Price Phase Indicator (Phase)

This price oscillator is used by TradingExpert Pro as a primary filter of Expert Rating signals. For all TradingExpert Pro reports that show confirmed signals, the Price Phase is the indicator used for confirmation. When the direction of the Price Phase agrees with an Expert Rating signal, the signal is considered to be confirmed by the Price Phase.

The expert system tends to give Expert Rating signals early, anticipating and preceding the actual movement of price. So that you don't take a position too early, AIQ recommends that you wait for a change in direction of the Price Phase before taking the action indicated by the Expert Rating.

To determine if a Price Phase direction change has occurred on a particular day, move the date back and record the Price Phase values for the two previous days. If the two previous values show a decrease and the value for today is greater than the day before, then the direction has changed to the upside. Conversely, if the two previous values show an increase and the value for today is less than the day before, the direction has changed to the downside.
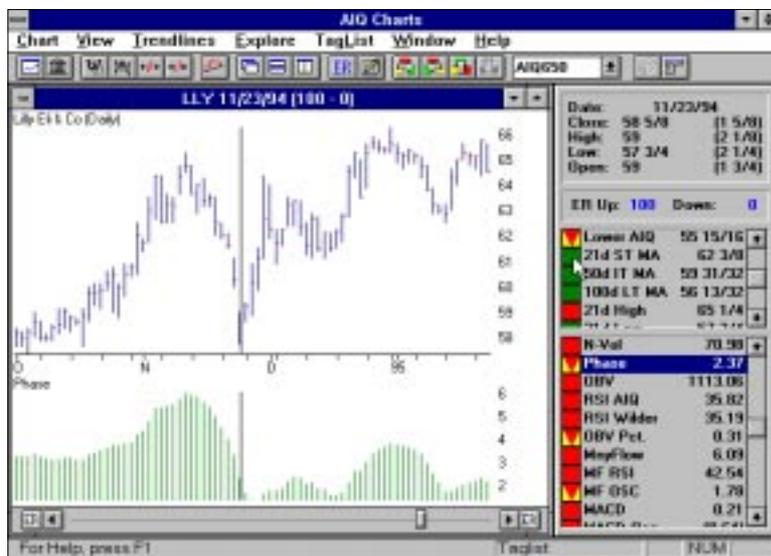
Price Phase Indicator, Eli Lilly & Co.

The AIQ expert system issued a buy signal (ER Up: 100) for Eli Lilly & Co. (LLY) on 11/23/94 (see chart). At the time, the stock was falling. Four trading days after the buy signal, the Price Phase changed direction to the upside, confirming the signal.

In this case, the AIQ signal was "right on" as the stock began to move immediately. Generally, however, the AIQ expert system tends to issue Expert Rating signals early and risk is reduced by waiting for confirmation by the Price Phase Indicator.

The Price Phase is computed as the difference between two exponentially smoothed price averages. The value of this indicator depends directly on the time periods represented by the two averages.

To determine the appropriate combination of averages for the Price Phase Indicator, AIQ tested a wide range of values. This testing revealed that the best balance between stability and responsiveness was obtained with averages representing 10 and 49 days. Consequently, for the purpose of TradingExpert Pro reports that list confirmed signals (including the Action List and Weighted Action List), the Price Phase is computed from 10 and 49 day price ESA's.

Other price indicators such as the MACD use a different combination of averages. The recommended or default averages for the MACD (12 and 25 days), are not the same as those that AIQ has established for the Price Phase Indicator. As a result, the MACD Price Phase Line is quicker reacting than the Price Phase Indicator and turns somewhat sooner. However, the MACD is a two-line indicator (Price Phase Line and Signal Line) for which confirmation is defined as the point where the two lines cross. For this reason, signal confirmation by the MACD usually occurs later than confirmation by the Price Phase Indicator.

`Value shown in Control Panel`

The value shown is the value for Price Phase Indicator for the date specified.

