

PhaseTrader[®]
Indicators

Phase Indicator Overview

Homepage: <https://phasetraderindicator.com>

Registration: <https://phasetraderindicator.com/product/phasetrader-indicator-subscription/>

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What Makes PhaseTrader® Different

Today's financial markets are almost entirely driven by algorithmic trading systems. These systems have evolved rapidly over the past few years, taking on a variety of characteristics that cause each program to react differently to subtle changes in price action, market depth, volume, volatility, and other market internals. Current generation trading systems also span a wide range of timeframes from milliseconds to weeks, responding to a broad array of triggers across different markets – bonds, forex, stocks, commodities, etc. The results have been dramatic: intraday stock volatility has spiked sharply with a strong tendency toward “mean reversion,” trading of volatility derivatives has become a principal market driver, currency carry trades instantly trigger rallies and declines in stocks and commodities, and forex markets are often more volatile than stocks.

PhaseTrader® is a suite of technical indicators, developed specifically to capitalize on institutional algorithmic trading in this new environment. The ***Phase Indicator is the core technology component of the suite***. The Phase Indicator uses a complex set of mathematical functions to identify and compare market sub trends that result from program trading systems rapidly entering and exiting trades to capture small profits. These sub trends eventually extinguish the original trend by breaking it into successively weaker phases that our indicator can detect and measure. Most programs in the suite are built around the PhaseTrader® technology. The examples in this presentation were created using these programs.

Other elements of the tool suite utilize unique mathematical transformations to identify market patterns based on a variety of signals derived from the term structure of volatility, option premium traded across selected strike ranges, timing characteristics of institutional investors, and volatility points accumulated during a market drawdown.

Phase Indicator Basics

- The Phase Indicator was created to take advantage of ultra-fast algorithmic trading. This style of automated tick-level investing dominates all financial markets, often accounting for more than 90% of the trading volume.
- Today's algorithmic trading systems strengthen a trend during its early phase then extinguish the same trend by over trading it. Long-term trends that appear on traditional stock charts are the accumulated results of these activities.
- Traditional indicators – moving averages, momentum, stochastics, money flow, etc. – are not designed to work in this environment.
- The Phase Indicators are different because they detect and respond to the behavior of algorithmic trading systems. Collectively, they comprise a family of charting tools known as PhaseTrader®. Each indicator can be optimized to fit any financial market and timeframe.

Phase Indicator in Longer Timeframes

This 60-minute candlestick chart of gold futures spans a 10-day timeframe that begins with a modest rally but ends in a sharp decline. The indicator trace resets sharply, providing a sell signal several hours ahead of the beginning of the drawdown (dashed line). The sharpest portion of the correction ends with another abrupt reset of the indicator that signals the bottom.

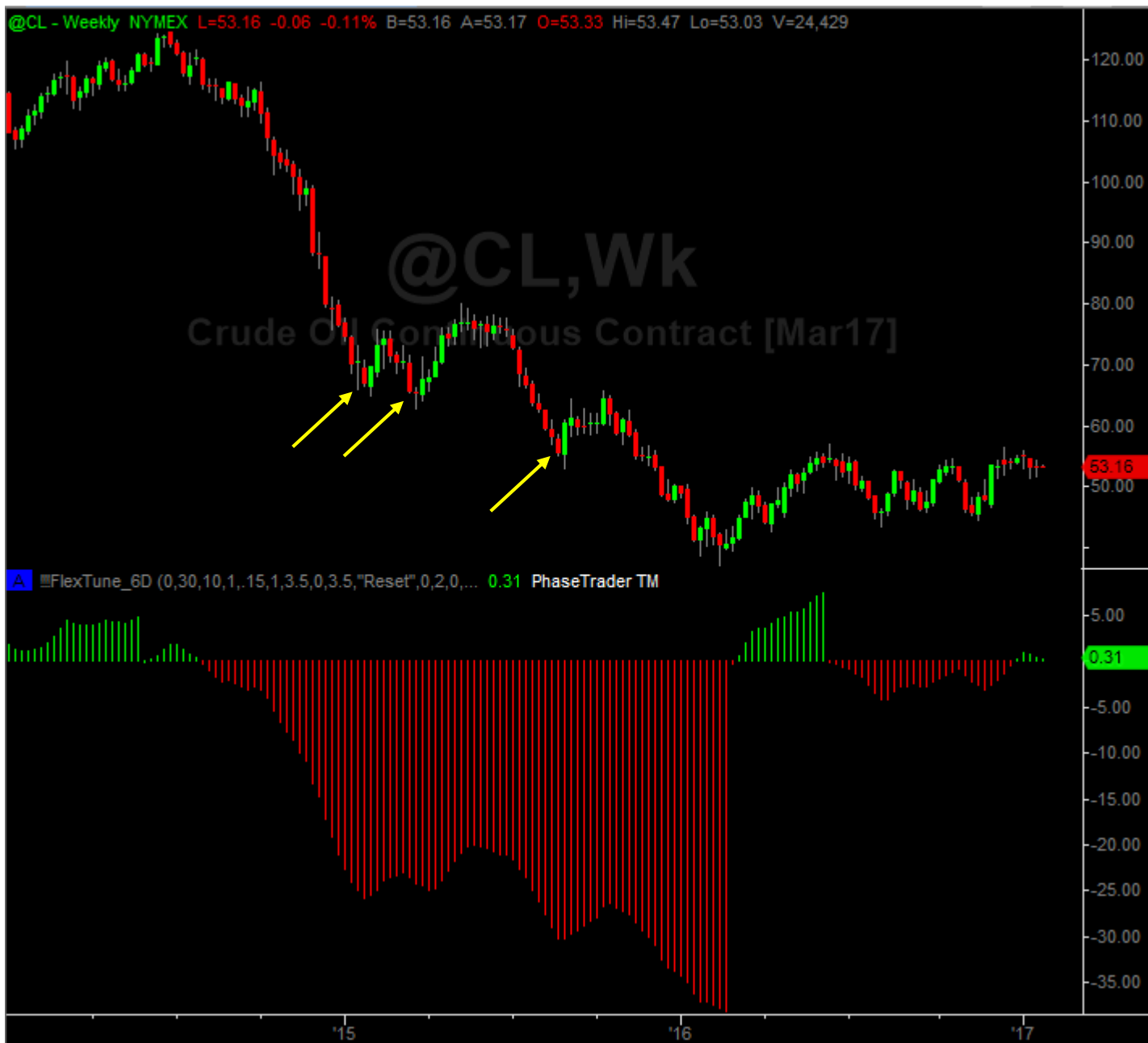


Phase Indicator in Fast Charts and Short Timeframes

The Phase Indicator functions effectively across many different timeframes and chart types. This example was constructed using gold futures with 10 tick bars, each lasting around 5 seconds. Once again, the indicator reset sharply and turned negative ahead of the beginning of a steep price decline.



Phase Indicator Dynamic Tuning Feature



Phase Indicator programs also include **artificial intelligence technology that dynamically tunes the indicator** to accommodate volatility changes in the underlying data.

Activating the “**Dynamic Tuning**” feature increases the signal to noise ratio, providing clear signals when a powerful and persistent trend finally ends.

Dynamic Tuning is often used to distinguish false reversals from the final termination point of a long-term trend – especially in markets driven by worldwide macroeconomic factors.

