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Add-on for *NinjaTrader 8 Trading Platform*.

NINJA TRADER®

Architects of Electronic Trading Innovation

Cumulative Delta candlestick chart

dt Buy-Sell Pressure

Delta Bars & VPOC marks

Total	4698	16017	7634	6147	5975	18122	14335	24788	20186	86134	47374
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dt Buy-Sell Pressure

Delta per Bar

Delta	1093	1176	771	-261	-86	399	2206	4308	-548	-5804
Max Delta	1093	1177	776	141	114	1103	2206	4308	3683	0
Min Delta	-126	-30	-24	-264	-640	0	-708	-495	-749	-5847

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Investigation of Cum Delta behavior on Price chart

Visualize Delta

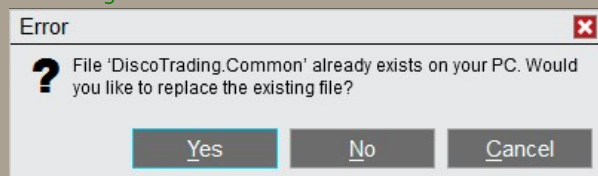
Buy-Sell Pressure NT8 (BSP) is a tool which allows you to visualize different kinds of Delta (Volume- or Tick-based, Cumulative or Per Bar, calculated by Bid vs Ask or UpTick vs DownTick techniques) in various ways.

I. Add-on [Installation/Update](#)

It is recommended to use the standard way to remove/install add-ons in NinjaTrader. The most recent versions of all add-ons are always available to download from the [homepage](#).

1. Remove previous assembly if you have one installed:
 - Run your NinjaTrader, go to the 'Tools' menu and click 'Remove NinjaScript Assembly...' menu item.
 - In the list of installed assemblies appeared select the indicator you wish to update and press 'Remove' button.
2. Restart NinjaTrader.
3. Download the latest assembly (.zip file) from the [homepage](#) or request a direct link by email.
4. Install downloaded assembly:
 - Go to "Tools" → "Import" → "NinjaScript Add-On...", select downloaded .zip file and press "Open". Then if the installation was correct you will see the success message.
 - Restart NinjaTrader!

Note: Various Dt add-ons are relying on the same "DiscoTrading.Common.dll" library. NinjaScript Assembly contains the most recent version of the library, so you have to click 'Yes' when asked for replacement of the file during installation.



Remember, it is required to **restart NinjaTrader after add-on installation** before you can add a just installed indicator to a chart.

II. Core Settings

- **Visualization Mode.** Choose the way of representation of Delta and other related order-flow metrics apt for your analysis:
 - (Sub-Panel) **Delta Candlestick Chart.**
 - (Sub-Panel) **Total vs Delta Bar Chart.**
 - (Price Panel) **Delta-% & POC Marks.**
 - (Any) **Delta Conv/Div Marks.**

(The detailed description follows.)

- **Delta Calculation Mode.** Every trade always has two participants — buyer and seller. Thus both sides (Buying and Selling) do always participate in every trade. The phrase "Trade Side" is just a term serving as a way to define which side (Buyer or Seller) is the *initiator* of the trade. The Trade Side defines the sign (+/-) of Delta value of that particular trade therefore:

$$\text{Delta} = \text{"Buying" Volume or Ticks} \text{ minus "Selling" Volume or Ticks.}$$

The *Delta*, in turn, is a way to estimate the level of aggressiveness of each side on the most basic level. However it is not a direct way as you may think, because you should always compare the Delta against related Price Action to define actual aggressor conqueror (sometimes a passive side who uses solely limit orders behave more aggressive and drive the Market in contrary to the diffused opinion). Moreover, the Delta analysis is only viable in a short-term period.

There are two different ways to determine the initiative side and the Delta therefore:

- **Bid vs Ask** technique. Who (Buyer or Seller) is the initiator of a trade is determined by comparing trade price with established Bid and Ask (Offer) prices at the trade moment. That is, *Delta = Volume traded at Ask price minus Volume traded at Bid price*.
- **Up Tick vs Down Tick** technique. "Buying" volume is the volume traded at Up Tick or after Up Tick and the "Selling" volume is the volume traded at Down Tick or after Down Tick and the *Delta* is the difference between them.

Since the volume- or tick- delta calculations are based on actually happened trades (fills) the both techniques will show true picture of what is transacting. *The only what matters is which technique you are accustomed to. Many traders still use only old good technique "Up Tick vs Down Tick" just because one is working for them. Do not use both at the same time when making trading decisions. Choose your 'Delta Calculation Mode' and stick with.*

- **Base Metric.**

- **Volume** — number of contracts (stocks, lots). The Volume-based Delta is defined as "*Buying Volume*" minus "*Selling Volume*".*
- **Ticks** — number of trades. The Tick-based Delta is defined as "*Number of Buying Trades*" minus "*Number of Selling Trades*".*

*Every trade always has two participants — buyer and seller. Thus the "*Buying...*" and "*Selling...*" are the terms related to initiative side which is defined by Delta estimation technique such as "Bid vs Ask" or "Up Tick vs Down Tick" (read the description of the '*Delta Calculation Mode*' parameter).

