Options Calculator User Guide

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What is SpotGamma's Options Calculator?

SpotGamma's Options Calculator empowers you to model the PnL (profit and loss) for a trade by pairing realtime options data with a powerful interface. Some of the key features of the Options Calculator include:

- **Personalization:** Customize your layout and save trade templates.
- **Volatility Metrics:** Adjust implied volatility and skew across expirations.
- **SpotGamma Levels:** Visualize proprietary support and resistance levels.

This guide will break down how the SpotGamma Options Calculator can help you optimize your strike selection, visualize the true impact of time decay, and assess how volatility changes can drive your PnL.

Appendix

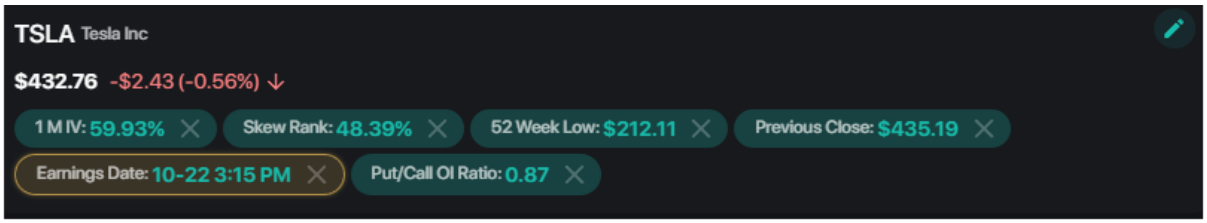
Options Calculator Overview

SpotGamma's Options Calculator consists of four unique sections designed to show you key stock metrics, offer a list of preset options strategies, display the realtime PnL for your position, and adjust the inputs for each options leg.

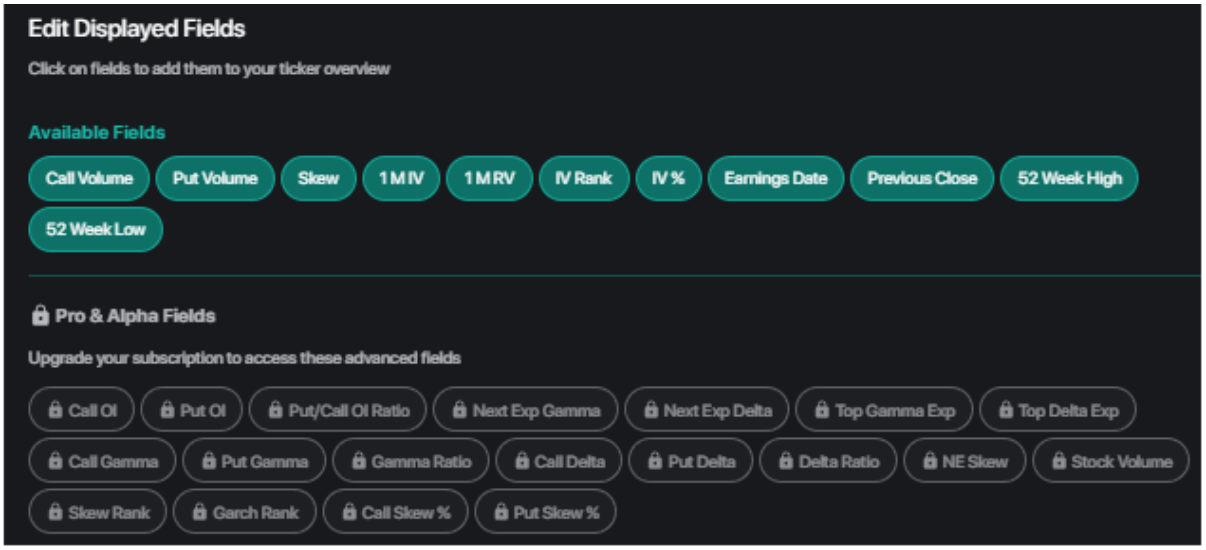
1. Stock Metrics: Choose from 30 different display fields in the upper left corner including volatility, greeks, and price info for the name in focus.
2. Strategy Selection: Select pre-programmed trade setups based on directional, neutral, or volatility-driven strategies.
3. Profit & Loss Chart: See the return profile of your trades across different prices and adjust your position directly on the chart.
4. Position Manager: Adjust each leg of your trade and save your template for future trades.