In this example, the Phase Indicator accurately identifies the absolute bottom of the long decline in oil prices that began in late 2014 and continued for more than 1 year. Note that the indicator was able to detect and ignore interim false bottoms (arrows), resetting only when the price was finally about to stabilize.

This technology is indispensable to traders looking for an opportunity to buy or sell a major trend reversal.

Phase Indicator Non-Resetting Feature

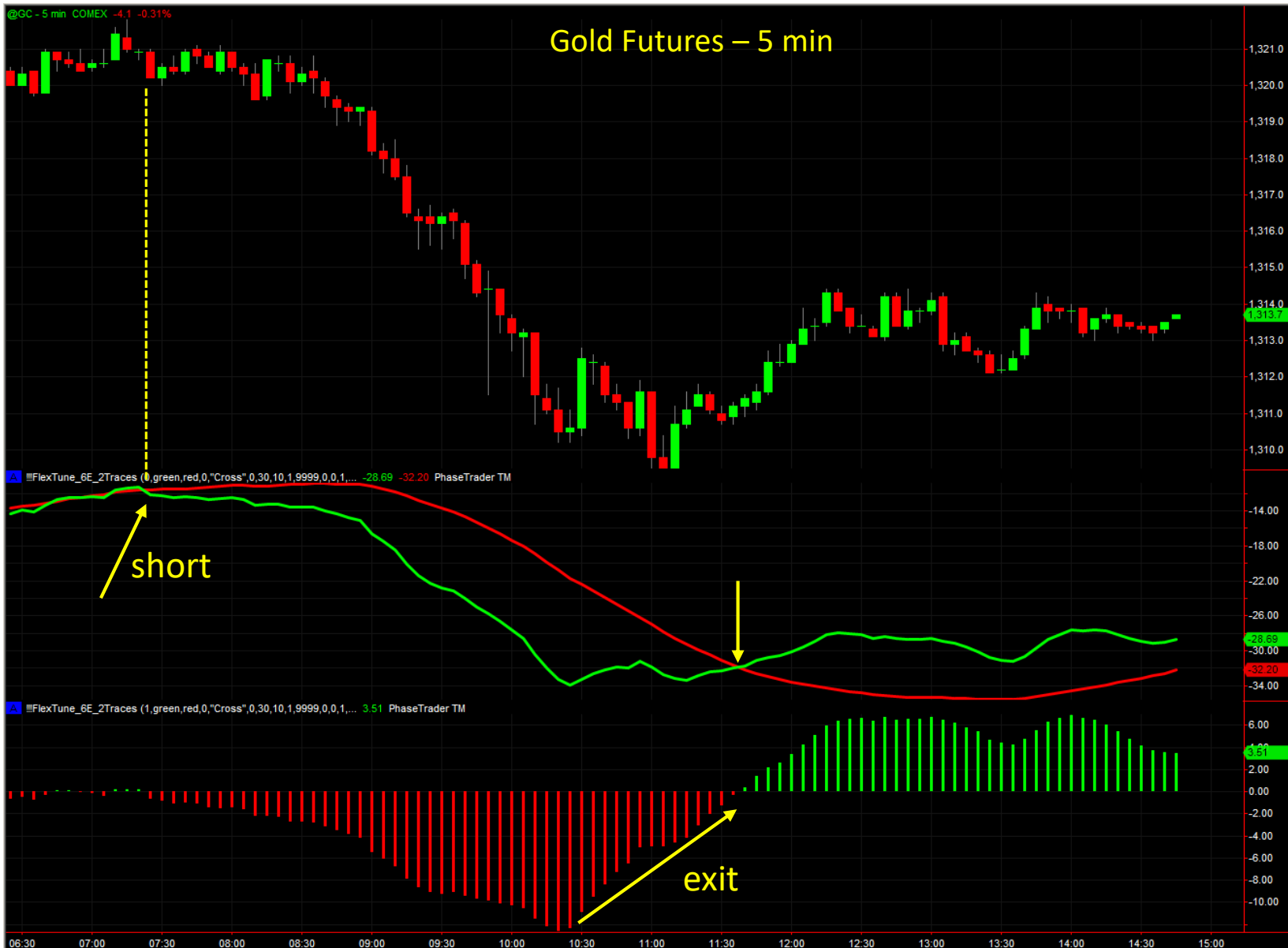
The Phase Indicator decomposes a typical price chart into hundreds of small sub-charts that are individually analyzed for statistical significance then reassembled using a mathematical model that fits the overall data stream. A special form of the indicator referred to as “Non-Resetting Phase” displays this model as a trace that resembles a simple price chart. Peaks and valleys that appear to be much different on a price chart are often aligned on Non-Resetting Phase. This feature allows us to accurately predict the tops and bottoms of rallies and declines.

In this 30-minute candlestick chart of S&P futures, the late January rally ended abruptly on 1/27 when the indicator trace reached its previous high set on 12/28. ***In indicator terms, the 40-point rally ending on 1/6 was much less significant than suggested by the actual price.***