- **Cumulative Mode** checkbox. By default the Delta is calculated on Per Bar basis which means the Delta value is set to Zero at the beginning of each bar. Check the '*Cumulative Mode*' checkbox in order to calculate the Delta in an accumulative way.

The '*(Price Panel) Delta %-Bars & POCs*' Visualization Mode is intended to use with *disabled* 'Cumulative Mode'.

The '*(Any) Delta Conv/Div Marks*' Visualization Mode is intended to use with *enabled* 'Cumulative Mode'.

- **Reset on Session Start** checkbox. If enabled then the Cumulative Delta will be reset at the beginning of each trading session in accordance with selected '*Trading hours*' template.

This checkbox is only available when the *Cumulative Mode* is enabled.

- **Bracket Mode.** This mode is intended to emulate the behavior of the *Volume Nodes Detector NT7* indicator (*Bracket Volume Breakdown*, *Bracket Volume and Tick Delta* sub-graphs, to be exact). If the Bracket Mode is ON then all computations are based on the most recent trades (a group of recent trades of constant total volume hereinafter referred to as the Bracket). The Bracket represents a such quantity of the most recent trades that are amounting to user-specified value in the sum of its volume (see the '*Bracket Threshold Volume*' parameter).

Remember, Bracket Volume Delta chart represents the cumulative delta calculated over the pre-defined recent fraction of volume at the moment, so this makes it work like a buy-sell pressure *oscillator* in comparison with common *cumulative delta*... the Bracket is constantly recalculated with incoming ticks — old ticks are removed from delta calculations as new ticks arrive.



Therefore the '*Bracket Threshold Volume*' parameter has an impact on the "speed" or choppiness of such kind of oscillator — the lower the 'Bracket Threshold Volume', the faster the oscillator.

- **Bracket Threshold Volume.** See description of the 'Bracket Mode' parameter.

The more the threshold volume the wider the range and less the sensitivity to the most recent changes in price & volume. The threshold value you should use depends mainly on the liquidity of your chosen

instrument. There is no strict rule on this, however there are standard recommendations for intraday traders which might be helpful (at least to be aware on): A simple rule of thumb to define a suitable 'Bracket Threshold Volume' value is to set it to 1/10...1/5 of average daily volume of traded instrument.

- **Filter Mode.** Mode of filtering by trade size.
 - **No Filtering** (Default). Any guesses...
 - **Greater Than Or Equal.** This mode forces the indicator to take into account only trades which have a size greater than or equal to the *Fiter - Min Trade Size* value.
 - **Less Than Or Equal.** The indicator will only count trades with size not exceeding the *Fiter - Max Trade Size* value.
 - **In Between.** The indicator will only count trades which have a size in the range from the *Filter - Min Trade Size* to the *Filter - Max Trade Size* inclusive.
 - **Row.** Defines the set of allowed trade sizes. Example: *10, 15, 20*
- **Data Source.** Sets the way of gathering historical 1-tick data (data of tick-level granularity).

Notice that Buy-Sell Pressure indicator needs some time to read and prepare tick data on start up. Set feasible amount of 'Days to load' for your chart to reduce the loading time on start up.

