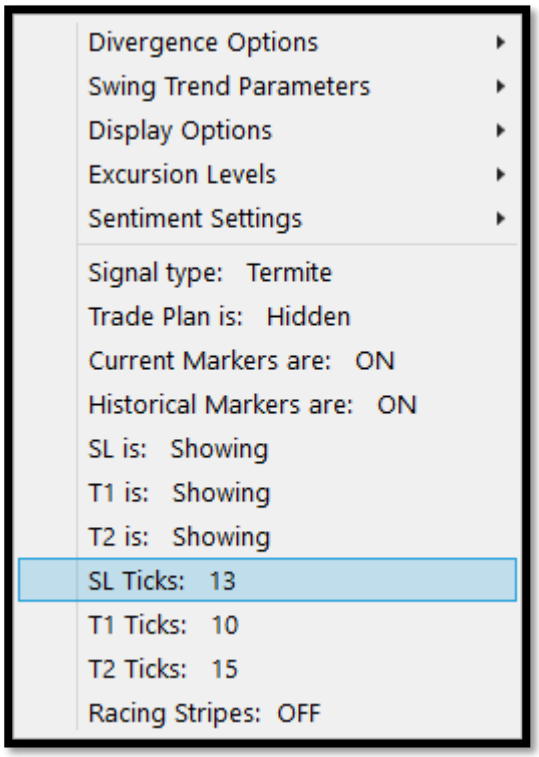
- Markers are visual chart markers that allow you to visually see the (Entry, Stop, Targets)
  - Entry = Arrow
  - Stop = Square
  - Targets = Arrows
- Historical – Setups/Markers that show the past signals
- Current – Setup/Marker that shows the current signal





Trade Plan Controls (Stops & Targets)

- This section controls the distance for your stop loss and your targets. This will move the markers in real-time so you can see the visual distances update on-the-fly.
- You can also turn the (Stop and Targets) on off as well.



Racing Stripes View:

- Racing Stripes are a visual way to plot the signals outside the markers view and trade plan. These can be used independently or with all other settings.

Divergence Trade Signals:

- The Divergence signals are price reversal signals Signal that involves a combination of both the histogram, the macd bb's and price action market structure. The divergence setups apply to both Regular (Differential) divergence and Hidden Divergence.
- Below is a complete breakdown of the setup for longs and shorts

Type 1 – DIFFERENTIAL DIVERGENCE (Momentum Leads Price)

Bearish DIFF/Divergence *is when price makes HH's and momentum makes LH's.*
Bullish DIFF/Divergence *is when price makes LL's and momentum makes HL's.*

Type 2 – HIDDEN DIVERGENCE (Price Leads Momentum)

Bearish HIDDEN/Divergence *is when price makes LH's and momentum makes HH's.*
Bullish HIDDEN/Divergence *is when price makes HL's and momentum makes LL's.*

Signal UI (User Interface) Control:

- The divergence has a UI interface that allows us to control visual aspects of the signal and its trade plan.
- Its design is a (Semi-Auto) trade plan in nature, meaning that the signal is automated, and we provide you the trade plan components to visually map out the Stop and Target locations.

EP = Entry Price
SP = Stop Price
T1 = Target 1
T2 = Target 2

Below is an example of a complete Long Plan (Entry, Stop, Targets & Signal)

Below is an example of a complete Short Plan (Entry, Stop, Targets & Signal)

Markers (Current & Historical)