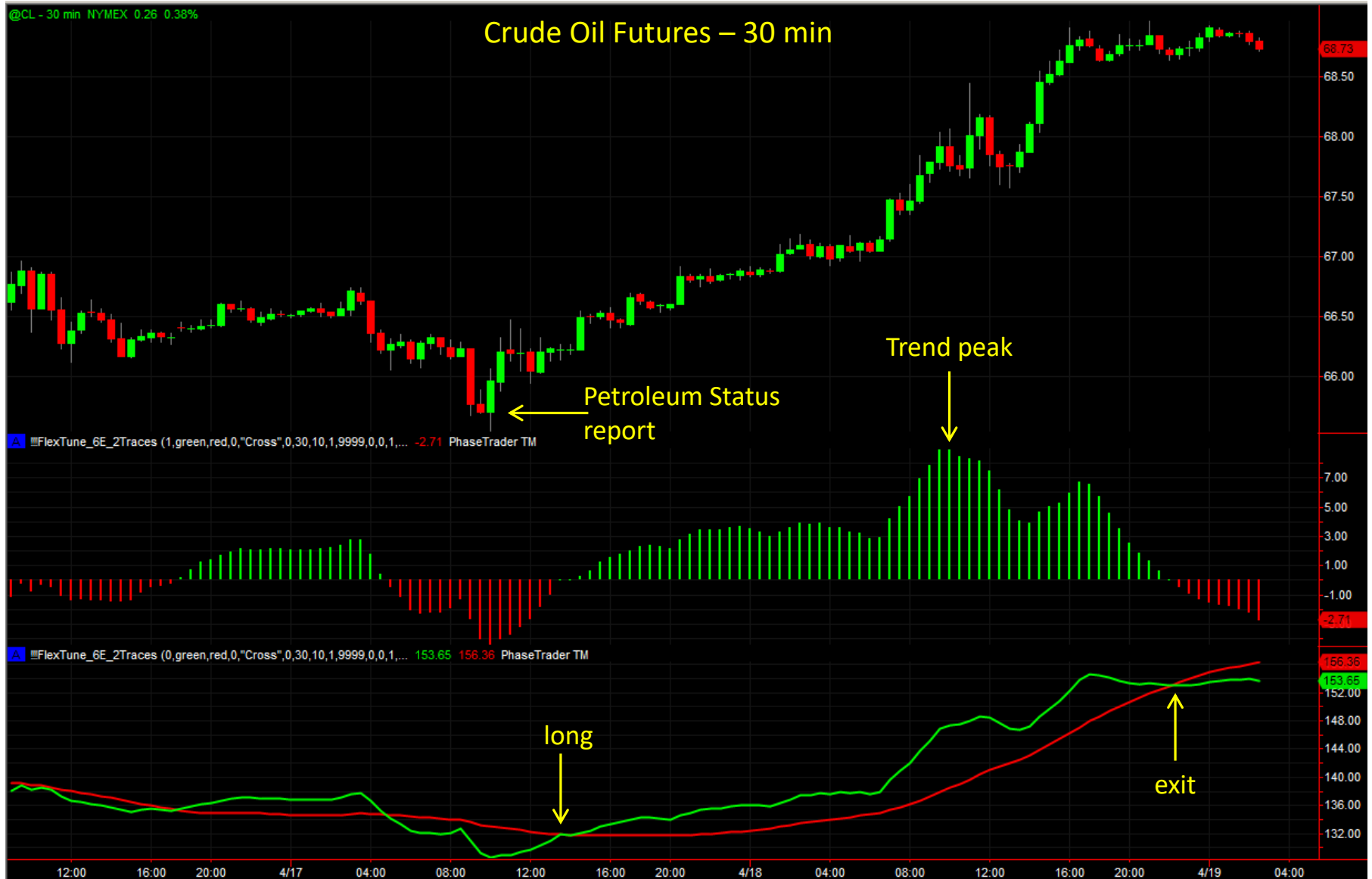
Phase Indicator with Multiple Tunings

The indicator can be configured to compare phase calculations with different tuning parameters ("**2 trace**" feature). In this example, the green trace uses a shorter window for its phase calculation, making it more responsive to brief volatility swings and price spikes. Entry and exit points for day trades are marked by indicator crosses and difference peaks (displayed as histograms).



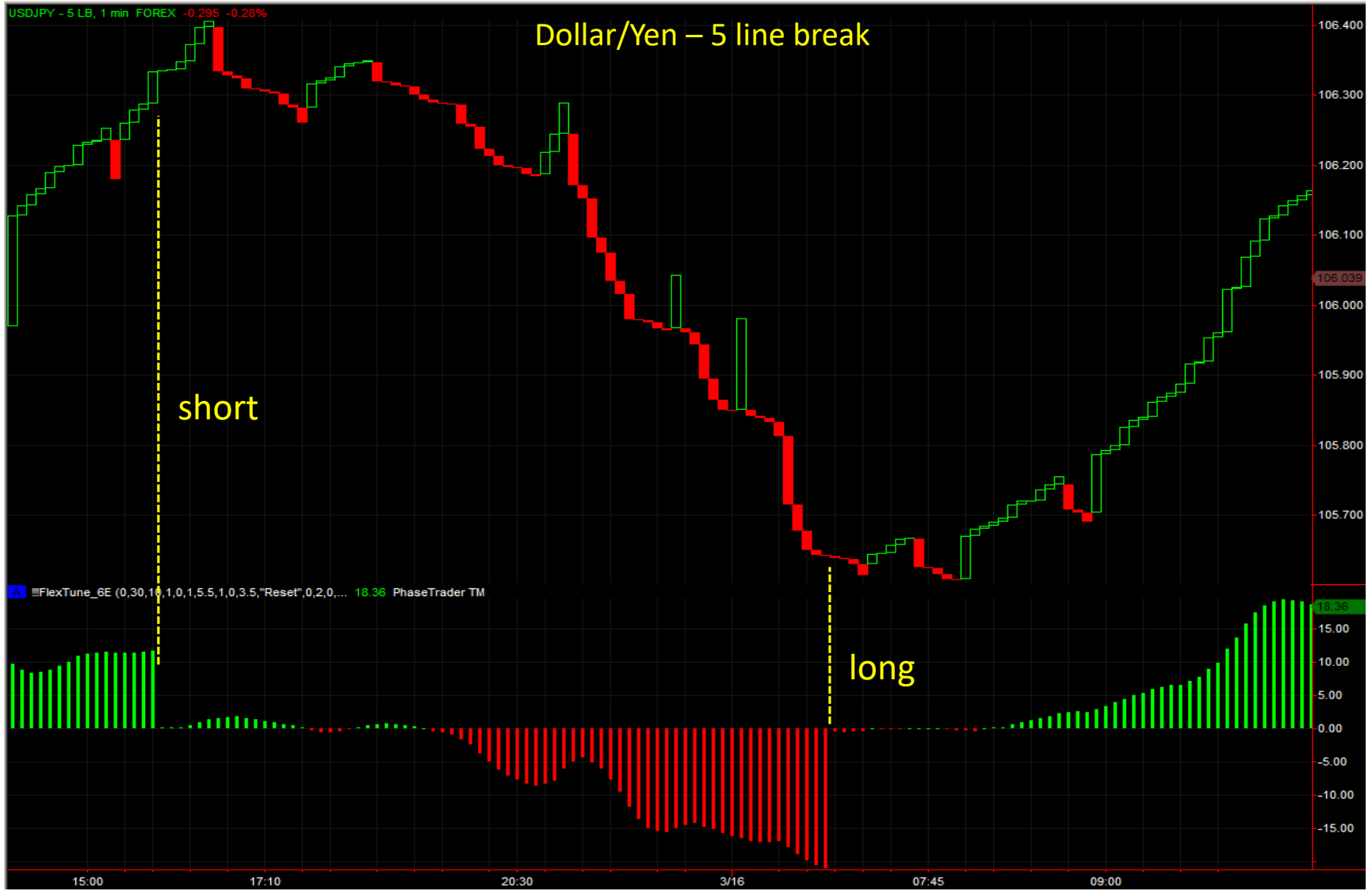
Event-Driven Day Trading with Multiple Tunings

The **"2 trace"** method is especially effective when markets are event-driven. This example follows crude oil futures during an inventory surprise in the Petroleum Status report on 4/18/2018. Measuring the difference between tunings reveals entry and exit points as well as the technical peak of the rally which serves as a warning that the trend is ending.