Stock Metrics

SpotGamma empowers you to select key criteria for any US stock or index and add it to your display in the upper left corner of the Options Calculator interface.

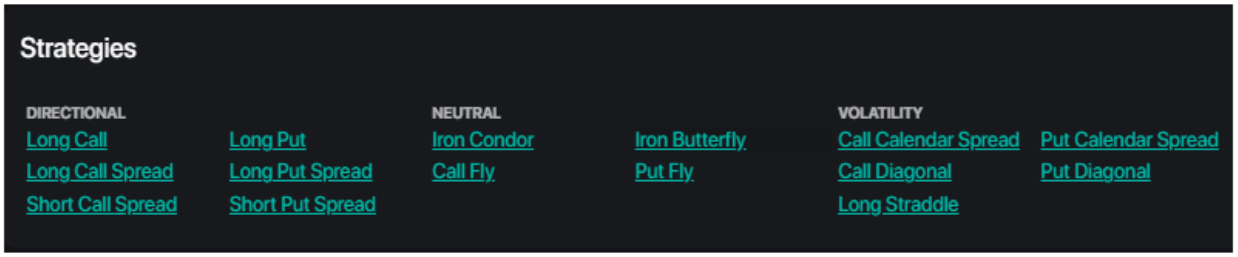


To select and customize your display, click on the **pencil icon** in the top right of the page. Standard SpotGamma subscribers can select from up to 11 different fields (below in green), while Pro and Alpha users can access all 30 listed metrics.



Strategy Selection

SpotGamma's Trade Calculator provides a list of 15 options templates, in the upper right corner, that you can use to design an optimal trading strategy.



Each template is designed to display frequently used directional, neutral, or volatility driven approaches. These are not trade recommendations but frameworks you can adjust. The templates include the following 15 approaches:

Long Call: Bullish strategy where the buyer has the right to purchase stock at a fixed price by a future date.

Long Put: Bearish strategy where the buyer has the right to sell stock at a fixed price by a future date.

Long Call Spread: A bullish setup with a long (bought) call at a lower strike, and a short (sold) call at a higher strike.

Long Put Spread: A bearish setup with a long (bought) put at a higher strike, and a short (sold) put at a lower strike.

Short Call Spread: A bearish-to-neutral setup consisting of a short (sold) call at a lower strike, and a long (bought) call at a higher strike. The bought call can protect against the risk of upward price movement.

Short Put Spread: A bullish-to-neutral setup consisting of a short (sold) put at a higher strike, and a long (bought) put at a lower strike. The bought put can protect against the risk of downward price movement.

Iron Condor: A market-neutral strategy that profits when the underlying asset trades within a specific price range. This setup consists of both a short call spread and a short put spread.

Iron Butterfly: A precision neutral strategy that profits when the underlying asset remains close to the center strike price, constructed by selling both a call and a put at the same strike while buying protective options on either side.

Call Fly: This strategy consists of a long (bought) lower strike call, short (sold) two middle-strike calls, and long (bought) a higher strike call.

Put Fly: This strategy consists of a long (bought) lower strike put, short (sold) two middle-strike puts, and long (bought) a higher strike put.

Call Calendar Spread: This setup consists of selling a shorter-dated call while simultaneously purchasing a longer-dated call. A time-based strategy

capitalizing on the difference in time decay between near-term and longer-term options at the same strike price.

Put Calendar Spread: This setup consists of selling a shorter-dated put while simultaneously purchasing a longer-dated put. A time-based strategy capitalizing on the difference in time decay between near-term and longer-term options at the same strike price.