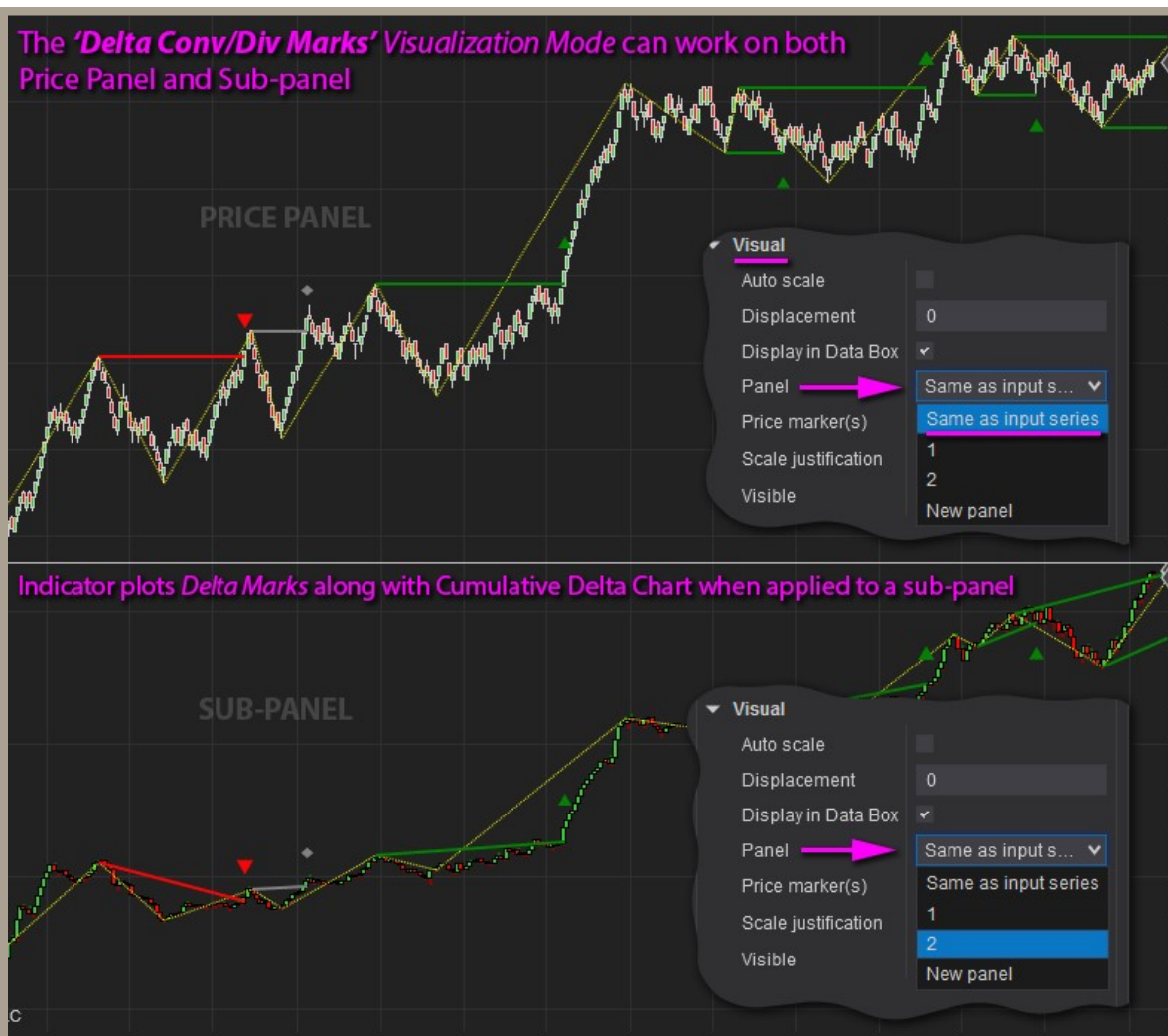
 - **Tick Series** (default) — this mode internally utilizes the most generic and native way of obtaining tick data in NinjaTrader.
 - **Tick Replay** — is a new way of obtaining historical 1-tick data introduced in NinjaTrader 8. In the Tick Replay mode NinjaTrader playbacks historical ticks (tick by tick) to build bars as if they had been build live. In order to use this feature it must be manually enabled on the primary Data Series in the Data Series settings window.

IV. Visualization Modes

It is important to note that *Buy-Sell Pressure NT8* indicator does not produce any kind of signals! The only purpose of the indicator is to visualize different kind of Deltas (Volume- or Tick- based; calculated by 'Bid vs Ask' or 'UpTick vs DownTick' techniques) in various ways.

Delta Conv/Div Marks

The indicator can be applied to both Price Panel and Sub-Panel in this *Visualization Mode*. Set manually the 'Visual'→'Panel' property to "Same as input series" in order to plot Delta Marks right on price chart.



The 'Delta Conv/Div Marks' is an *experimental mode intended for retrospective visual analysis* of how various Price Swings are relating to each other by Delta accumulated during Price Swing formation.