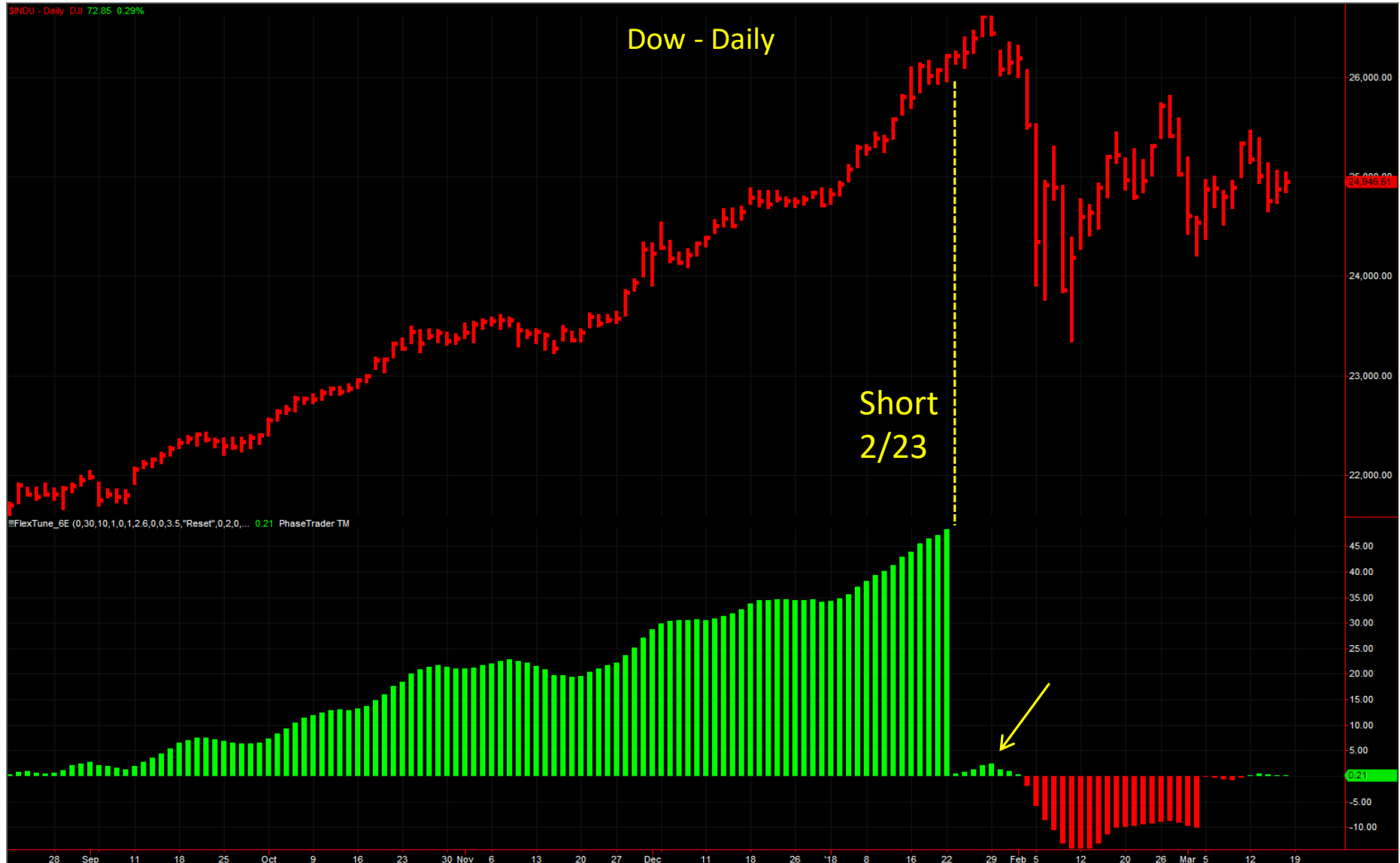
Phase Indicator with Advanced Chart Types

Advanced chart types – Line Break, Kagi, Kase, Momentum, Renko, etc. – often provide an excellent backdrop for phase calculations. Line Break charts are particularly effective because they filter large amounts of noise and display relatively long timeframes in a single view. The Phase Indicator also adds precision to its calculations using subtle timing differences between bars in these advanced chart types. In this example, the Phase Indicator reveals that a strong uptrend in USDJPY (declining yen) is ending, approximately 1 hour before the actual peak. Another sharp reset marks the bottom of the downtrend several hours later, after the yen has strengthened more than 70 pips. Swings of this magnitude have become common in the current environment where currencies are often more volatile than stocks.



Identifying Predictive Leading Signals

The Phase Indicator posted a sharp reset in the final week of January 2018. At the time of the reset, there was no hint of a decline in the price chart and traditional technical indicators continued posting strong buy signals. The Phase Indicator sell signal preceded the price peak by 4 trading days, and a large correction followed 7 days later. Day traders using the Phase Indicator were able to follow charts in faster timeframes to zero-in on the beginning of the correction, and to spot an exit point at the bottom of the drawdown. The small histogram “bubble” visible just ahead of the drawdown is an important technical signal that is nearly always followed by a sharp reversal (arrow).



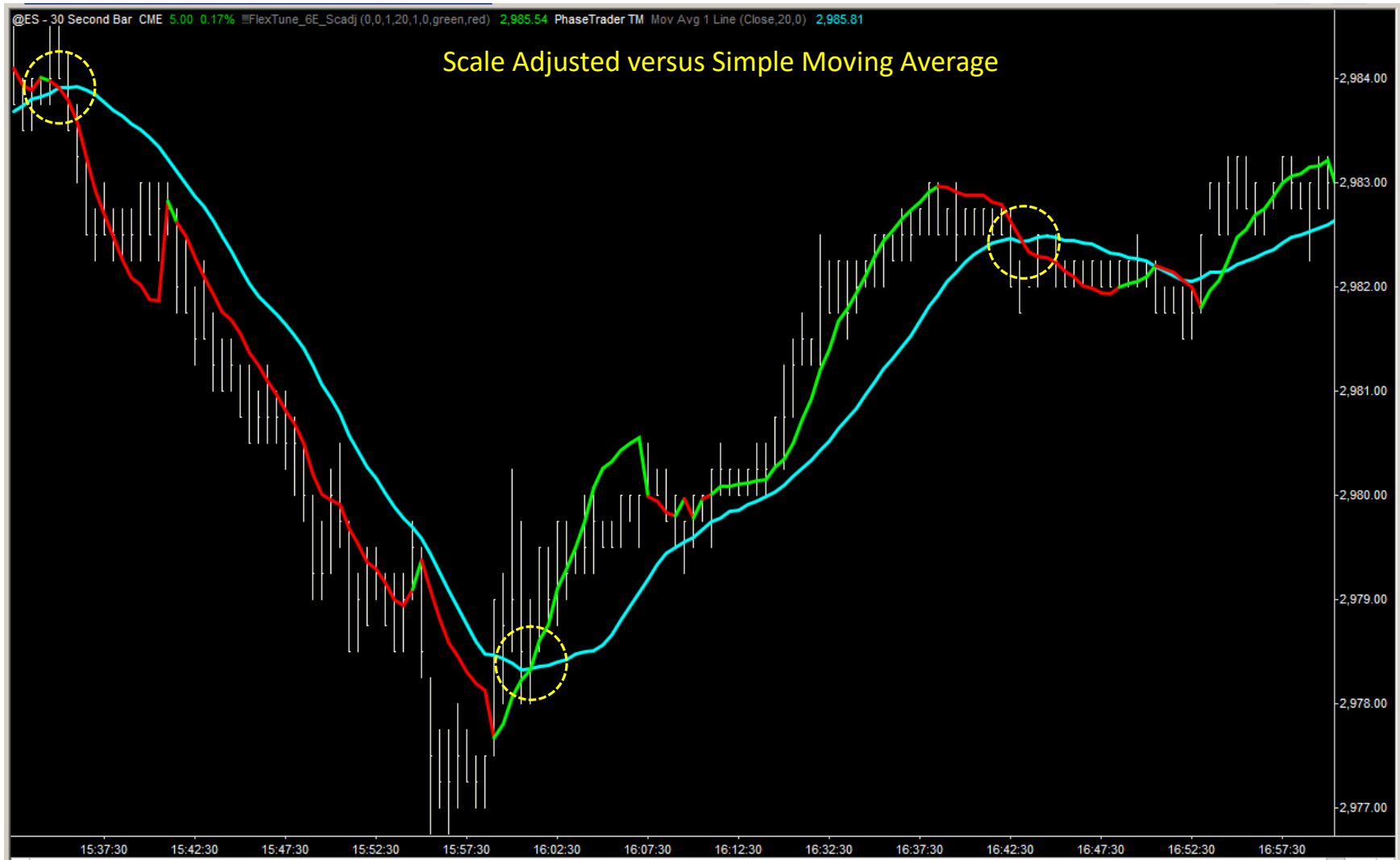
Discovering Complex Relationships

Phase calculations can be used to discover and analyze complex relationships between financial markets and indexes. Visible below is an example that relates volatility of the VIX (ticker: VVIX) to market peaks and drawdowns. Phase calculations on this chart are based on VVIX (hidden), rather than the S&P price bars visible at the top. Because VVIX is a close relative of the VIX term structure, indicator traces of VVIX are an important trading tool. The 40-point rally that begins in the center of the chart, tested and failed to break through the upper resistance level set the previous Friday (3/16/2008) – a distinctly negative sign. A selloff quickly followed, breaking through the lower support level established on Monday 3/19. The selloff ended and the S&P stabilized almost immediately once the lower support level was violated.