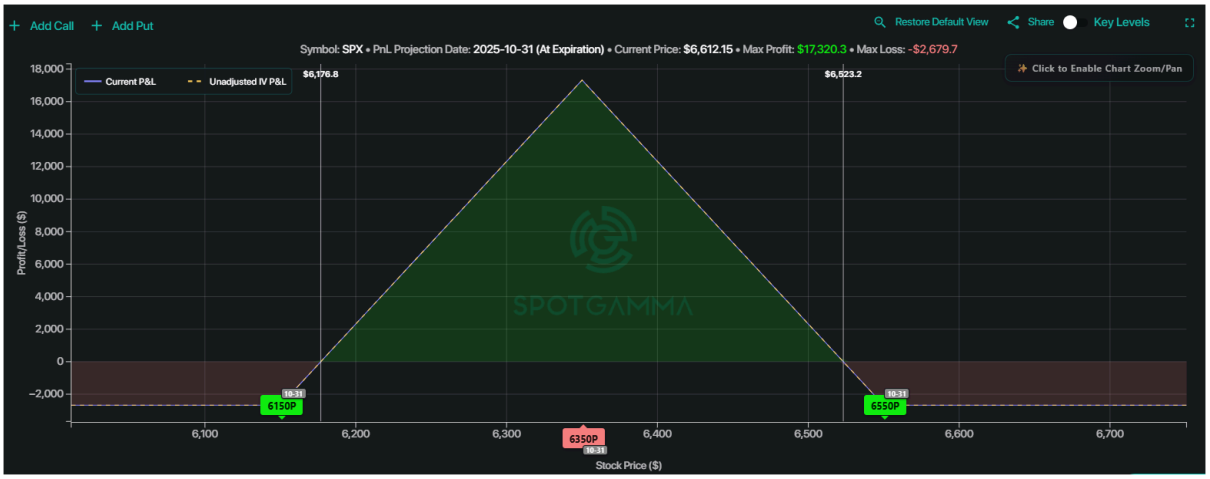
Call Diagonal: This is a variation of a Call Calendar Spread where the long (bought) call has a lower strike price and later expiration, creating a bullish bias.

Put Diagonal: This is a variation of a Put Calendar Spread where the long (bought) put has a higher strike price and later expiration, creating a bearish bias.

Long Straddle: This strategy combines one ATM call and one ATM put, benefiting from volatility and/or skew increasing.

Profit & Loss Chart

The **PnL Chart** in the central viewing pane of the SpotGamma Options Calculator displays the return profile for your trade setup. Specifically, the profit or loss is displayed on the y-axis and the related stock price is shown on the x-axis. By default, the **PnL Chart** measures the position's price at the time of expiration, as shown below:



In addition to the preset layout, SpotGamma's Options Calculator allows you to manipulate both the time-to-expiration and the implied volatility for each options

leg, which dynamically changes the return profile displayed on the below **PnL Chart**:

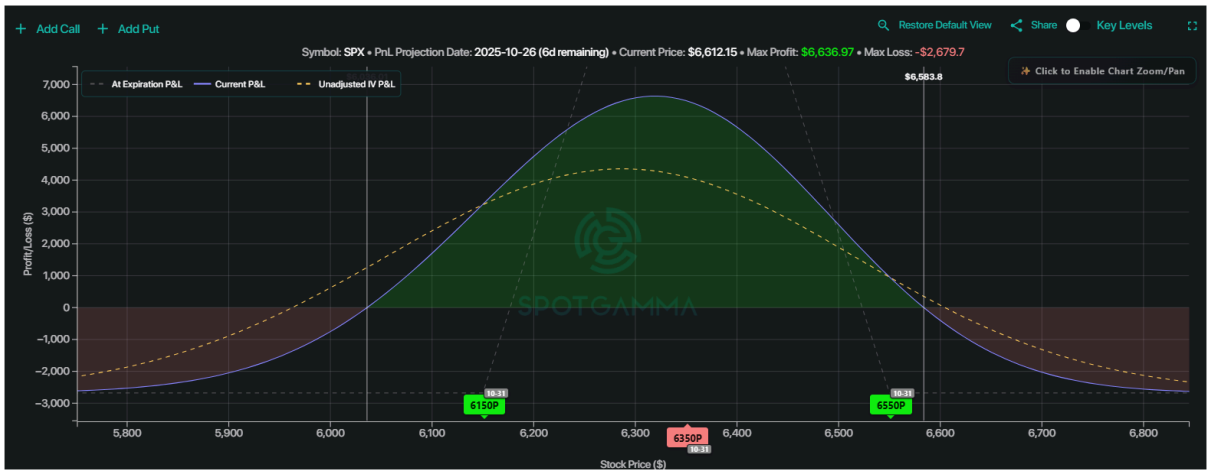
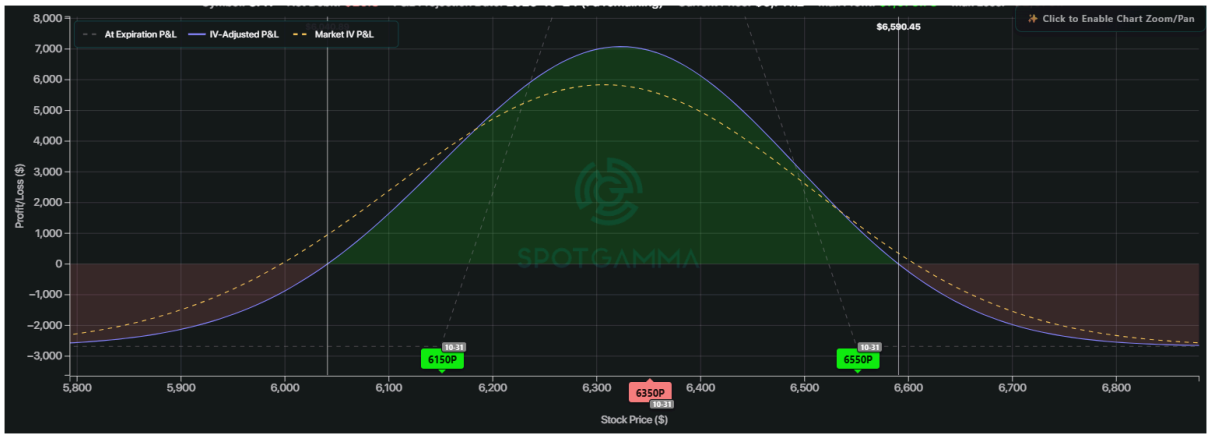


Chart Features

Within the **PnL Chart**, there are many ways to customize your return profile and model different trade scenarios, including the following:



Pan & Zoom: Click anywhere on the chart, and then expand the visual field to zoom out or pan in with your touchscreen or mouse.

PnL Curve: View the price ranges where your trade is profitable (green shading) or unprofitable (red shading) based on the position you have input into the Options Calculator. The PnL curve can be rendered to show the effect of shifting *Time-to-Expiration* and *Volatility*, as outlined below.

- *Adjusting Time-to-Expiration*: Moving the **Time-to-Expiration** slider will show you the PnL Curve for your position across future dates. When adjusting the Time-to-Expiration slider, the **At-Expiration PnL** will display as a dashed gray line.

- *Adjusting Volatility*: When you make an adjustment to implied volatility or skew in your **IV Settings**, the PnL Curve will reflect your changes as the **IV-Adjusted PnL** for all dates prior to expiration. A dashed yellow line on the PnL Chart will then display the **Market IV PnL**, which shows the initial PnL Curve without any changes to IV for all dates prior to expiration. If you leave the Time-to-Expiration slider at Expiry, the lines will not separate.

Strike Selectors: At the bottom of the chart, you can drag the strike below the **PnL Chart** to adjust strike prices and see the impact of changing strikes on the profitability of your position. Green indicates a bought option, red indicates that the option is sold.

Tooltip: When hovering over the chart, a small pop-up on the chart will display showing you the profitability or loss at that specific price, under different scenarios: the *At Expiration PnL*, the *Market IV PnL*, or the *IV-adjusted PnL*. This can be used to understand the impact of time and volatility on your position's value.

Basic Settings

Across the top of the **PnL Chart**, users can take advantage of various features to change their visualization.

Add Call: Add a call to the view, defaulting to a near-the-money strike for the nearest expiration within the current position.

Add Put: Add a put to the view, defaulting to a near-the-money strike for the nearest expiration within the current position.

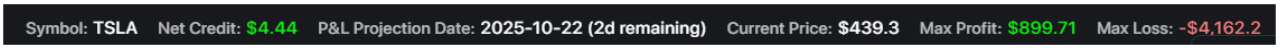
Restore Default View: Reset to the original view, showing the impact of all strikes on the **PnL Chart** and how they impact the return profile.