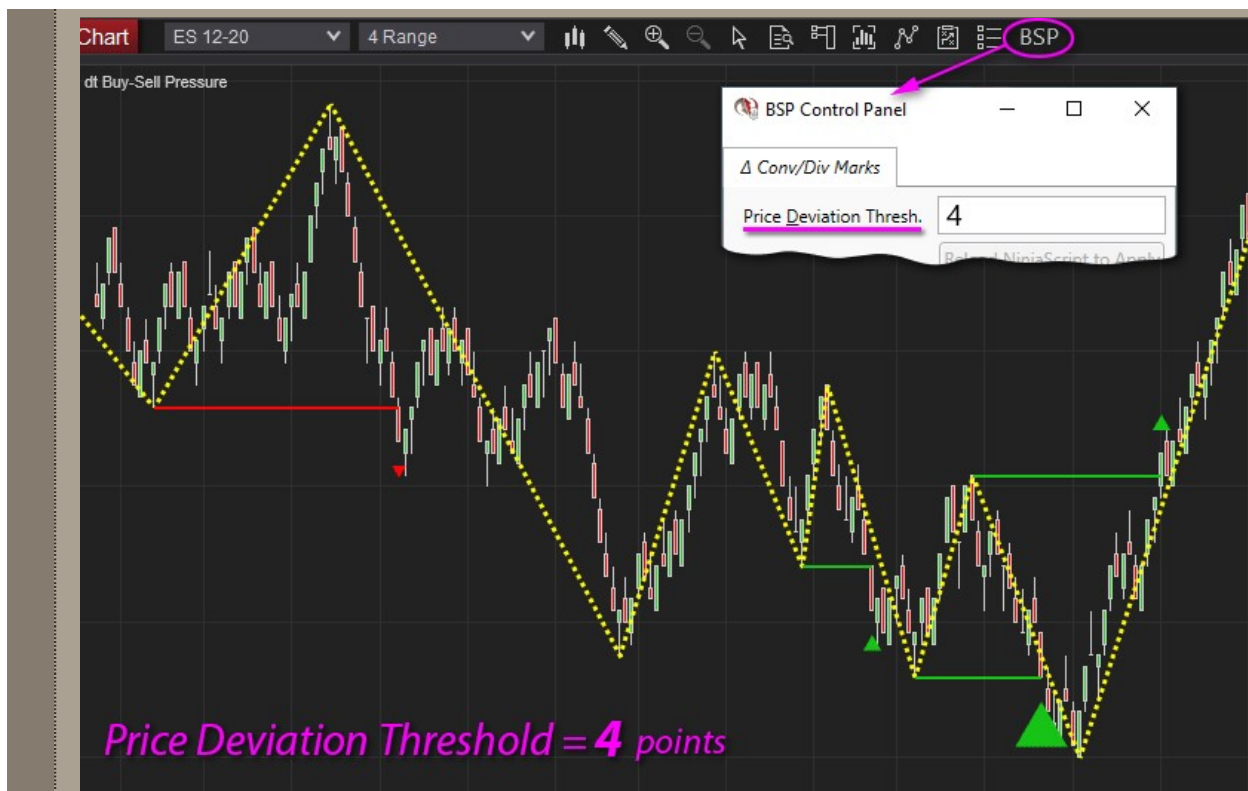
This is not about numbers. This, on the contrary, is just one of the ways to visually investigate relation of Delta and Price (Price vs Delta convergence/divergence) at most interesting points and maybe to invent new trading ideas.

Basically, the indicator utilizes simple principle of *Zig-Zag* study to highlight price legs between extreme price points (aka Local Pivot Points, Price Swings) based on user defined threshold value. This way it helps filtering the noise in price charts to visually denote meaningful Price Swings.

The 'Price Deviation Threshold' parameter defines threshold value of price movement to detect new local price extreme.

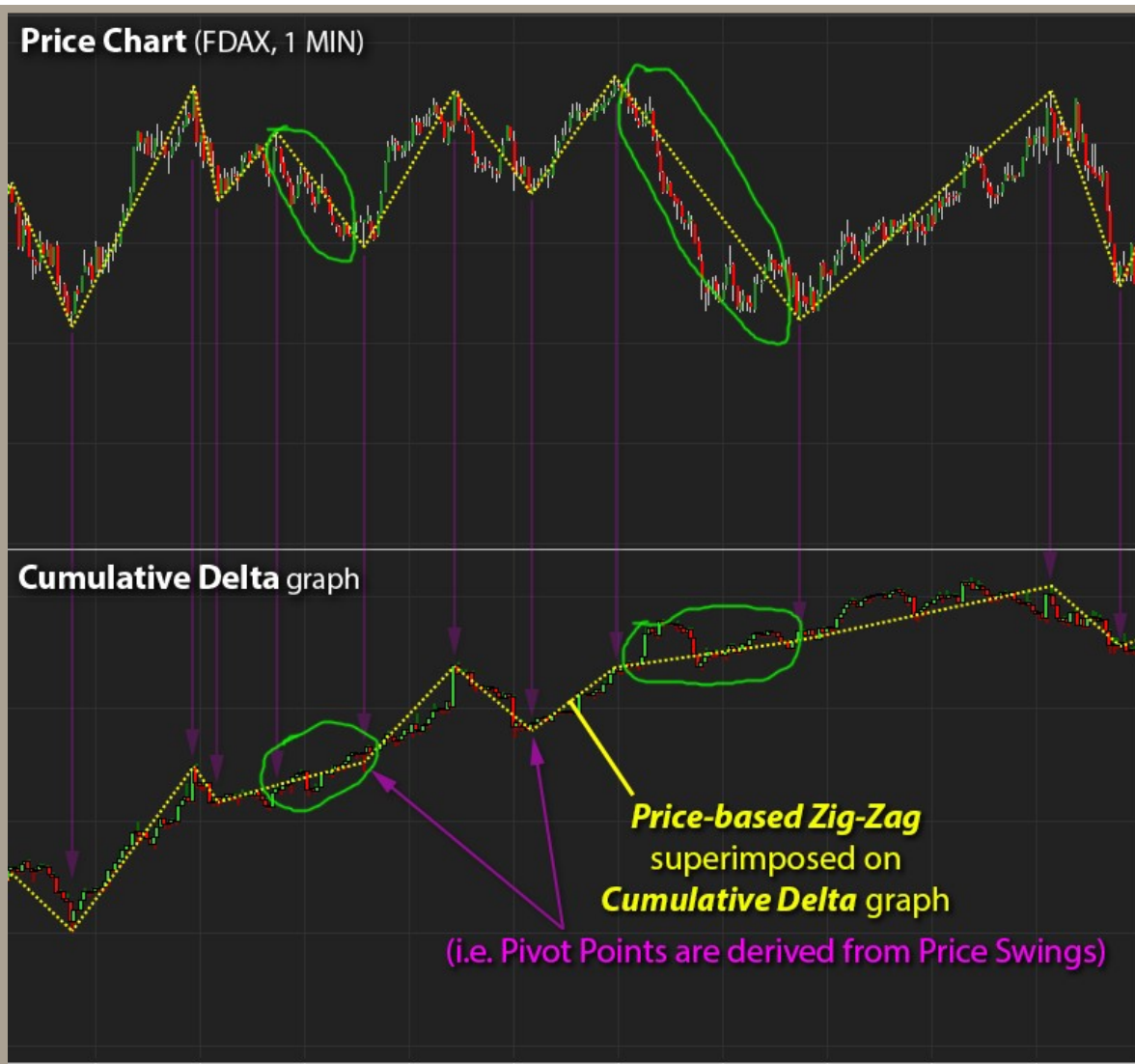
Note 1: The parameter must be greater than *Tick Size* of traded instrument!