`Changeable  constants`

There are no constants to be changed for the Price Phase Indicator.

Relative Strength Index (RSI) AIQ Version

J. Welles Wilder's Relative Strength Index *(Reference No. 49)* is a measure of the relative strength of the average upward price movement against the average downward price movement.

AIQ's version of RSI differs somewhat from Wilder's original indicator. Unlike Wilder's RSI, which is computed using a weighted moving average, the AIQ version uses an exponentially smoothed average.

The index signals overbought and underbought conditions. Relative strength is computed on a vertical scale of 0 to 100. A value over 70 indicates an overbought situation and therefore a sell signal. A value under 30 signifies an oversold situation and a buying opportunity. Extreme values (above 70 and below 30) are easily distinguished. The upper line of the RSI indicator plot represents 70; the lower line, 30.

Look for divergences (trends do not agree) between the RSI and price action. Also, look for failure swings: either a top failure swing or a bottom failure swing.

A bottom failure swing is illustrated on the chart for International Paper Co. (IP). In mid-March 1995, the stock made a new low but RSI moved up.

Relative Strength Index, AIQ Version, International Paper Co.

The failure swing reveals that the downward price move of the stock is not being confirmed by an equivalent move in the RSI. IP's downward move was short lived as the stock turned higher following the failure swing.

An alternative evaluation of this indicator is to look for situations where the RSI crosses from below to above the 70 line when stock prices have been stationary in the short-term. This shows that there is strength in the ticker in spite of the fact that prices are not moving, and is a buy signal. In this case, the crossing of the 70 line is the buy signal. This does not work the same on the down side. Although this rule has proven to be of some value, be cautious and use additional indicators for confirmation.

Value shown in Control Panel

The value shown is the value for the AIQ Version of the Relative Strength Index for the date specified.

Changeable constants

The constant used to compute the exponentially smoothed average of the upside and downside price movements may be changed. The default value for the exponentially smoothed time period is 7 days. The permissible range is 1 to 165 days.

Relative Strength Index (RSI) Wilder's Version

J. Welles Wilder's original indicator differs somewhat from AIQ's version of RSI. Wilder's RSI is computed using a weighted moving average while the AIQ version uses an exponentially smoothed average. Otherwise, the two versions of RSI are identical and are used in the same way to indicate overbought and oversold conditions.

Value shown in Control Panel

The value shown is the value for Wilder's Relative Strength Index for the date specified.

Changeable constants

The constant used to compute the weighted moving average of the upside and downside price movements may be changed. For this version of RSI, the default value for the weighted average time period is 14 days. The permissible range is 1 to 165 days.

> **Important**
> The Relative Strength indicators and charts discussed in this section are not to be confused with the Relative Strength Index (RSI) developed by J. Welles Wilder. The *RS Index* and *RS Ticker* are used for relative strength analysis only and are not mathematically formulated indicators, as is Wilder's RSI.

Relative Strength analysis is simply comparing the price action of one item or ticker (such as a stock) with another ticker (such as a market index). The objective is to determine if the first ticker's price is advancing or declining faster than the second ticker's price. Or, in other words, is the first ticker outperforming or underperforming the second ticker on a relative basis.

When the Relative Strength line is rising, the first ticker is outperforming the second ticker. Rising Relative Strength does not necessarily mean that the first ticker's price is rising; it may just be declining at a slower rate than the ticker to which it is being compared.

RS and RSMD indicators are not available for real-time charts.

Conversely, when the Relative Strength line is declining, the first ticker is underperforming the second ticker. This will occur when the first ticker's price is declining faster than the second ticker's price, when the first ticker's price is declining while the second ticker's price is rising, or when the first ticker's price is rising at a slower rate than the second ticker.

