



S-Trader





DMI | Directional Movement Index

Contents

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



Description

The Average Directional Index (ADX), Minus Directional Indicator (-DI) and Plus Directional Indicator (+DI) represent a group of directional movement indicators that form a trading system developed by Welles Wilder. Wilder designed ADX with commodities and daily prices in mind, but these indicators can also be applied to stocks, currencies and any other class in any time frame. The Average Directional Index (ADX) measures trend strength without regard to trend direction. The other two indicators, Plus Directional Indicator (+DI) and Minus Directional Indicator (-DI), complement ADX by defining trend direction. Used together, chartists can determine both the direction and the strength of the prevailing trend.

Wilder featured the Directional Movement indicators in his 1978 book, *New Concepts in Technical Trading Systems*. This book also includes details on Average True Range (ATR), the Parabolic SAR system and the RSI. Despite being developed before the computer age, Wilder's indicators are incredibly detailed in their calculation and have stood the test of time.

Formula

Step 1: $PDM = High - Previous\ High$; $MDM = Previous\ Low - Low$; $TR = \text{Max}(High-Low, High - Previous\ Close, Previous\ Close - Low)$

Step 2: If $PDM < 0$ or $PDM < MDM$, PDM is reset to 0 for the period. Otherwise the value for the period is PDM;

Step 3: If $MDM < 0$ or $MDM < PDM$, MDM is reset to 0 for the period. Otherwise the value for the period is MDM;

Step 4: $SPDM = \text{EMA}(PDM, n\ \text{Periods})$, $SMDM = \text{EMA}(MDM, n\ \text{Periods})$, $STR = \text{EMA}(TR, n\ \text{Periods})$;

Step 5: $DIP = SPDM / STR$, $DIN = SMDM / STR$;

Step 6: $DX = 100 * \text{Absolute}(DIP - DIN) / (DIP + DIN)$;

Step 7: $ADX = \text{EMA}(DX, n\ \text{Periods})$;

Step 8: $ADX_R = (ADX + ADX\ n\ \text{periods\ ago}) / 2$



Parameters

Periods

Any number of periods

Output value(s)

There are five output values resulting from the formula, the Directional Index Plus, Directional Index Minus, Directional Index, Average Directional Index and Average Directional Index Rating.

Plot

The plot is in a separate panel at the bottom.

Trade Script Syntax

Short Form	<i>ADX</i> (Periods)
	<i>ADX</i> R (Periods)
	<i>DIP</i> (Periods)
	<i>DIN</i> (Periods)



	<i>DX</i> (Periods)
	<i>STR</i> (Periods)
	<i>SPDM</i> (Periods)
	<i>SNDM</i> (Periods)
Long Form	<i>AverageDirectionalIndex</i> (Periods)
	<i>AverageDirectionalIndexRating</i> (Periods)
	<i>DirectionalIndexPositive</i> (Periods)
	<i>DirectionalIndexNegative</i> (Periods)
	<i>DirectionalIndex</i> (Periods)
	<i>SmoothedTrueRange</i> (Periods)
	<i>SmoothedPositiveDM</i> (Periods)
	<i>SmoothedNegativeDM</i> (Periods)



Dialogs

Chart Study Dialog

Directional Movement Index [Close]

