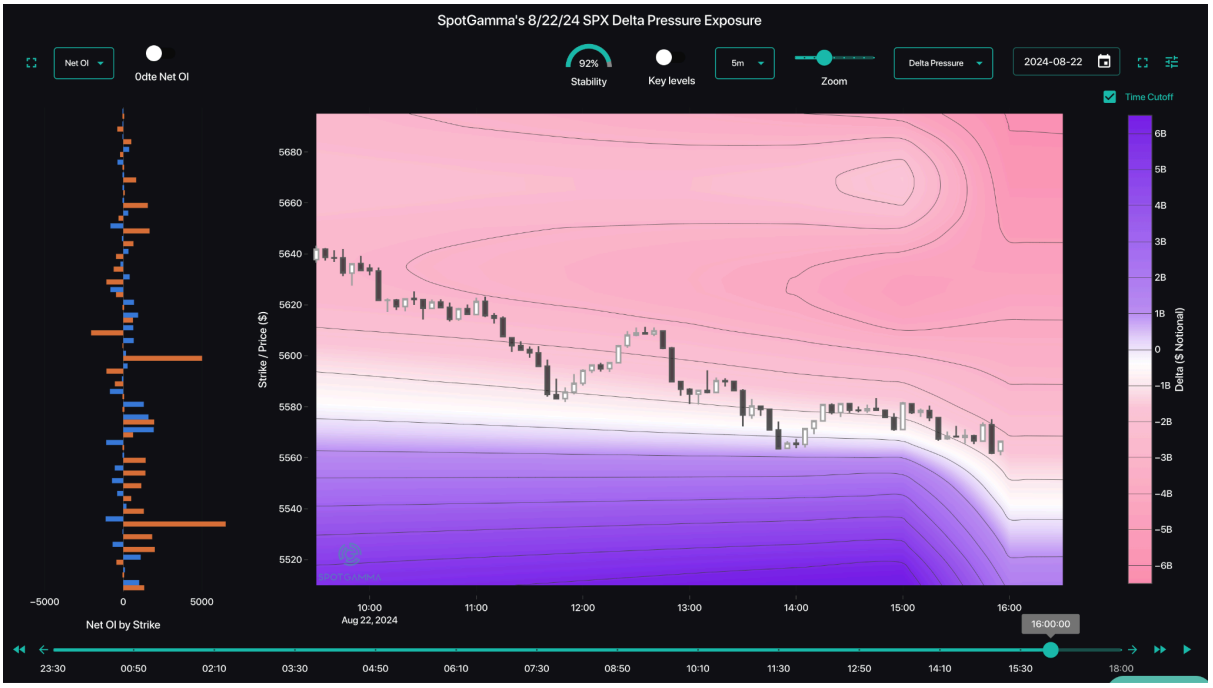
TRACE User Guide

Last Update: July 16, 2024

"It gives me the confidence to hold my position instead of being shaken out by violent pullbacks." - User AB

"I'm basically leaving TRACE open all day on a screen." - User WK



TRACE is a brand new heatmap that unveils how options flows are driving the S&P 500 in real time.

OVERVIEW:

TRACE is a powerful tool designed to help you visualize how the options market exerts pressure on the SPX Index in real time. TRACE unveils where the SPX Index may find zones of support & resistance, areas of heightened volatility, and price consolidation between 9:30am ET and 4:00pm ET.

Specifically, TRACE is built off of SpotGamma's proprietary Options Inventory Model. TRACE ingests all options traded across the US exchanges, including dealer positioning information, and displays the dynamic influence of the Greeks on the SPX price in real time.

This user manual includes descriptions of TRACE that will be incorporated directly into the dashboard under both tool tips and tutorials. The following sections cover:

1. TRACE Chart Descriptions

The TRACE page in the SpotGamma Dashboard features two different charts:

1a. The **STRIKE PLOT**, on the left side of the chart
1b. The **HEATMAP**, on the right side of the chart.

1a. Strike Plot Overview

The Strike Plot reveals the real-time market maker positions across SPX strikes for (a) Gamma Exposure (GEX), (b) Open Interest (OI), and (c) Net Open Interest (Net OI). Each of these views can help you visualize which SPX strikes are most active and how positioning changes throughout the trading day.