Note 2: *dt Buy-Sell Pressure* identifies local price pivot points on sub-bar basis, tick-by-tick. Thus, the indicator may detect several actual price swings inside one bar when using too high timeframe in conjunction with too low 'Price Deviation Thresh.'



It is necessary to fit the 'Price Deviation Threshold' value suitable for your traded futures contract and chart timeframe.

The capability of the indicator to plot Price-based Zig-Zag superimposed on Cumulative Delta graph gives an easy way to assess Delta-vs-Price divergences:



Delta Marks provide another way to assess Delta-vs-Price relations. A Delta Mark simply illustrates the **sign** and **relative value** of Delta accumulated during Price Swing formation at three various points of the formation: "On-Touch", "On-Breakout", "On-Local Extreme Formed".

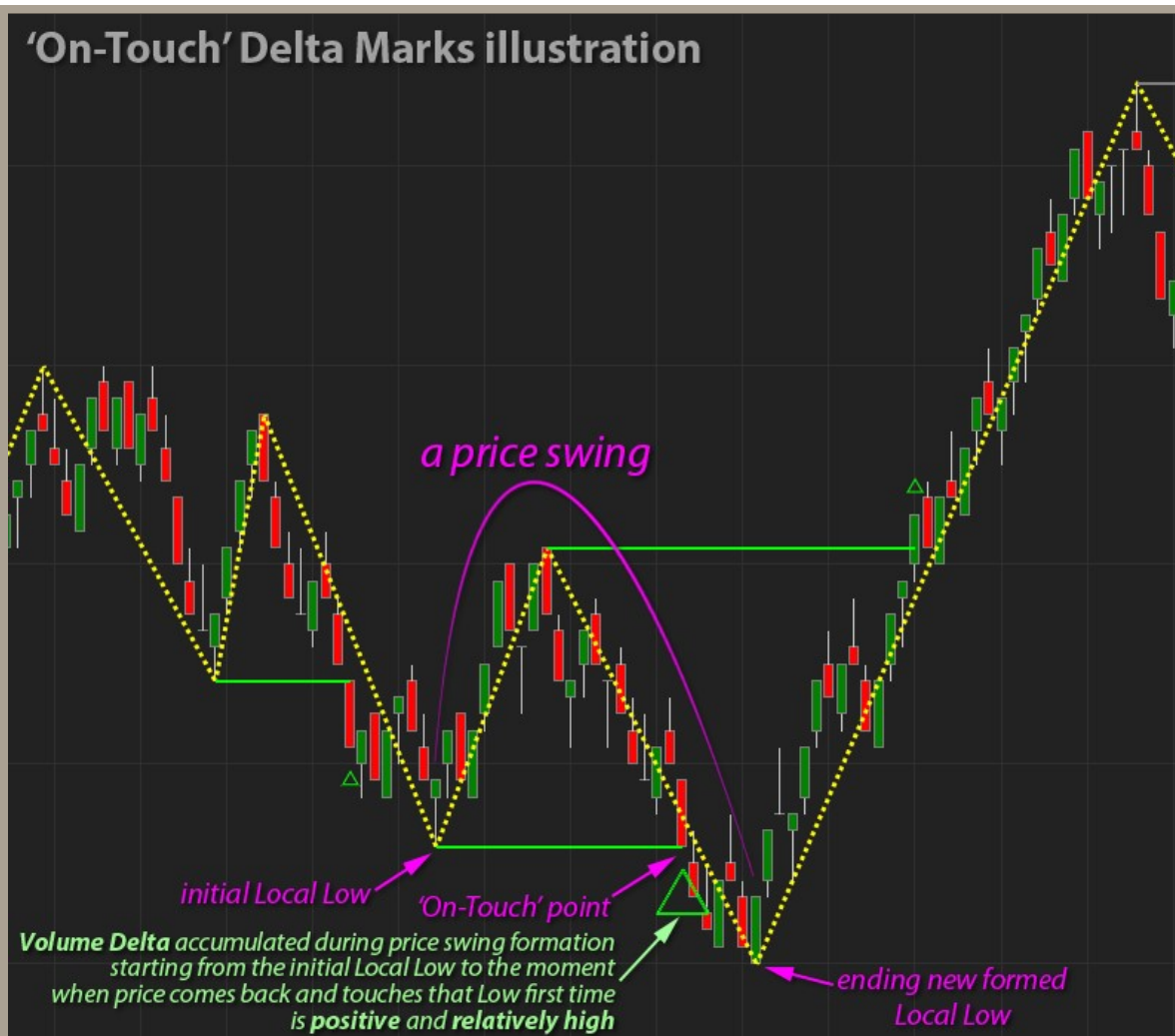
That's all!