Indicator Parameters

Period: 14

Symbol: ^USDCAD

Series Configuration

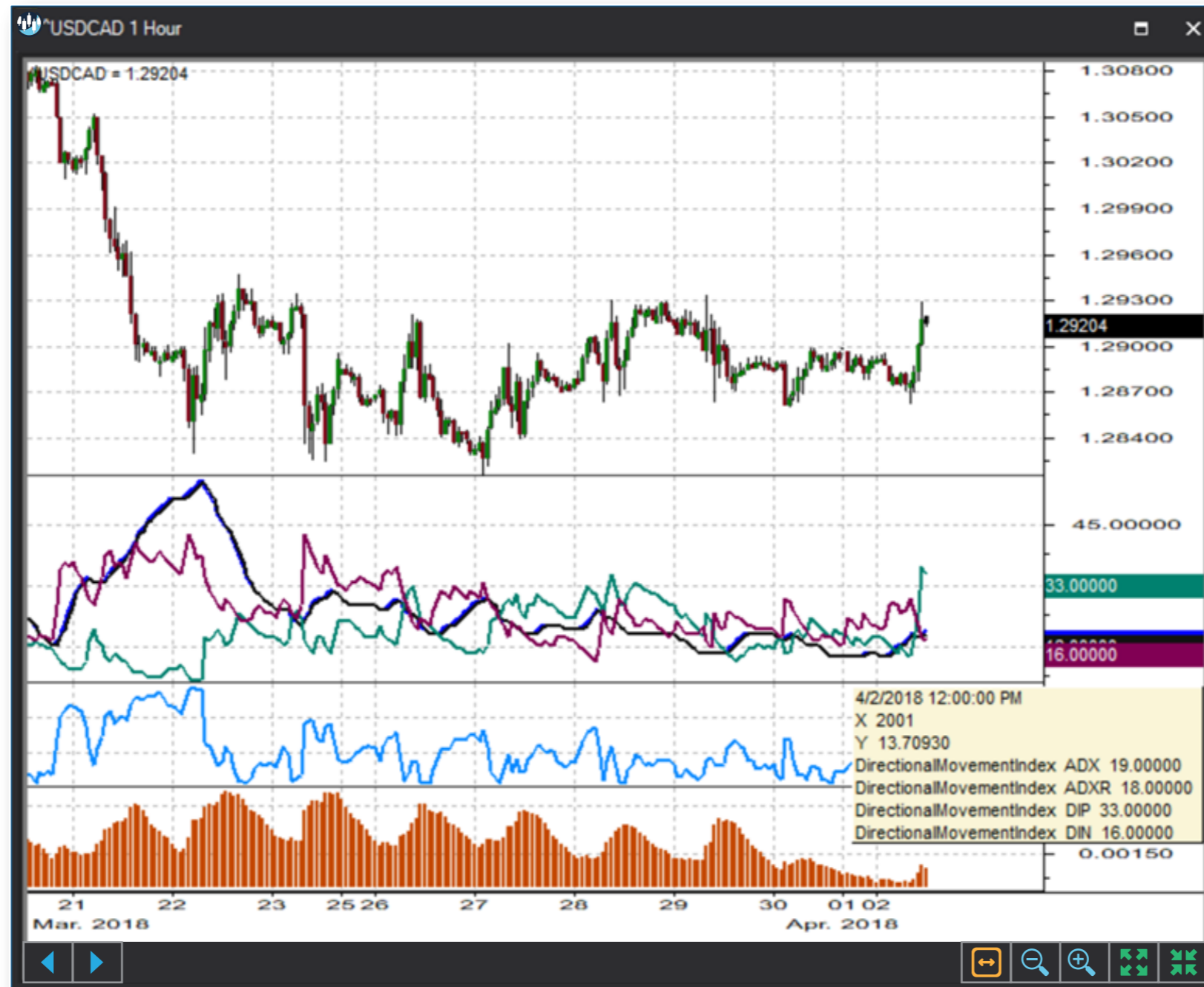
Series Name	Style	Line Type	Width	Color	Background
ADX	Line	Solid	2	Blue	White
ADXR	Line	Solid	2	Black	White
DIP	Line	Solid	2	Green	White
DIN	Line	Solid	2	Magenta	White
DX	Line	Solid	2	Light Blue	White
TRSUM	Histogram	Solid	2	Orange	White

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

- Save To Group: Default
- Custom Study Name: [Empty text box]
- Password: [Empty text box]
- Result: Line, Solid, 2, [Color selection: teal]
- Reverse_Result: Line, Solid, 2, [Color selection: purple]
- Buttons: Add To New Panel (checked), Add New Variable, Edit Selected Variable
- Table:

Name	Description
------	-------------
- Buttons: OK, Cancel

Add Variable

- Name: [Empty text box]
- Description: [Empty text box]
- Variable List:
 - AroonUp
 - AROOSC
 - AROU
 - ASI
 - AverageDirectionalIndex (Selected)
 - AverageDirectionalIndexRating
 - DIN
 - DIP
 - DirectionalIndex
 - DirectionalIndexNegative
 - DirectionalIndexPositive
 - DX
 - Forecast
 - GopalakrishnanRangeIndex
 - GOPRI
 - Intercept
 - IRF
 - IRI
- Period: 14
- Buttons: Create Script Line
- Text Area: AverageDirectionalIndex(14)
- Buttons: OK, Cancel



Quant Script™ Study Dialog

Custom Study Editor [Close]

Save To Group: 5_TREND INDICATORS [Dropdown] A 16.25 [Dropdown]

Custom Study Name: ADX

Password: [Empty Field]

Result: Line [Dropdown] Solid [Dropdown] 2 [Spinner] [Color Picker]

Reverse_Result: Line [Dropdown] Solid [Dropdown] 2 [Spinner] [Color Picker]

Formula Add To New Panel

```
SET RESULT = ADX(14)
SET REVERSE_RESULT = AverageDirectionalIndex(14)
```

[OK] [Cancel]