- Markers are visual chart markers that allow you to visually see the (Entry, Stop, Targets)
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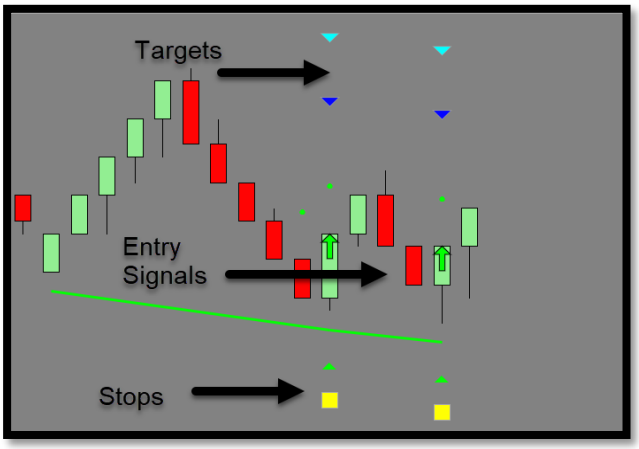
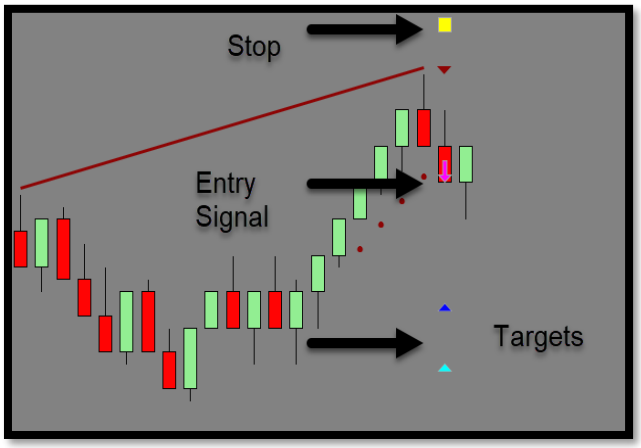
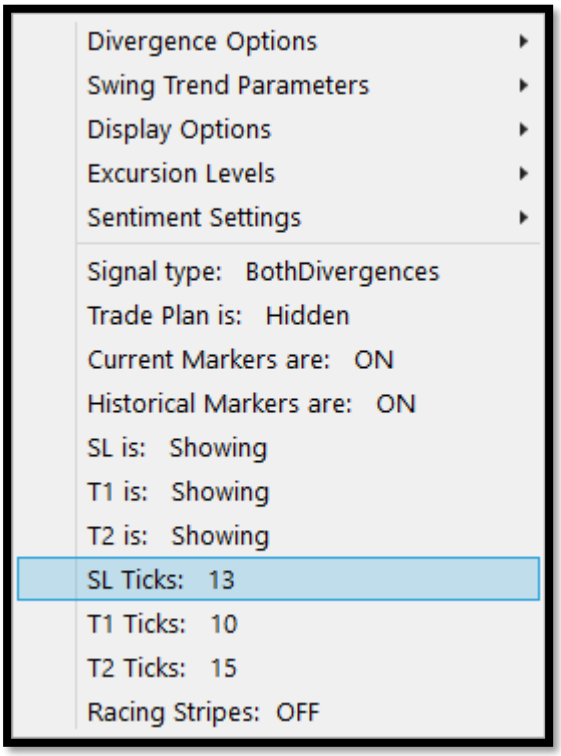
  - Stop = Square
  - Targets = Arrows
- Historical – Setups/Markers that show the past signals
- Current – Setup/Marker that shows the current signal





Trade Plan Controls (Stops & Targets)

- This section controls the distance for your stop loss and your targets. This will move the markers in real-time so you can see the visual distances update on-the-fly.
- You can also turn the (Stop and Targets) on off as well.



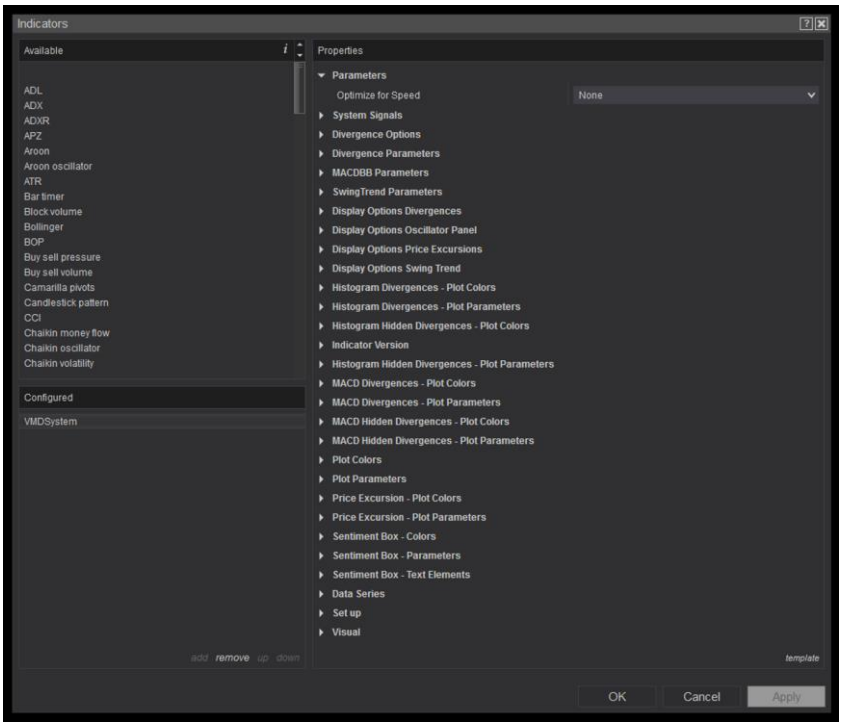
Racing Stripes View:

- Racing Stripes are a visual way to plot the signals outside the markers view and trade plan. These can be used independently or with all other settings.

Indicator Settings:

- **OPTIMIZE FOR SPEED** – this is an important feature (ONLY FOR THE DIVERGENCE VERSION) …It is suggested that you turn this to MAX unless you need to see past divergences. If only using the indicator in real-time, it will speed up the performance. If you want all divergences to plot, turn this off.

- You can customize the software fonts, colors etc. as per your preference inside the settings window. This is where most of the features can be adjusted outside the Visual UI Dropdown.



Conclusion:

- If you need assistance or have questions, please email support@architectsai.com