Thus, a Delta Mark consists of two elements:

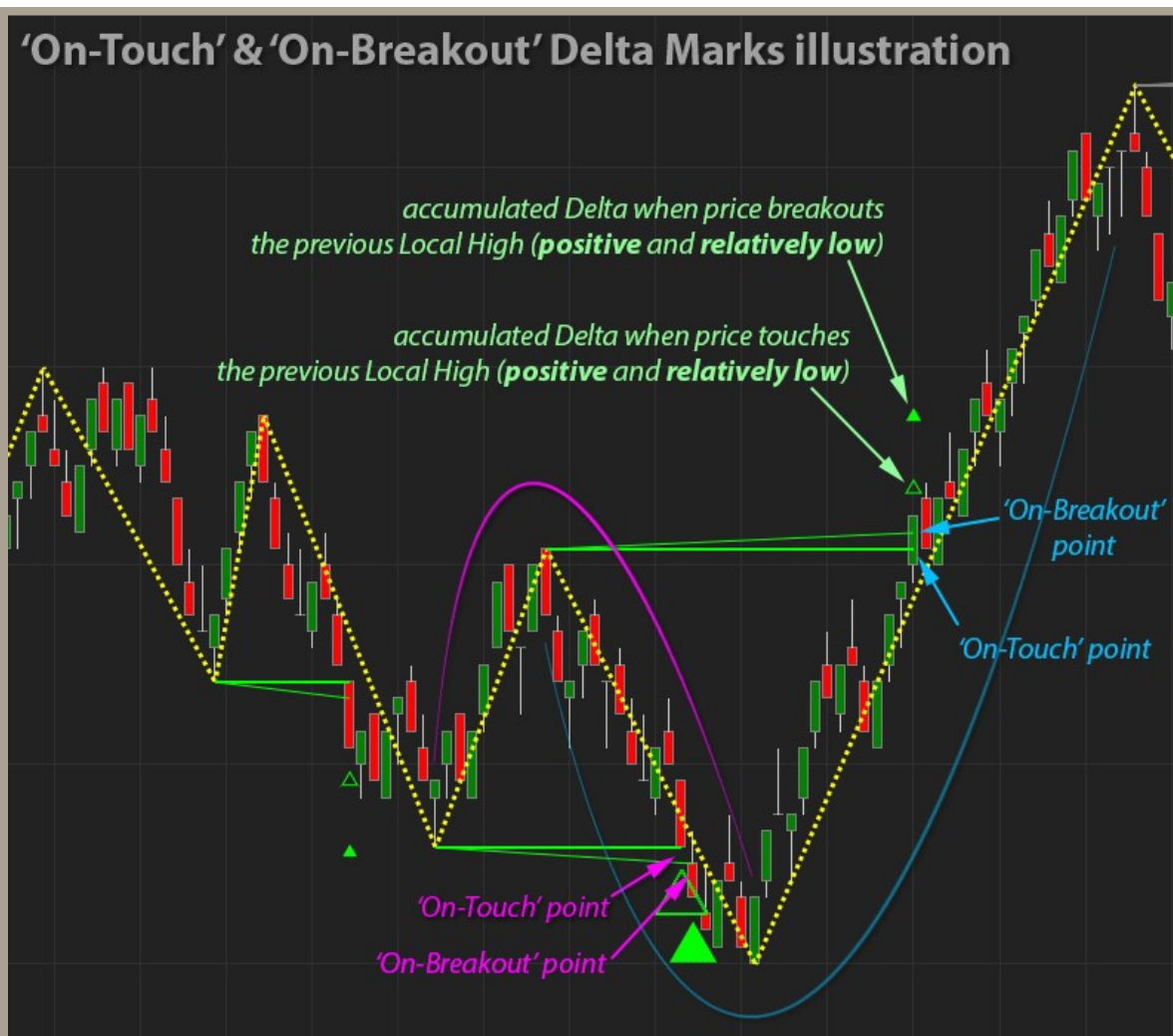
- A *Leg Line* that connects two data points ('from' and 'to') of Delta accumulation. Beginning point is always the initial extreme — Local High or Local Low of related price swing. End point is one of those three points of interest:
 1. 'On-Touch' — when price comes back and just touches first time the initial Local Extreme of the price swing;
 2. 'On-Breakout' — when price breakouts the initial Local Extreme of the price swing and extends the price range of this swing;
 3. 'On-Local Extreme Formed' — point of ending Local Extreme of the same type as initial one (New Local Low or New Local High) that completes formation of the price swing (Note: the coming of new "ending" Local Extreme is detecting by "Zig-Zag" rule — i.e. price moves defined Threshold value in opposite direction).
- A *Triangle* that shows the sign (\blacktriangle = positive (+), \blacktriangledown = negative (-)) and relative value ($\blacktriangle \blacktriangle \blacktriangledown$) of Delta accumulated from initial local extreme to a point of interest of Price Swing.