(a) Gamma Exposure (GEX) **(b) Open Interest (OI)** **(c) Net Open Interest (OI)**

To tailor your preferred viewing pane, there are four features to consider:

(1) Full Screen: Maximize the Strike Plot by hiding the heatmap and color scale.

(2) Available Lenses:

(a) Gamma Exposure (GEX): This shows the estimated market maker gamma for each individual strike, in dollar notional terms, at the current price.
Blue: Market makers hold positive gamma position (long calls or long puts)
Red: Market makers hold negative gamma position (short calls or short puts)

(b) Open Interest (OI): This shows you the open interest by strike in contract terms, which can reflect liquidity. Calls are displayed in orange while puts are shown in blue.

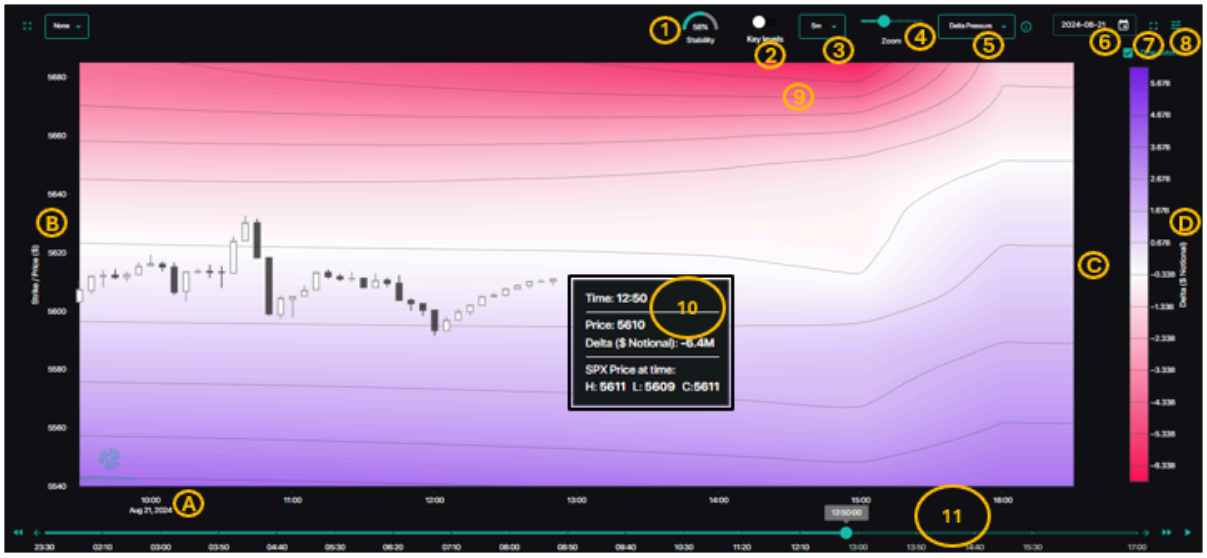
(c) Net Open Interest: This shows you the net open interest for each strike by summing the amount of long and short exposure for market makers.

(3) 0DTE Tracking: This allows you to see *ONLY* 0DTE positions on the strike plot, which is particularly valuable for intraday analysis.

(4) Tooltips: Hover over a strike to see the price, dollar notional value (GEX) or contract size (OI & Net OI), percentile indicating the relative size of the position, as well as the daily minimum and maximum positions at that strike. The tooltip also shows the value for 3 toggleable dots that show the position size from 10-minutes prior (white dot), 30-minutes prior (yellow dot), and 60-minutes prior (blue dot).

1b: Heatmap Overview

The Heatmap displays where the SPX Index may find zones of support & resistance, areas of heightened volatility, and price consolidation.



Let's define the axes and each toggle that you can adjust to personalize your view:

(A) <u>X-axis:</u> The TRACE heatmap represents time throughout a given trading day, from 9:30am ET to 4:00pm ET, and updates every 10 minutes. The slider at the bottom can be used to see changes to market maker inventory. These changes can influence how they hedge future price action.