Key Levels: View SpotGamma Key Levels directly on the chart for each name, or toggle them off if you would like to view the chart without the levels displayed. Note that Standard users can only access the key levels for major US Indices.

Full Screen: Maximize the **PnL Chart** so that it occupies the entirety of the SpotGamma dashboard.

Position Summary Info

High level information for the position is included at the top of the **PnL Chart**.



Symbol: The ticker that the PnL Chart is currently pointed at.

Net Credit: This shows the net amount received as premium for the position.

Net Debit: This shows the net amount paid for the position.

PnL Projection Date: The date that the PnL is currently measured for, based on the time-to-expiration slider in the bottom right of the chart.

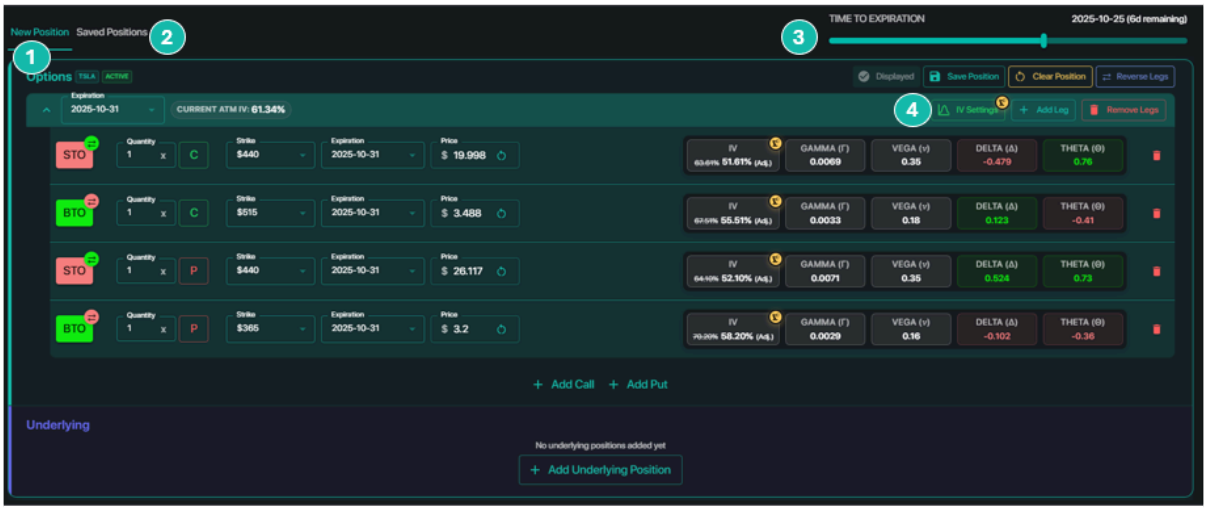
Current Price: The latest price that the underlying ticker has trading for.

Max Profit: Highest value of potential profit that can be received from the position, measured at the time of expiration.

Max Loss: Greatest potential loss that can be achieved with the position, measured at the time of expiration.

Position Manager

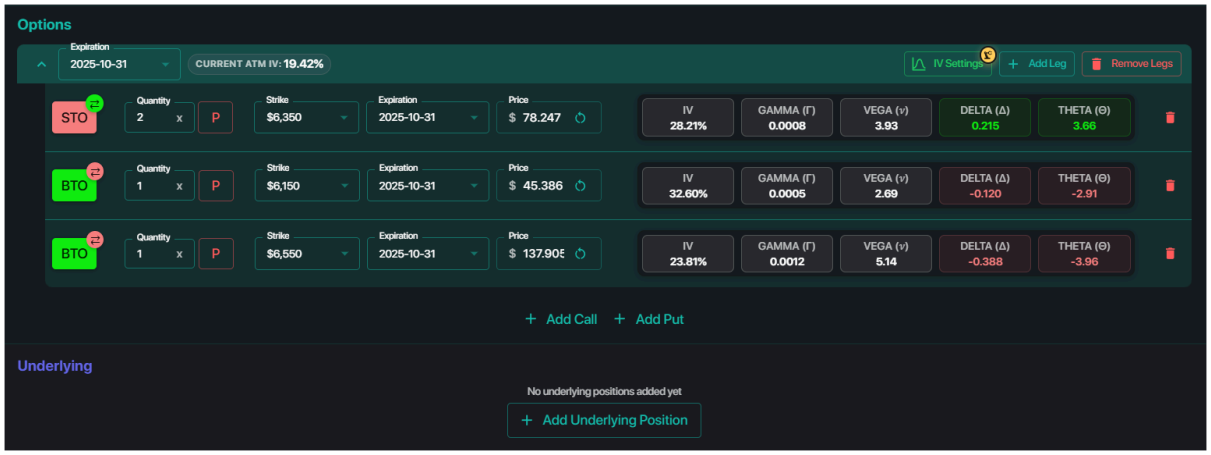
SpotGamma's Options Calculator allows you to create new trades, save your positions, or access and adjust previously saved positions.