And once again...

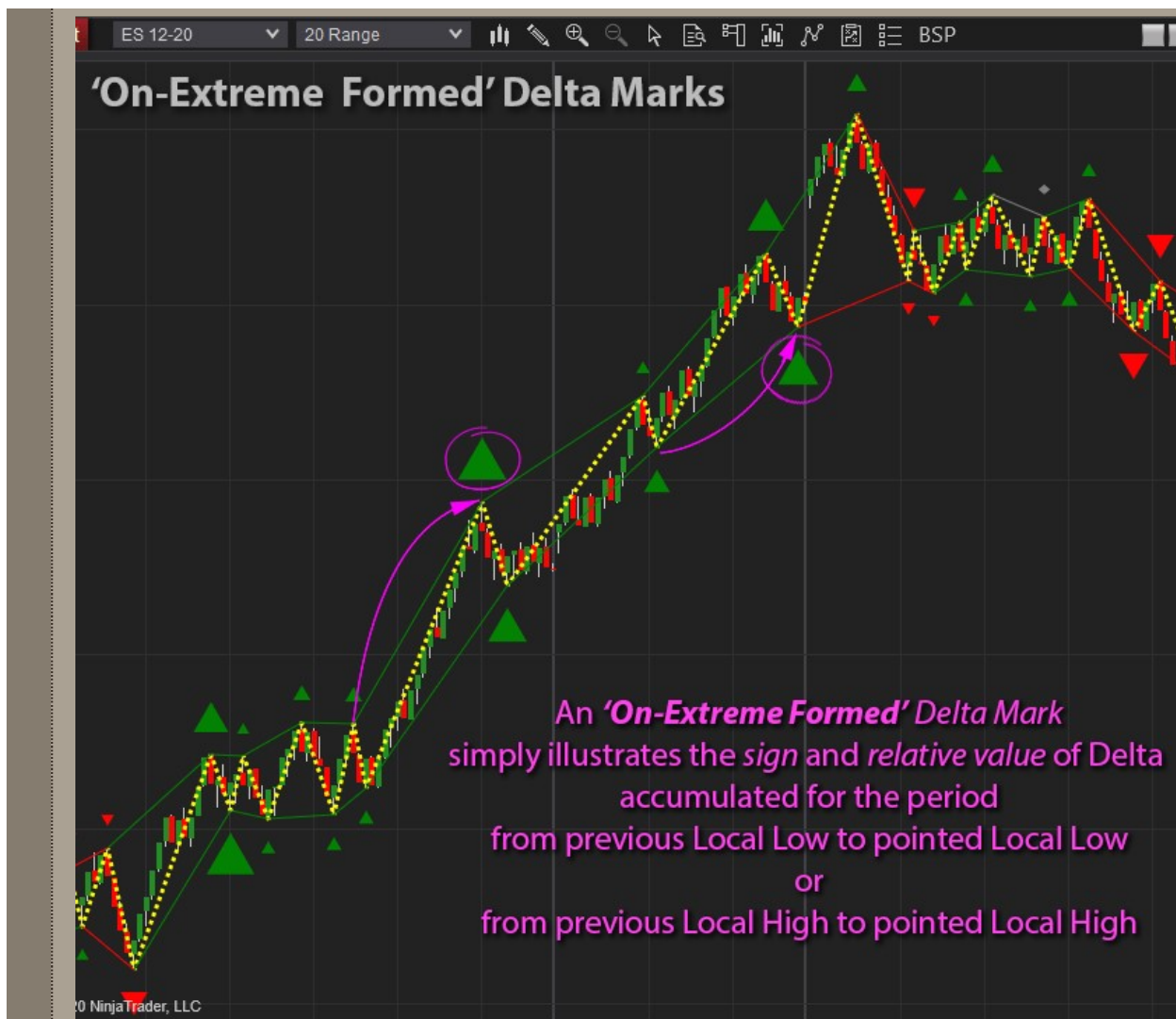
On-Touch Mark — this sort of Triangle Mark will demonstrate the cumulative Delta calculated starting from a formed Local Low or High of a Price Swing to the moment when price touches that Local Low or High (Local Extreme) the most first time.