(B) <u>Left Y-axis:</u> This shows the strike prices.

(C) <u>Right Y-axis:</u> This measures the HIRO signal, quantifying the amount of market maker directional influence in real time based on current options flows.

(D) <u>Color Scale:</u> This scale reflects the notional value of delta (for Delta Pressure, Charm Pressure lenses) or gamma (for Gamma lens) based on current market makers' position.

Next, we will detail how to use all other toggles and filters on the TRACE HEATMAP:

(1) <u>Stability Gauge:</u> This is a proprietary, forward-looking metric measuring the likelihood of large movement over the next 10 minutes, with higher values corresponding to a lower likelihood of significant price movement. This is applicable between 9:30am and 3:30pm ET.

(2) <u>Key Levels Toggle:</u> Enable this to see our proprietary Key Levels, updated daily.

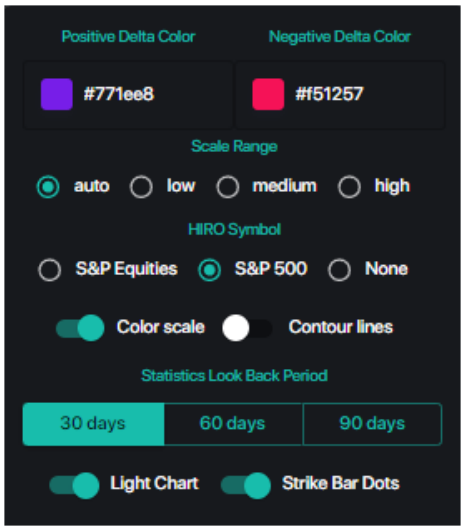
(3) <u>Candle Settings:</u> Customize the candlestick setting to intervals of 1 minute, 5 minutes, or 15 minutes.

(4) Zoom Slider: Zoom in or out on the Y-axes or click and drag the zoom function into targeted ranges. You can double-click the chart or click the magnifier to exit zoom.

(5) Model Dropdown: Select from three models available for TRACE: Gamma, Delta Pressure, and Charm Pressure. The *(i) info* icon provides additional context for each model. More detailed information on each model can be found in the following section of this guide.

(6) Calendar Settings: View TRACE for historical dates to see how options activity evolved through prior days. Note that HIRO values are only available for 5 days.

(7) Full Screen Feature: Maximize the heatmap by hiding both the Strike Plot and the color scale.



(8) Settings: Open the settings window to customize your TRACE experience.

- *Color Customization*: Users can modify the default coloration, which applies to all 3 heatmap lenses.
- *Scale Range*: The scale range adjusts the coloration and Strike Plot scale, allowing users to select auto, low, medium, or high scale ranges.
- *HIRO Symbol*: The purple line on the heatmap represents the HIRO flow on the chart. Users can view one of several different related HIRO tickers:
    - *S&P Equities*: Combined HIRO flow for all single stock components of the S&P 500
    - *S&P 500*: Combined HIRO signal for SPX, XSP, SPY & ES=F
    - *None*: Turns off HIRO signal
- *Color Scale Toggle*: This allows users to hide the color scale on the right side.
- *Contour Lines Toggle*: This allows users to turn the contour lines on or off on the heatmap. These lines help you visualize where the heatmap color is changing.
- *Statistics Look Back Period*: Select a 30, 60, or 90-day look back period for stats, available as tooltips on both the Strike Plot and the Heatmap.
- *Light Chart Toggle*: This enables the light mode for the TRACE heatmap, disabling this toggle will display the heatmap in dark mode.
- *Strike Bar Dots Toggle*: This enables colored dots on the strike plot showing the GEX, OI, or Net OI reading from previous timeframes - 10, 30, and 60-minutes prior.

(9) Contour Lines: Examine how the heatmap changes across strikes. For Charm Pressure and Delta Pressure, dense contours imply a sizable increase in buying pressure (if blue) or selling pressure (if red). For Gamma, dense contours signal a rapid change in gamma notional, meaning the environment may shift from high volatility (if red) to low volatility (blue).