Scale Adjust Feature Delivers Clear Signals

The Scale Adjust feature of FlexTune anchors Non-Resetting Phase to the underlying price chart. This approach is fundamentally different from simply overlapping the indicator with the price chart, because the relative position remains constant when the chart is expanded or contracted. It also facilitates comparison with other indicators that are normally charted on the same scale as the price (e.g. moving average). The indicator alignment is dynamic – whenever the underlying indicator reaches an inflection point, the alignment factor is recalculated to reset the anchor point. These realignments are necessary to prevent the indicator from drifting far away from the price chart, which would make it impossible to continue plotting on the same scale. The example on this page displays a simple 20-bar moving average (blue trace) along with a comparable Non-Resetting Phase tuning (P2=20). Entry and exit points are marked by crosses of the indicator and simple moving average.



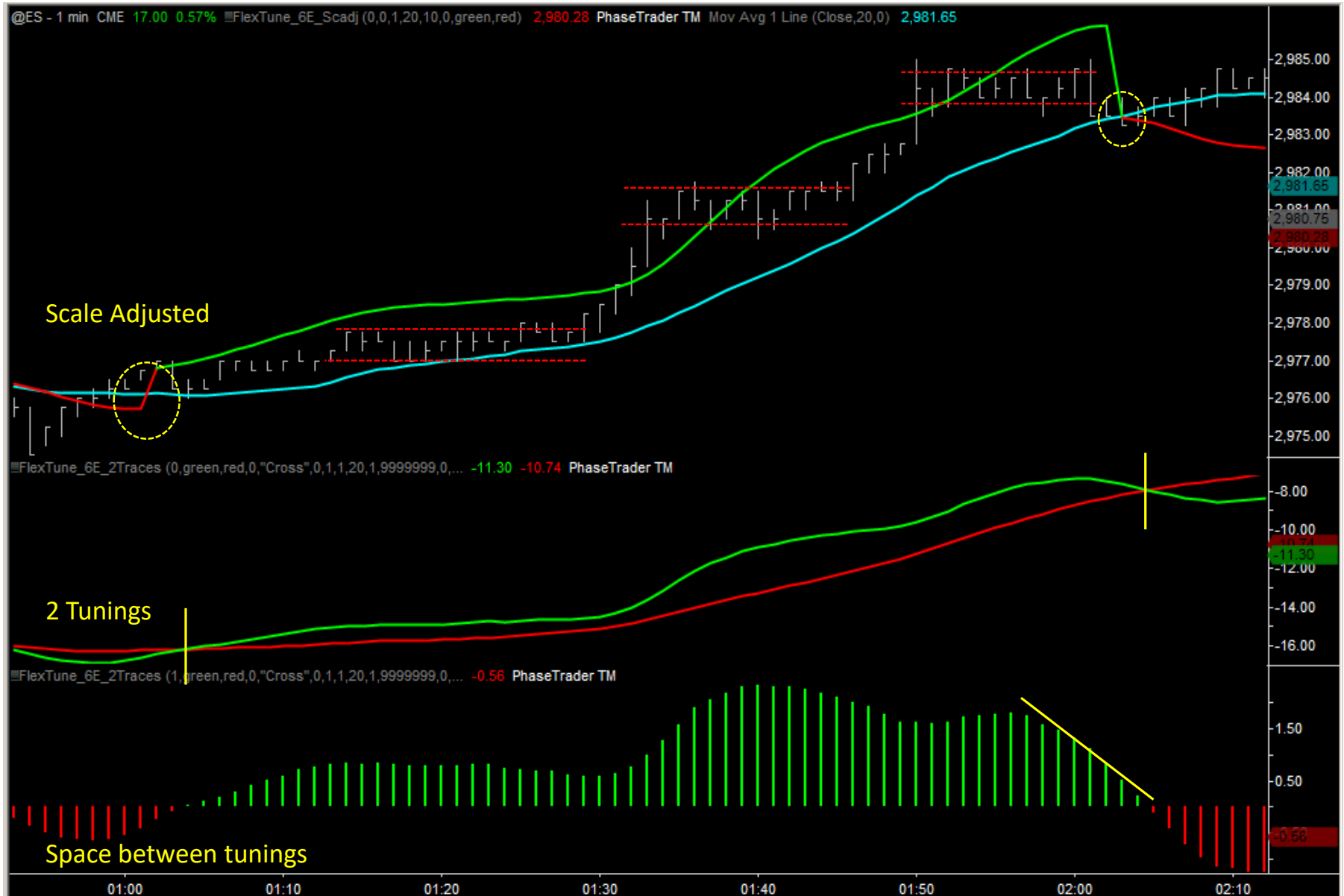
Identifying Signals with Scale Adjust -- Example #1

Scale adjusted traces add information in terms of the relationship between the indicator and the price chart, other indicators plotted on the same scale, and confirming signals from other FlexTune tunings. The example on this chart includes a simple moving average plotted on the same scale, and two overlapping tunings where crosses mark entry and exit points.