Relative Strength analysis can be used to compare any two tickers. Listed below are the types of comparisons that you can make on the AIQ charts with the RS indicators:

• A stock versus the overall stock market

• A stock versus a specific market index

• A stock versus its industry group

• An industry group versus its industry sector

• An industry group versus the overall stock market

Two types of Relative Strenght Indicators

In addition to the single-line type of Relative Strength indicator (RS Index and RS Ticker), TradingExpert Pro provides a second type called the RSMD indicators. This second type of relative strength indicator differs from the first in that the RSMD indicators are two component indicators.

Computed exactly like the MACD price lines, the two component lines of the RSMD indicators are exponential moving averages of relative strength. The first component is the difference line. This line is computed as the difference between two moving averages of Relative Strength, each computed for two different time periods. The second component, called the signal line, is an exponential average of the first component, the difference line. You can determine which line is which by the position of the lines during periods when a definite trend is established. The signal line, being an average of the differential line, is always below the differential line during upward price moves and above the differential line during downward moves.

The two RSMD component lines (difference line and signal line) are used in the same way as the two MACD lines. As a general rule, it is considered bullish when the difference line is rising and is above the signal line. Conversely, it is bearish when the difference line is falling and is below the signal line. Signals are generated when the two lines cross. In general, a buy signal occurs when the difference line crosses from below to above the signal line. A sell signal is indicated when the difference line crosses from above to below the signal line.

Note

The RSMD indicators are equivalent to the Relative Strength Average indicators that were included in the DOS version of TradingExpert. Although the RSMD indicators are computed with the exact formula used for the Relative Strength Average indicators in the DOS version, the numeric values differ somewhat from the DOS version. (This discrepancy is due to a difference in the dates of the prices used for the computation of the RSF term.)

Setting up the Relative Strength indicators

In addition to two types of relative Strength indicators (RS and RSMD), TradingExpert Pro for Windows provides two indicators of each type, one for indexes (RS Indx? and RSMD Indx?) and one for tickers (RS Tkr? and RSMD Tkr?). The ? marks are replaced with symbols when the indicators are set up. Having two indicators of each type gives you the capability to routinely look at two different relative strength comparisons by simply clicking on the indicators.

The first set of Relative Strength indicators, RS Indx? and RSMD Indx?, is intended to be used for comparing a ticker against a market index, such as the SPX (S&P 500). The second set of Relative Strength indicator, RS Tkr? and RSMD Tkr?, is intended to be used for group/sector comparisons. However, any ticker for which you have data in your data base may be entered for either set of RS indicators.

For each set of RS indicators, the user specifies (or sets) the ticker that the charted ticker is compared against. In TradingExpert Pro for Windows, this user-specified ticker that other tickers are compared against is referred to as the *RS Symbol*.

Two RS Symbols can be specified for each ticker. The first RS Symbol is used for both RS Indx and the RSMD Indx and the second RS Symbol is used for both RS Tkr and the RSMD Tkr.

There are two ways of setting RS Symbols, by individual ticker or globally. AIQ recommends that the first set of indicators (RS Indx and RSMD Indx) be used to compare a ticker against a market index, and that the second set (RS Tkr and RSMD Tkr) be used for group/ sector comparisons (tickers against groups and groups against sectors).

To set an RS Symbol for an individual ticker

 Follow these steps:

1. Open the *Data Manager* application.

2. Double click with your mouse on the ticker you want to set RS Symbols for.

3. In the dialog box that appears, specify the RS Symbol you want to use for both *Index* and *Ticker*.

4. Once an RS Symbol has been entered for a ticker, the ? at the end of the RS indicator name is replaced by the RS Symbol when a chart of that ticker is displayed.

Dialog box for entering RS Symbols

To globally set RS Symbols

☐ *Do the following:*

1. Open the *Data Manager* application.

2. Click the **Utilities** command on the menu bar.

3. Choose **Set RS Symbols** from the drop-down menu.

4. Two options are available on the sub-menu:

    • *Set RS Tickers* (for the RS Tkr and RSMD Tkr indicators).