(10) Hover Feature: Hover over a specific area on the heatmap to view exact timestamps, SPX Index levels, and Greek values (in $ notional terms) for the selected datapoint.

(11) Timeline Slider: This slider allows users to replay how market maker and dealer positioning has changed over the course of a selected day (updated every 10 minutes). When the slider is moved, the heatmap reflects the estimated position for the selected time.

2. Each TRACE Lens And Its Applications

TRACE features three proprietary models: Gamma, Delta Pressure, and Charm Pressure. Below are descriptions and use cases for each model.

2a. Gamma

Description

The gamma lens is most useful in helping you anticipate local areas of higher or lower realized volatility. The relative strength of a gamma zone is shown by the depth of color with the strongest levels showing as dark blue or dark red.

Key Features

You can use the heatmap colors to infer potential zones where price action may change.

- **Blue Zones:** Lower expected volatility (positive market maker gamma)
- **Red Zones:** Higher expected volatility (negative market maker gamma)
- **White Zones:** Transition zone (more neutral, little hedging [light mode])
- **Black Zones:** Transition zone (more neutral, little hedging [dark mode])

Trading with the Gamma Heatmap

The gamma lens is the best way to start evaluating areas of intraday stability vs. volatility. Price tends to move swiftly through areas of neutral to negative gamma and find support or resistance at areas of strong positive gamma.

- **Pinning:** More likely in a blue zone (highest impact at the EOD)
- **Volatility:** More likely in a red zone (highest impact at the EOD)

2b. Delta Pressure

Description

The Delta Pressure lens displays the net change in market maker delta positioning across all prices and time frames.

Key Features

Traders can use the colors on the heatmap to gauge where market maker hedging may create upward or downward pressure for SPX. It is important to know the type of environment we are in to optimize your trading approach.

For a positive gamma environment, the zones offer stability and cap movement:

- **Blue Zones:** Reflect buying support (need to buy futures or stock to hedge)
- **Red Zones:** Reflect selling resistance (need to sell futures or stock to hedge)
- **Contours:** Lines reflect zone borders (can guide toward closing levels)

For a negative gamma environment, the zones offer areas of acceleration:

- **Blue Zones:** Reflect buying pressure (need to buy futures or stock to hedge)
- **Red Zones:** Reflect selling pressure (need to sell futures or stock to hedge)
- **Contours:** Lines reflecting large shifts (can guide toward closing levels)

Trading with the Delta Pressure Heatmap

Traders can use the heatmap to anticipate where market makers' buying or selling pressure will "kick in" to act as support / resistance (positive gamma environment) or exaggerate price movements (negative gamma environment).

Positive gamma environment: Overhead red zones indicate areas where market makers are expected to be selling as price moves higher whereas underneath blue zones provide support as price rejects lower. This infers that breaking these levels will take considerable volume.

Negative gamma environment: Overhead blue zones reflect where buying can extend or accelerate an upward move and underneath red zones reflect where selling can extend or accelerate a downward move.

- **Strength:** More likely in a blue zone (consider the gamma environment)
- **Weakness:** More likely in a red zone (consider the gamma environment)

2c. Charm Pressure

Description

Charm Pressure depicts how market maker hedging changes with respect to time and can be heavily influenced by large 0DTE volumes. Charm Pressure can be thought of as a key element in the pinning process that can be seen near positive gamma nodes.

Key Features

SpotGamma often finds that spot price tends to move towards zones where positive and negative charm meet at EOD. SpotGamma also finds that spot price moves strongly through blue zones at EOD in that process. The Charm Pressure chart shows the following market maker positioning:

- **Red Zones:** Options are passively gaining value (sell more futures, less support)
- **Blue Zones:** Options are passively losing value (buy more futures, more support)

Trading with the Charm Pressure Heatmap

Towards the close of the trading day, monitor areas between blue and red pockets. Charm Pressure can have a considerable effect dampening hedging flows from areas of strong positive market gamma. This dampening action can lead to a pinning effect at EOD.

- **Pinning:** Strong gamma interaction EOD (white/black, between red & blue)