1. New Positions: Build and save new trades to display on the PnL Chart.
2. Saved Positions: Access previously constructed trades to display on the PnL Chart, and adjust your existing positions.
3. Expiration Slider: View your projected PnL across future dates using the slider to show how the time-to-expiration impacts your position.
4. Implied Volatility Settings: Shift implied volatility up or down, or manipulate skew by expiration to show how IV can affect your trade.

Position Adjustments

Within the Position Manager, you have the ability to add puts and calls, adjust the dimensions of each option leg, and add underlying stock to the total position.



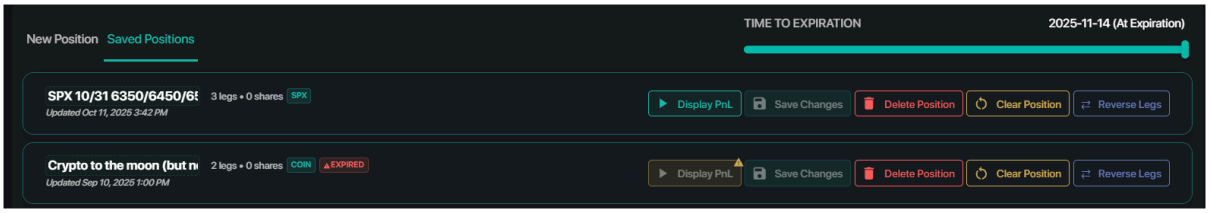
Option Inputs: Switch between BTO (buy-to-open) or STO (sell-to-open), change the quantity of the option, transition between Calls and Puts, and change the strike, expiration, or price for each specific leg.

Options Data: See the Implied Volatility, Gamma, Vega, Delta, and Theta associated with each leg of your options position. This can be used to remain delta neutral in your trades, or to create unique exposures.

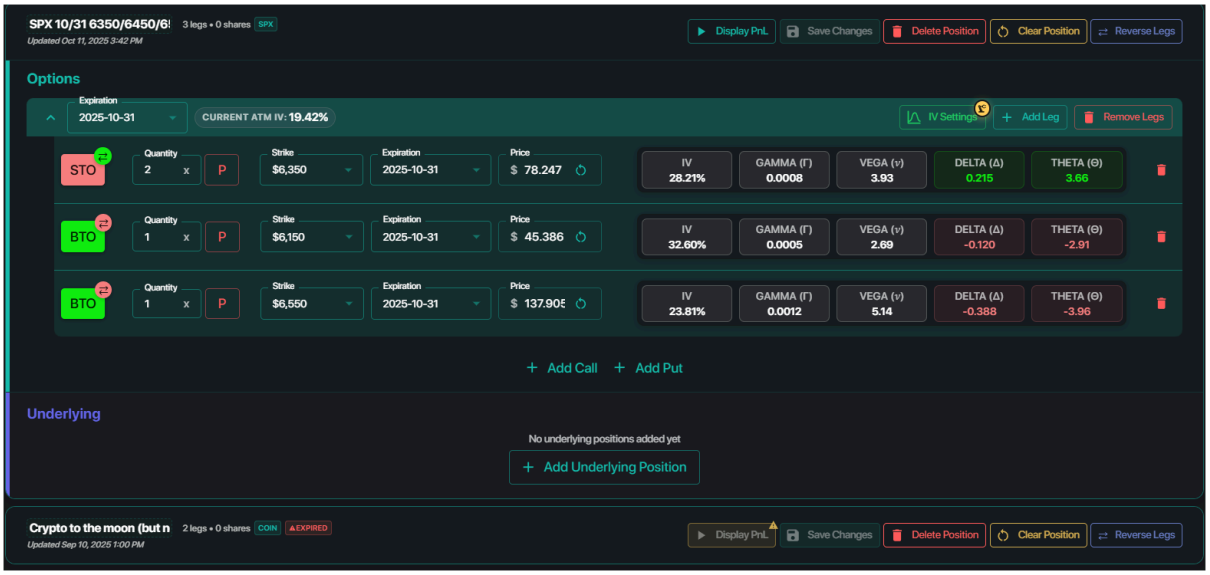
Underlying: Add underlying stock to the position, in addition to options.