    • *Set RS Indices* (for the RS Indx and RSMD Indx indicators).

Note

When a Relative Strength Symbol is entered for a particular ticker, that entry is saved to a file. TradingExpert maintains separate files for the two Relative Strength indicators. Hence, each time that a chart of a ticker is displayed, Relative Strength is computed from the saved RS Symbols, which are the last RS Symbols entered for that ticker.
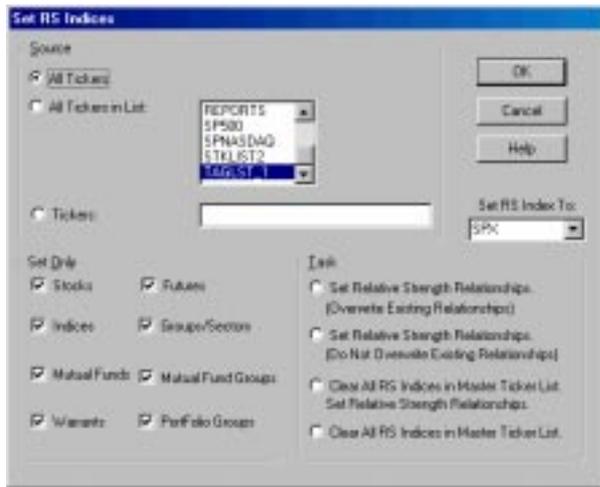
Dialog box for Set RS Indices

5. To set RS Symbols globally for the RS Indx and RSMD Indx indicators, use **Set RS Indices**. You can set an RS Indx for all tickers, for all the tickers in a list, or for a specific type of ticker (stocks, indices, mutual finds, etc.). This function provides a list of indices from which you select the RS Index of your choice.
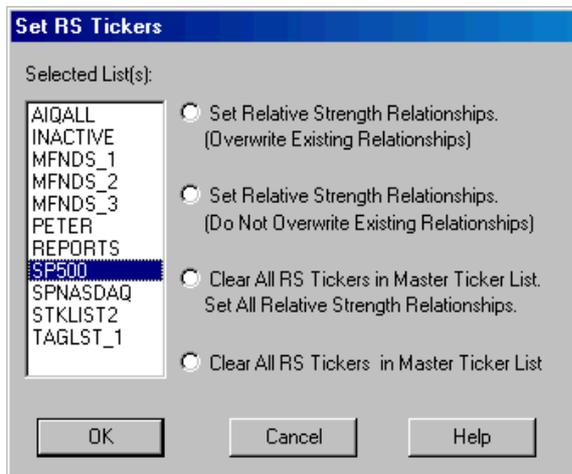
Dialog box for Set RS Tickers

6. For RS Tkr and RSMD Tkr, use **Set RS Tickers** to set RS Symbols to the parent ticker (group or sector) specified in your group/sector list (or other list). For example, this function sets RS Symbols for all of the stocks, groups, and sectors in your group/sector list. For stocks, RS Symbols are set to their parent groups, and all groups to their parent sectors, etc.

Once an RS Symbol has been entered for a ticker, the ? at the end of the RS or RSMD indicator name is replaced by the RS Symbol when a chart of that ticker is displayed.

Procedure for using Relative Strength analysis

□ *Follow this procedure:*

1. Make sure you have data for any items you will be comparing.

2. Set RS Symbols for all tickers (see above).

3. Enter *Charts* and select **Chart** from the menu bar (or click the **Chart Ticker** button on the toolbar).

4. In the *Enter Symbol* field of the dialog box that appears, type the name of a ticker and click **New Chart**.

5. With the chart displayed, choose any of the four Relative Strength indicators (RS Tkr, RSMD Tkr, RS Indx, or RSMD Indx) from the indicator section of the Control Panel. A Relative Strength chart (or charts) of the current ticker vs. the RS Symbol(s) will be displayed in the indicator window.