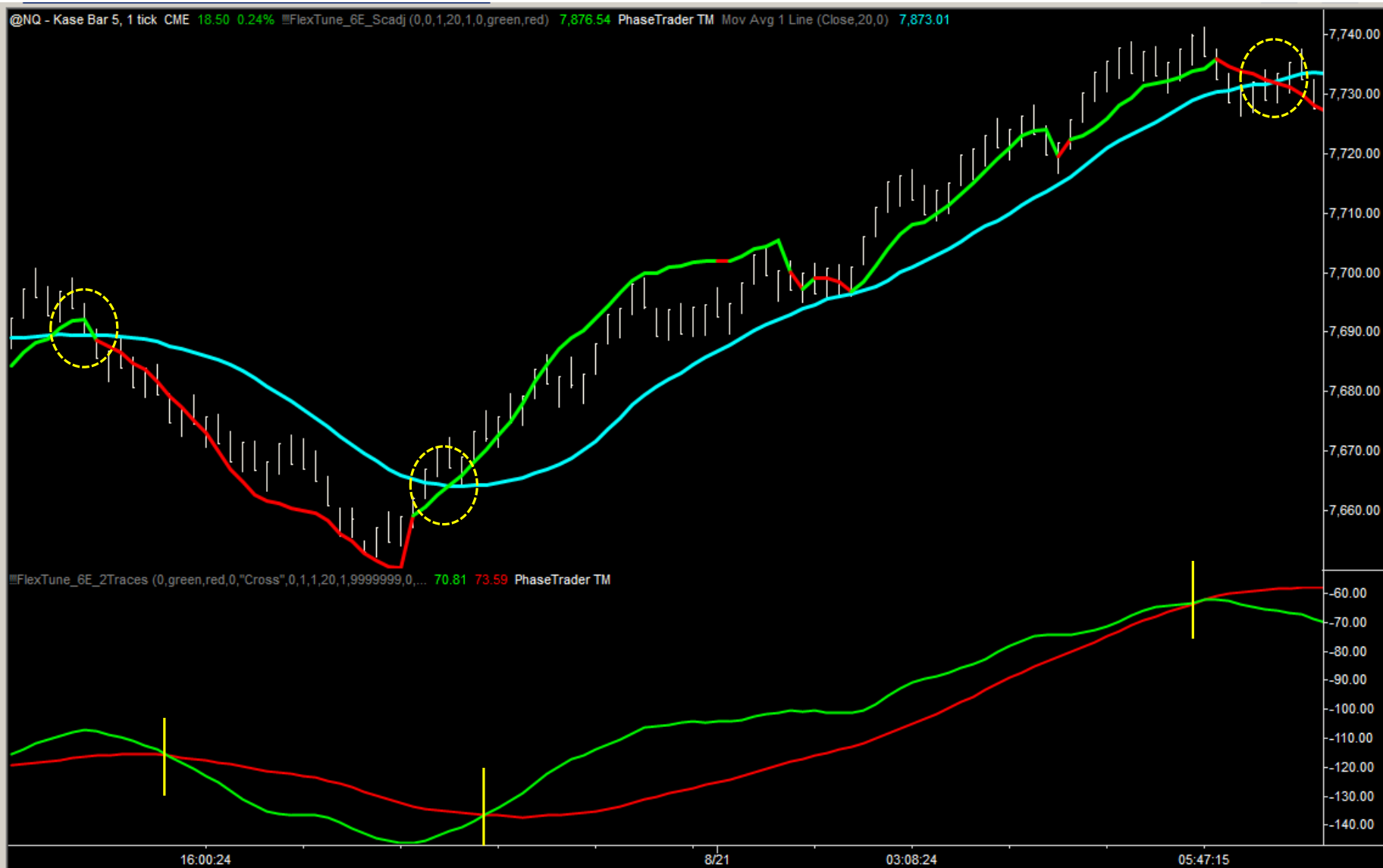
Identifying Signals with Scale Adjust -- Example #2

Most entry and exit signals are associated with scale realignments, triggered by subtle changes in the price chart that are impossible to distinguish with most technical indicators. The example on this page contains three distinct regions where the price flattens, but only the third triggers a scale realignment. The exit point at the top of the rally is confirmed by a rapid collapse in the space between fast and slow indicator tunings (middle and lower charts).



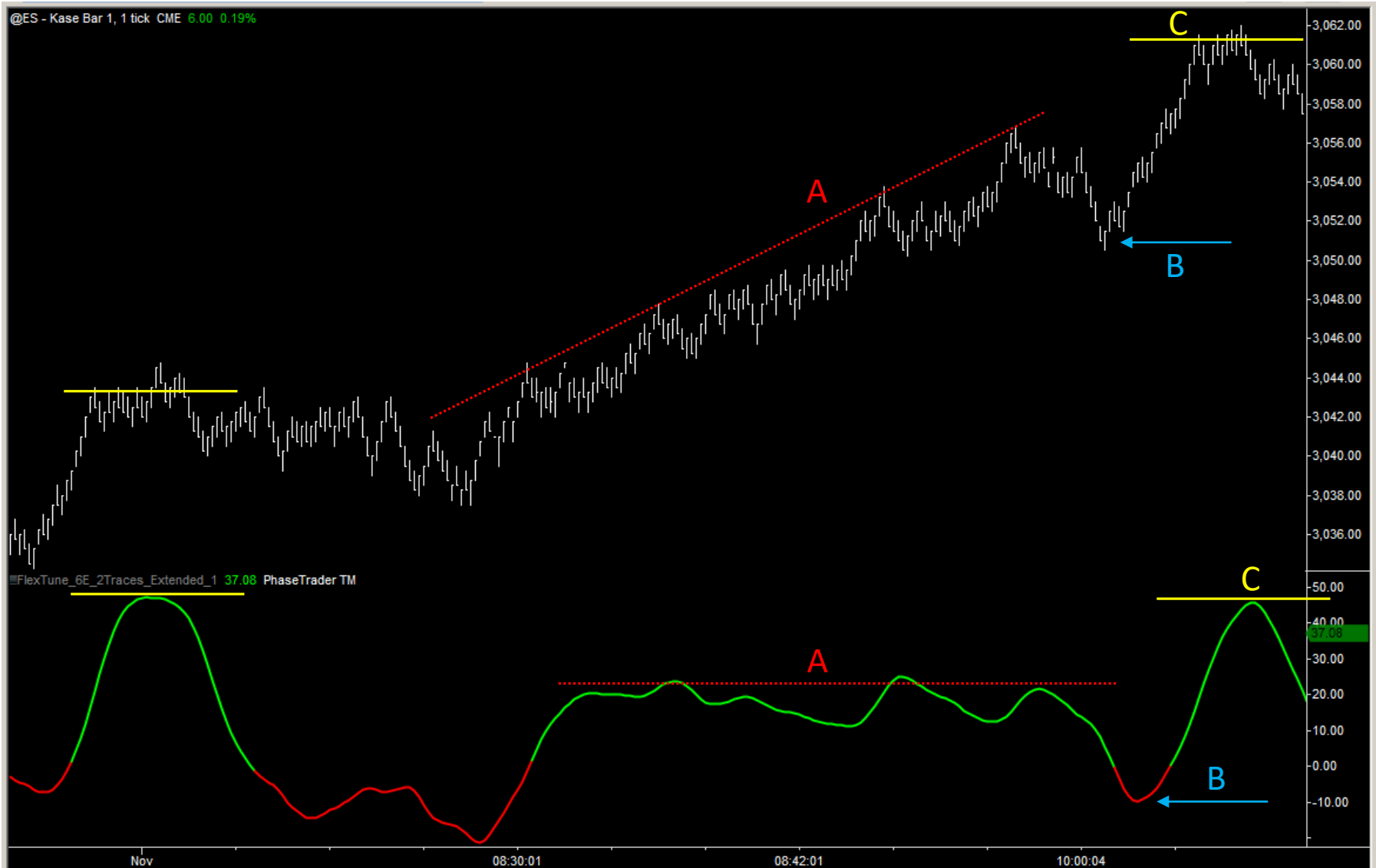
Identifying Signals with Scale Adjust -- Example #3

Combining Scale Adjust with signals from overlapping tunings is particularly effective for chart types that are not time-based. The example on this page displays a scale adjusted trace and simple moving average on a Nasdaq futures price chart composed of 5-point true range bars (5-point Kase chart). This approach helps identify long trends spanning extended timeframes by increasing the signal-to-noise ratio of the underlying data. Entry and exit points in the rally highlighted on this chart span 70 points for a single trade or \$1,400 per contract. Confirming signals appear in the difference between 2 tunings (lower chart).