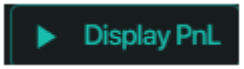
Saved Positions

Within the **Saved Positions** tab, you can view trades that you have previously set up within SpotGamma's Options Calculator.



Clicking on a position will immediately expand the Position Manager so you can easily adjust your trade inputs.





When **Display PnL** is selected, then that position is rendered in the above **PnL Chart**.

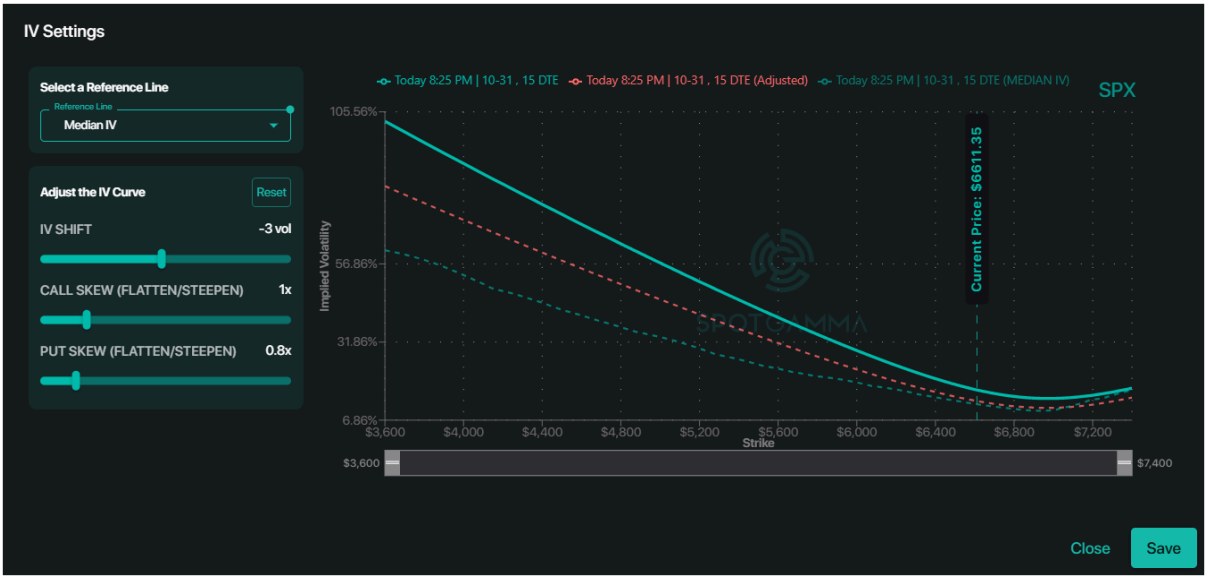
When **Display PnL** is grayed out, at least one leg of the position has expired, and there is no future PnL to display. However, you can still edit the position to change the expiration.

Expiration Slider

You can manipulate the time-to-expiration slider to visualize how changing time-to-expiration affects the return profile of your position. This can help visualize the impact of time decay on the trade, and how zones of profitability change as the expiration date of the option approaches.