Important
When you display a chart, the RS or RSMD indicator name shown in the Control Panel should not end with a ?. Instead, the indicator name should end with the RS Symbol entered for this ticker. If a ? does appear, an RS Symbol has not been entered for the ticker.

Reminder...
You can expand an indicator plot to fill the entire chart window. Position your mouse cursor on the indicator plot, and press the **Z** key. Pressing the **Z** key again restores the plot to its previous size.

Relative Strength vs. a market index (RS Indx and RSMD Indx)

The purpose of thess Relative Strength indicators is to show relative strength vs. the market. The market index should be the major market index of whatever stock market you are trading. For the U.S. market, the SPX is probably the most representative index and was selected as the default index. If, for example, you are trading on the Toronto market, then the TSE for Canadian stocks would be representative. If you are trading on the Tokyo market, then the Nikkei Average for Japanese stocks would be appropriate.

If you are trading a market for which an index does not exist, then you can use the group/sector capabilities of TradingExpert Pro to create a market index of your own for relative strength analysis (see Chapter II in the Reference Manual).

Use the procedure described above and in Chapter II of the Reference Manual to enter an RS Symbol other than the default SPX. After changing the RS Symbol, the Relative Strength indicator name will change to include the new RS Symbol name. As you continue to use the system, the last RS Symbol entered will always appear as part of the Relative Strength indicator name.

RS Indx indicator:
Relative Strength of the NASDAQ Composite (OTC) compared against the S&P 500 (SPX)

An example of Relative Strength analysis using the RS indicator is illustrated in the chart comparing the NASDAQ Composite (OTC) vs. the S&P 500 Index (RS Indx SPX). In this example, the Relative Strength indicator allows us to compare small company stocks against large company stocks.

The RS Index fell sharply during the first half of December 1994, indicating that large company stocks were outperforming small company stocks. Through the rest of December and into January of 1995, the RS indicator rose sharply, indicating that small company stocks were outperforming large company stocks.

Continuing to examine the chart, it is evident that although the NASDAQ Composite was rallying strongly in March 1995, the RS indicator was decreasing, an indication that large company stocks were increasing faster. A flat relative strength line means that both indexes are moving in the same direction and at about the same rate.

RSMD Indx indicator: Relative Strength of the NASDAQ Composite (OTC) compared against the S&P 500 (SPX)

The chart above is identical to the previous chart except the RSMD Indx is plotted instead of the RS Indx. Note the bullish signal in late December when the difference line crossed from below to above the signal line.

`Value shown in Control Panel`

The value shown is the value for the RS Index for the date specified.

`Changeable  constants`

The smoothing constant used to compute the exponential average is a function of the number of periods that the average represents. This constant, expressed in terms of the number of periods represented by the average, may be changed. The default value and the permissible range are as follows:

	Default	Range
Average periods	3	1-100

Relative Strength vs. a group or sector (RS Tkr and RSMD Tkr)

This indicator, which is identical to the RS Indx, is included so that you can routinely look at a second relative strength comparison without having to change the RS Symbol. Although this second Relative Strength indicator is intended to be used for group/sector comparisons, any ticker for which you have data in your data base may be entered.

There are two ways of setting the Relative Strength Symbol for RS Tkr, by individual ticker or globally. Use the procedures described above and in Chapter II of the Reference Manual.

Until an RS Symbol is entered, the name of this indicator remains RS Tkr ?. After an RS Symbol is entered, the ? is replaced by the RS Symbol. TradingExpert Pro stores RS Symbols. When you re-enter a chart, the Relative Strength indicator is computed from the last RS Symbol entered for that ticker.

Displayed is a chart of the Relative Strength of Bank America (BAC) versus its group, Other Major Banks (No. 6029). This RS Tkr indicator answers the question: how does the price action of this equity compare with its industry group?

RS Tkr indicator
Relative Strength of
Bank America Corp. (BAC) compared
against its group,
Banking Group (RS Tkr 6029)