On-Breakout — this sort of Triangle Mark will illustrate the cumulative Delta calculated from a formed Local Extreme of to the moment when price breaks that extreme.



On-Local Extreme Formed — this sort of Triangle Mark will illustrate the cumulative Delta calculated from a previous Local Extreme to the next one (from one Local High to the next Local High or from one Local Low to the next Local Low).



By default, all these kinds of Marks are enabled, so your graph may look too littery and unsuitable for visual analysis. You should enable just one kind of Marks at a time to make your chart more suitable for analysis. Use 'BSP Control Panel' to easily turn ON/OFF Delta Marks.

BSP Control Panel

Δ Conv/Div Marks

Price Deviation Thresh.

Delta Tolerance

Marks Size Min: Max:

☒ Price-based Zig-Zag

On-Touch

☒ Show On-Touch Marks

☐ Filled ☒ Outline

Higher Delta Solid

Lower Delta Solid

Neutral Delta Solid

On-Breakout

☒ Show On-Breakout Marks

☒ Filled ☐ Outline

Higher Delta Solid

Lower Delta Solid

Neutral Delta Solid

On-Local Extreme Formed

☒ ~~Hide unnecessary marks~~

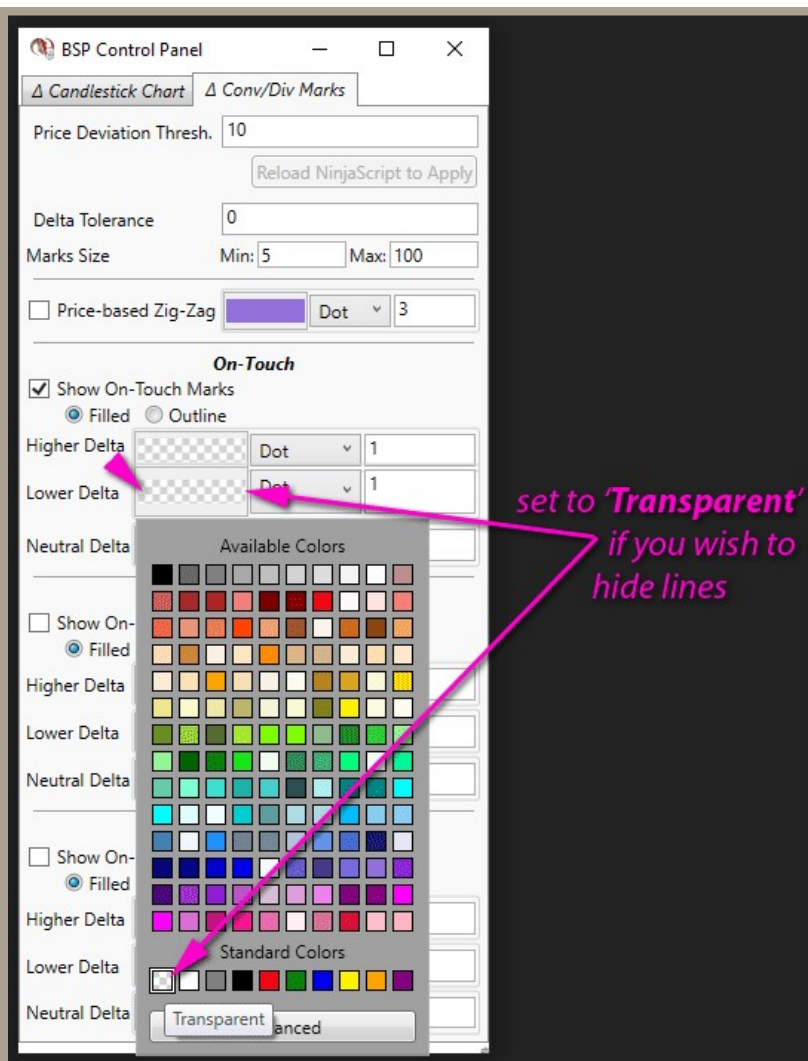
☒ Filled ☐ Outline

Higher Delta Solid

Lower Delta Solid

Neutral Delta Solid

It is also possible to hide Leg Lines by assigning 'Transparent' color, if necessary:



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