Implied Volatility Settings

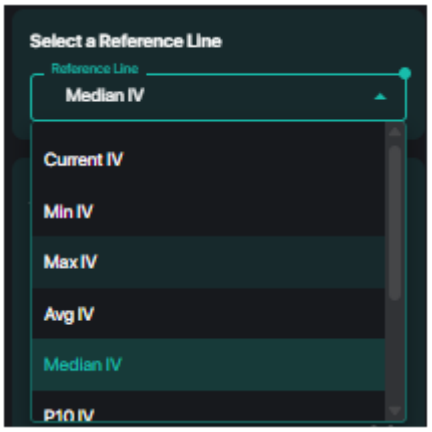
When you select **IV Settings** within the Position Manager, a pop-up window appears allowing you to change the Implied Volatility. This will affect the position value for all options with the expiration date you have chosen.



When an adjustment is made using *IV Shift*, *Call Skew*, or *Put Skew*, the change will appear as a *red line* on the volatility skew chart to the right. The static green line shows the *current market implied volatility* for the chosen expiration, and the dashed green line provides a *reference level* of IV for comparison.

Once you click *Save*, any adjustments made in the **IV Settings** window will be reflected on the **PnL Chart**, so you can visualize the impact of the new IV values on your position's value.

Select a Reference Line: View what implied volatility by strike looks like in various scenarios for the selected expiration as a *dashed green line* in the volatility skew chart on the right, from the potential options listed below.



- **Current IV:** The current market implied volatility, shown by default in a thick green line on the volatility skew chart.
- **Min:** The minimum IV across strikes observed in the past 90 days for the selected expiration.
- **Max:** The maximum IV across strikes observed in the past 90 days for the selected expiration.
- **Average:** The arithmetic mean of IVs across all strikes for the past 90 days, for the listed expiration.
- **Median:** The median IV across all strikes for the past 90 days, for the listed expiration (50% of IV values higher than the median, and 50% of IV values lower than the median, for each strike).
- **P10:** The 10th percentile of IVs across all strikes in the past 90 days, for the selected expiration.
- **P25:** The 25th percentile of IVs across all strikes in the past 90 days, for the selected expiration.
- **P75:** The 75th percentile of IVs across all strikes in the past 90 days, for the selected expiration.
- **P90:** The 90th percentile of IVs across all strikes in the past 90 days, for the selected expiration.

IV Shift: You can manipulate the implied volatility (IV) for the chosen expiration across all strike prices. Options become more expensive as IV increases, and less expensive as IV decreases. This changes based on vol points (e.g., an IV shift of -3 vol points can change IV from 35.5% to 32.5% for a given strike).

Call Skew: Adjust the implied volatility for options with strike prices higher than 50 delta, meaning out-of-the-money calls and in-the-money puts become more expensive.

Put Skew: Adjust the implied volatility for options with strike prices lower than 50 delta, meaning in-the-money calls and out-of-the-money puts become more expensive.

Reset: You can restore the values back to the current implied volatility measurement.

When **IV Settings** are adjusted, a yellow gear icon will appear next to the button, as shown in the image on the left.

Key Terms

PnL: Profit and Loss, represented in Options Calculator by the central chart showing the profitability (green zone) or loss (red zone) for a given position.

Implied Volatility: The market's expectation of how much an asset's price will fluctuate in the future, calculated from option prices. It represents the one standard deviation move with a 68.3% probability that the market is pricing in for the next year.

Skew: The difference between implied volatility for different strikes on the same date. Implied volatility is the expected percentage range over one year–based on option prices–with 68.3% confidence.

Call Skew: This describes how implied volatility increases as price moves above 50 delta. Call skew is often measured using the difference in IV between a 25 delta call and 50 delta call.

Put Skew: This describes how implied volatility increases as price moves below 50 delta. Put skew is often measured using the difference in IV between a 25 delta put and 50 delta put.

Market IV PnL: The Profit and Loss profile (chart) generated based on current implied volatility for a given name.

Adjusted IV PnL: The Profit and Loss profile (chart) generated based on adjusted implied volatility for a given name. This can be manipulated using the IV Settings for each expiration within your position.

Delta: First-order Greek which measures the sensitivity of an option's price to movement in the underlying security.

Gamma: Second-order Greek which dynamically shows the rate of change of delta (directional risk) compared to the rate of change in the underlying security.

Vega: First-order Greek which measures the sensitivity of an option’s price to changes in implied volatility

Theta: First-order Greek which measures how much an option's price changes relative to time.