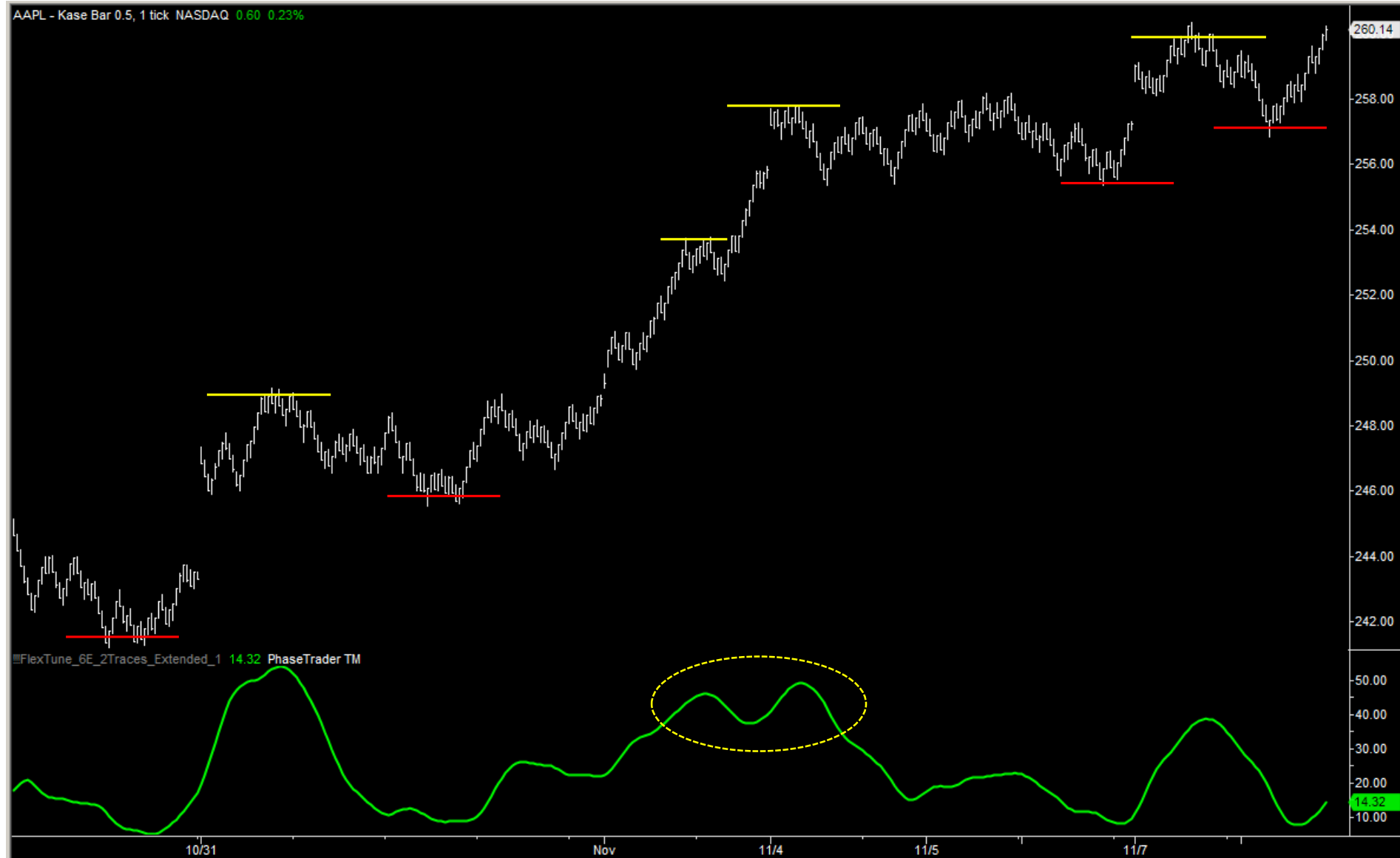
FlexTune Oscillator -- Example #1

FlexTune can be configured as an oscillator that provides support and resistance information in the form of matching peaks and valleys. Price rallies typically end when the indicator reaches the top of the range (A). In this example, a strong steady rally like the example displayed below is typically marked by a flat indicator trace that does not rise above the top of the range (A). In this example, a brief reversal appears near the top of the uptrend. It ends when the oscillator approaches the bottom of the range (B). The rally finally ended when the indicator peaked at the top of the range established at the left side of the chart (C).



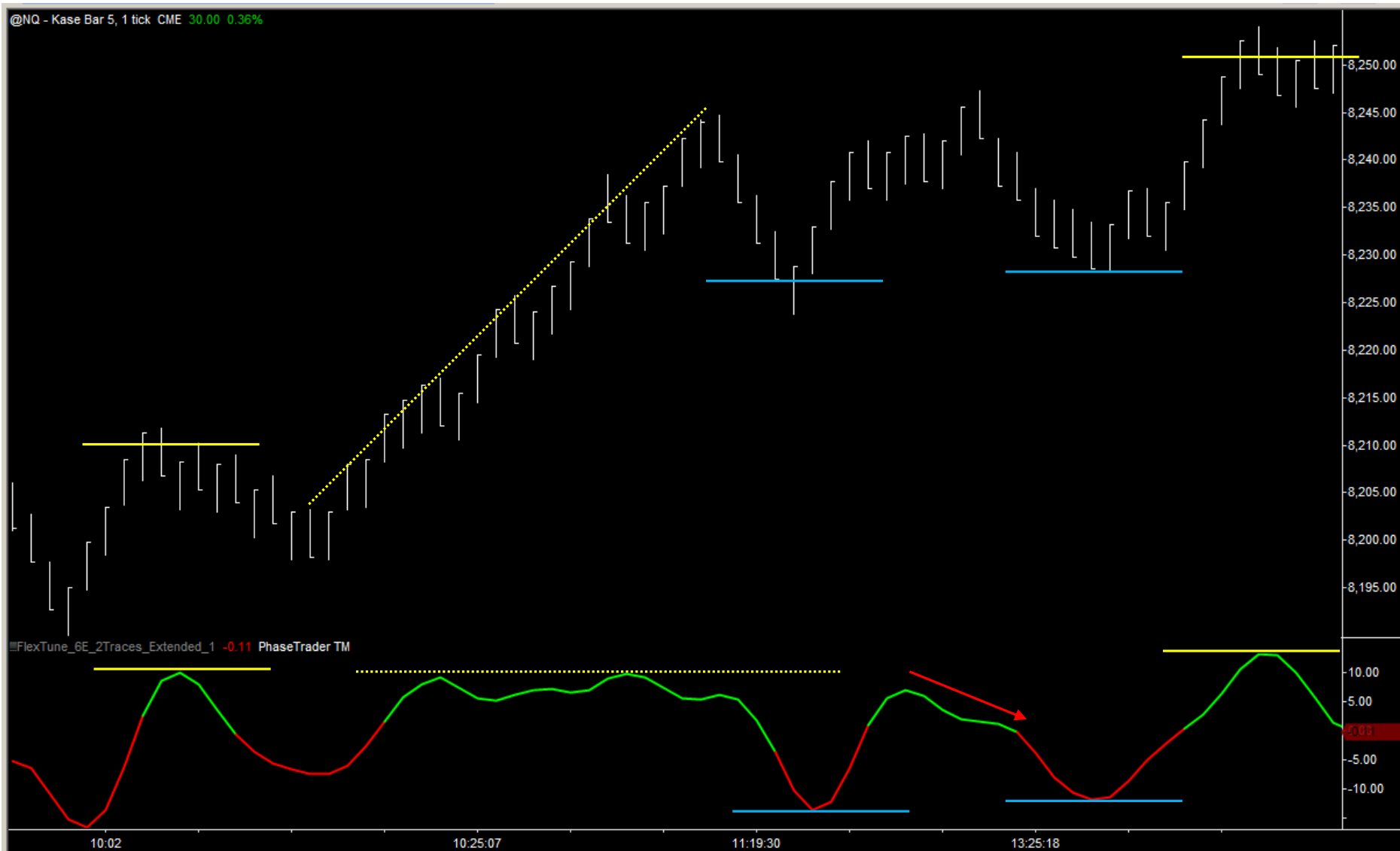
Identifying Support and Resistance Levels -- Example #2

