



S-Trader





TSI | True Strength Index

Contents

Description	3
Formula	3
Parameters	4
Output value(s)	5
Plot	5
Quant Script™ Syntax	5
Dialogs	6
Chart Study Dialog	6
Sample Chart With Study	7
Quant Script™ Wizard Study Dialog	8
Quant Script™ Study Dialog	9



Description

Developed by William Blau and introduced in the Stocks & Commodities Magazine, the True Strength Index (TSI) is a momentum oscillator based on a double smoothing of price changes. Even though several steps are involved in the calculation, the indicator is actually pretty straightforward. By smoothing price changes, the TSI captures the ebbs and flows of price action with a steadier line that filters out the noise. As with most momentum oscillators, chartists can derive signals from overbought/oversold readings, centerline crossovers, bullish/bearish divergences and signal line crossovers.

Formula

Step 1: Calculate PC = Price Change = Current Value – Value n Periods ago;

Step 2: Calculate First Smoothing PC as an average of PC for the required periods and moving average type using existing formulas;

Step 3: Calculate Double Smoothing PC as an average of First Smoothing PC for the required periods and moving average type using existing formulas;

Step 4: Calculate APC = Absolute Price Change = Absolute Value of PC;

Step 5: Calculate First Smoothing APC as an average of APC for the required periods and moving average type using existing formulas;

Step 6: Calculate Double Smoothing APC as an average of First Smoothing APC for the required periods and moving average type using existing formulas;

Step 7: $TSI = 100 * (\text{Double Smoothed PC} / \text{Double Smoothed APC})$

Step 8: TSI Smooth = a moving average of TSI for the requested smoothing periods and moving average type using existing formulas.



Parameters

Source	Any price source (O, H, L, C, Vol, OI) or any other built-in or custom study
Periods	Any number of periods
First Smooth PC MA Type	Any available moving average type
First Smooth PC Periods	Any number of periods
Double Smooth PC MA Type	Any available moving average type
Double Smooth PC Periods	Any number of periods
First Smooth APC MA Type	Any available moving average type
First Smooth APC Periods	Any number of periods
Double Smooth APC MA Type	Any available moving average type
Double Smooth APC Periods	Any number of periods
TSI Smooth MA Type	Any available moving average type
TSI Smooth Periods	Any number of periods



Output value(s)

There are two output values resulting from the formula, the True Strength Index and True Strength Index Smoothed.

Plot

The plot is in a separate panel at the bottom.

Quant Script™ Syntax

Short Form	<i>TSI</i> (Source, Periods, 1PC MA Type, 1PC Periods, 2PC MA Type, 2PC Periods, 1APC MA Type, 1APC Periods, 2APC MA Type, 2APC Periods, Smooth MA Type, Smooth Periods)
	<i>TSIS</i> (Source, Periods, 1PC MA Type, 1PC Periods, 2PC MA Type, 2PC Periods, 1APC MA Type, 1APC Periods, 2APC MA Type, 2APC Periods, Smooth MA Type, Smooth Periods)
Long Form	<i>TrueStrengthIndex</i> (Source, Periods, 1PC MA Type, 1PC Periods, 2PC MA Type, 2PC Periods, 1APC MA Type, 1APC Periods, 2APC MA Type, 2APC Periods, Smooth MA Type, Smooth Periods)
	<i>TrueStrengthIndex</i> (Source, Periods, 1PC MA Type, 1PC Periods, 2PC MA Type, 2PC Periods, 1APC MA Type, 1APC Periods, 2APC MA Type, 2APC Periods, Smooth MA Type, Smooth Periods)



Dialogs

Chart Study Dialog

True Strength Index [Close]

Indicator Parameters

Source: ^EURUSD.close

Period: 5

First Smooth PC Periods: 7

First Smooth PC MA Type: Exponential

Double Smooth PC Periods: 9

Double Smooth PC MA Type: Exponential

First Smooth APC Periods: 11

First Smooth APC MA Type: Exponential

Double Smooth APC Periods: 13

Double Smooth APC MA Type: Exponential

TSI Smooth Periods: 15

TSI Smooth MA Type: Exponential

Series Configuration

TSI	Line	Solid	2		
TSIS	Line	Dot	2		

Save as Default Setting

Add Cancel



Sample Chart With Study





Quant Script™ Wizard Study Dialog

The image shows two overlapping dialog boxes in the S-Trader desktop platform. The 'Custom Study Wizard' dialog is on the left, and the 'Add Variable' dialog is on the right.

Custom Study Wizard Dialog:

- Save To Group: Default
- Custom Study Name: [Empty text box]
- Password: [Empty text box]
- Result: Line, Solid, 2, [Color swatches]
- Reverse_Result: Line, Solid, 2, [Color swatches]
- Buttons: Add To New Panel (checked), Add New Variable, Edit Selected Variable
- Table with columns: Name, Description
- Buttons: OK, Cancel

Add Variable Dialog:

- Name: [Empty text box]
- Description: [Empty text box]
- Variable List (Left): SMID, SMIK, SOPD, SOPDST, SOPK, SOPKST, StochasticMomentumIndexD, StochasticMomentumIndexK, StochasticOscillatorPCTD, StochasticOscillatorPCTDST, StochasticOscillatorPCTK, StochasticOscillatorPCTKST, TrueStrengthIndex, TrueStrengthIndexSmooth, TSI, TSIS, UltimateOscillator
- Parameters (Right):
 - Period: 8
 - First Smooth PC Periods: 13
 - First Smooth PC MA Type: Exponential
 - Double Smooth PC Periods: 21
 - Double Smooth PC MA Type: Exponential
 - First Smooth APC Periods: 26
 - First Smooth APC MA Type: Exponential
 - Double Smooth APC Periods: 42
 - Double Smooth APC MA Type: Exponential
 - TSI Smooth Periods: 5
 - TSI Smooth MA Type: Weighted
- Buttons: Create Script Line, OK, Cancel
- Script Line Preview: TrueStrengthIndexSmooth(CLOSE, 8, 13, Exponential, 21, Exponential, 26, Exponential, 42, Exponential, 5, Weighted)



Quant Script™ Study Dialog

Custom Study Editor

Save To Group: 3_OSCILLATORS_PRICE

Custom Study Name: TSI

Result: Line, Solid, 2

Reverse_Result: Line, Solid, 2

Formula

```
SET A1 = TSI(CLOSE, 5, 8, Simple, 13, Simple, 8, Weighted, 13, Simple, 5, Simple)
SET A2 = TrueStrengthIndex(CLOSE, 5, 8, Simple, 13, Simple, 8, Weighted, 13, Simple, 5, Simple)

SET B1 = TSIS(CLOSE, 5, 8, Simple, 13, Simple, 8, Weighted, 13, Simple, 5, Simple)
SET B2 = TrueStrengthIndexSmooth(CLOSE, 5, 8, Simple, 13, Simple, 8, Weighted, 13, Simple, 5, Simple)
```

OK Cancel