The oscillator function of FlexTune is especially helpful for identifying interim peaks and valleys that often occur in trends spanning long timeframes. Other features like double tops and bottoms are often clear on the indicator, but invisible on the price chart. An example appears in the center of this Apple price chart, as the rally begins to fade. The double top composed of nearly identical peaks on the indicator trace (circled feature), marks the top of the rally for the next 3 days.



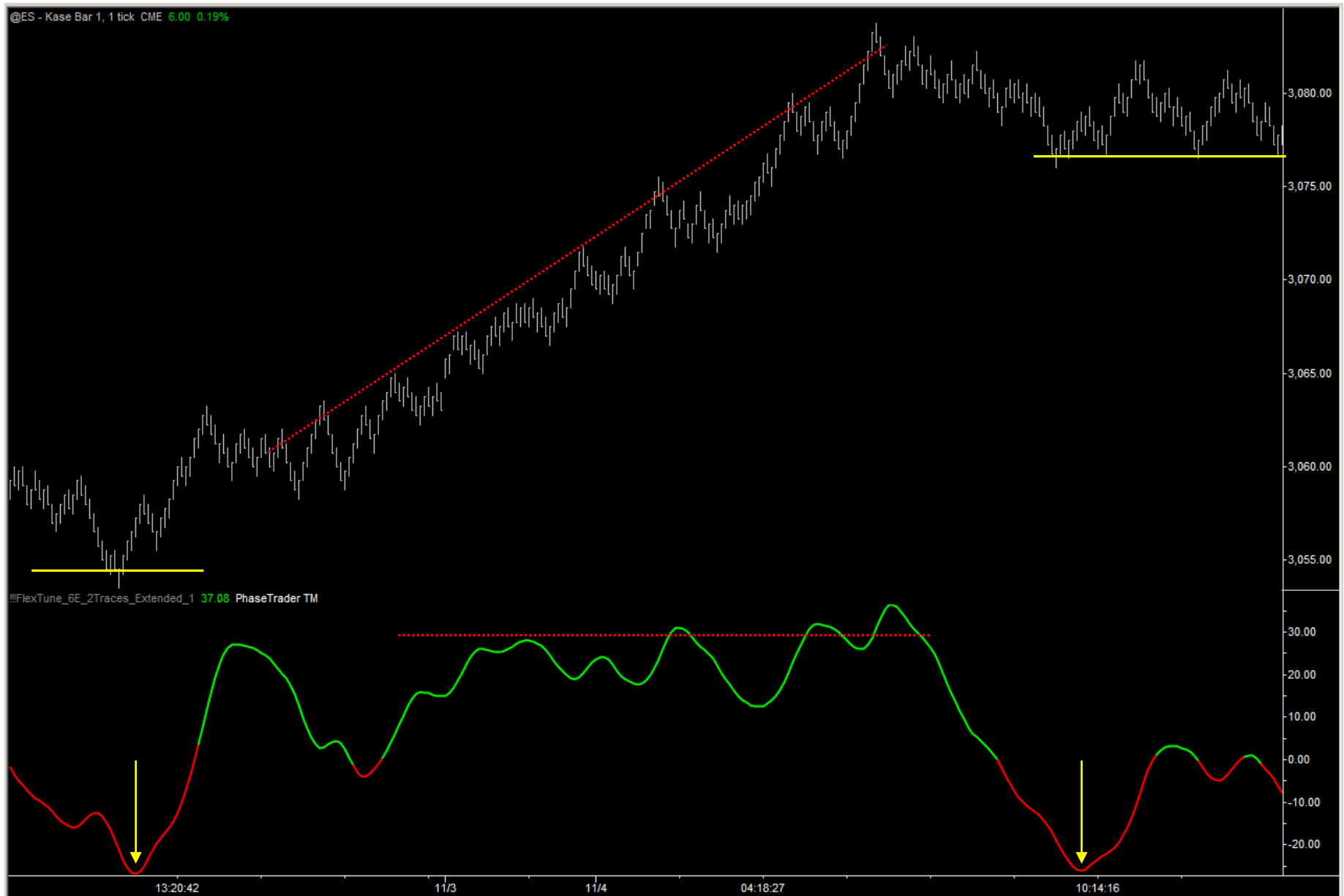
Identifying Support and Resistance Levels -- Example #3

This Nasdaq futures chart which spans approximately 4 hours and a range of 55 points is marked by several important indicator features. Price peaks separated by 40 points (extreme left and right) are marked by identical oscillations to the top of the indicator range. The strong rally at the center of the chart continually tests the top of the range, with a nearly flat line that effectively defines the steepness of the rally. Interim reversals near the top of the rally (blue lines) end when the indicator approaches the bottom of the range. Weakness in this region is marked by a rapid indicator decline that begins just ahead of the second price peak at 8,240 (red arrow).



Identifying Support and Resistance Levels -- Example #4

In this example, the price bottom just ahead of a 25-point S&P rally matches the slight pullback at the top in indicator terms. This information is tremendously helpful for day traders trying to predict when a post-rally reversal will end. As before, the rally is marked by a series of indicator peaks touching the top of the range.



Additional Exclusive Tools in the PhaseTrader® Indicator Suite

Net_Premium Indicator — tracks the net flow of money in and out of puts and calls at selected strikes for any stock or index. The result is a customized leading indicator based on the tendency of option prices to lead changes in the underlying.

Percent Contango Indicator — uses subtle distortions in the volatility futures market to predict moves of the broad stock indexes. Typical timeframes for day trading are measured in minutes, however, the indicator is also used to relate large-scale market behavior to trends in the VIX term structure.

Smart Money Indicator — is built around various studies showing that institutional traders and private investors tend to behave differently in key timeframes. For example, private investors tend to overreact to overnight news with bad trading decisions early in the trading day (e.g., panic selling, aggressive short covering, etc.), while institutional traders tend to wait for the market to settle and then collect information that allows them to make informed decisions, often based on confidential information, near the end of the trading day. The indicator can be configured to react differently to buying or selling activity in different timeframes, and to use this information to create a profile that reveals the relative health of a stock, index, or ETF.

Market Profiler — used to test repetitive strategies that involve buying or selling dips or rallies of predetermined size. For example, the profiler could be configured to buy every 3 standard deviation dip on a 5-minute chart, and to keep each trade open for 30 minutes. Another choice might be to buy every 3 standard deviation dip, and to stop out if the market falls further, or to exit with a profit on the next upward spike greater than 2 standard deviations. The tool is also designed to compare drawdowns by counting the number of accumulated volatility or VIX points.

End