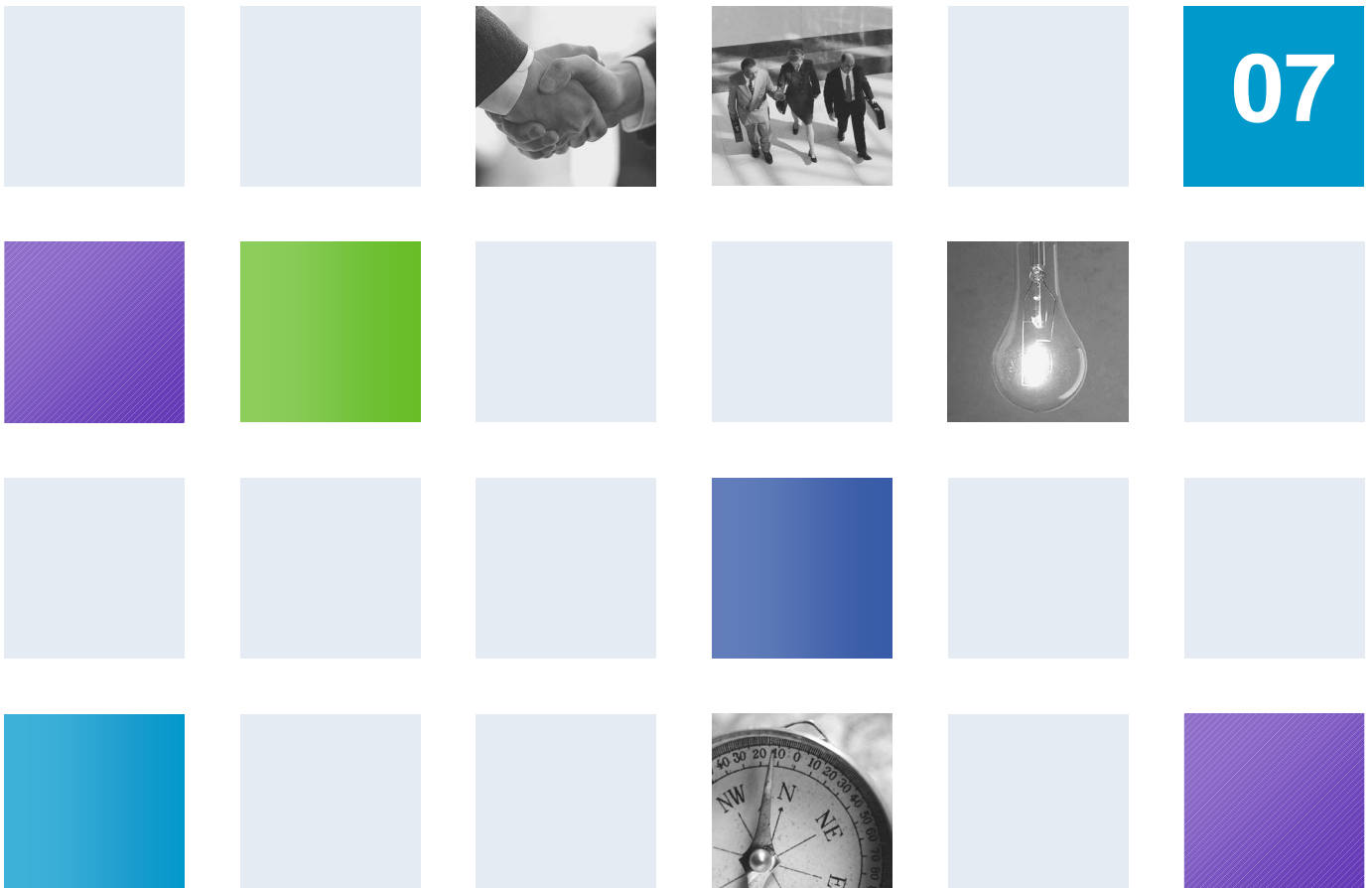


# InteractiveCharts User Manual



## Table of Contents

|       |                                  |    |
|-------|----------------------------------|----|
| 1     | InteractiveCharts – An Overview  | 4  |
| 2     | The Options Bar: Global Features | 6  |
| 2.1   | Quick Search                     | 6  |
| 2.2   | Back / Forward                   | 6  |
| 2.3   | Benchmark                        | 7  |
| 2.4   | Print                            | 8  |
| 2.5   | E-Mail                           | 8  |
| 2.6   | About                            | 8  |
| 3     | The Chart Bar: Chart Settings    | 9  |
| 3.1   | Time                             | 9  |
| 3.2   | Frequency                        | 9  |
| 3.3   | Chart Style                      | 10 |
| 3.4   | Scale                            | 10 |
| 3.5   | Zoom                             | 10 |
| 3.6   | Cursor                           | 10 |
| 3.7   | Data Tag                         | 11 |
| 3.8   | Annotation                       | 11 |
| 3.8.1 | Analysis                         | 11 |
| 3.8.2 | Drawing                          | 12 |
| 3.8.3 | Text Input                       | 12 |
| 3.8.4 | Pattern Recognition              | 13 |
| 3.8.5 | Delete                           | 13 |
| 3.9   | Volume                           | 13 |
| 4     | The Selection Area               | 14 |
| 4.1   | List / Portfolio                 | 15 |
| 4.1.1 | Select a List                    | 16 |
| 4.1.2 | Select an Instrument             | 16 |
| 4.1.3 | Display / Sort                   | 16 |
| 4.1.4 | Copy, Move, Delete Instruments   | 16 |
| 4.1.5 | Create, Delete, Save Lists       | 16 |
| 4.2   | Indicators                       | 16 |

---

|       |                              |    |
|-------|------------------------------|----|
| 4.2.1 | Display Indicators           | 18 |
| 4.2.2 | Edit Indicators              | 18 |
| 4.2.3 | Remove Indicators from Chart | 18 |
| 4.2.4 | Create, Delete, Save Set     | 19 |
| 4.2.5 | List of Available Indicators | 19 |
| 4.3   | Patterns                     | 24 |
| 4.3.1 | How to Read Candlesticks     | 25 |
| 4.3.2 | Very Positive Formations     | 25 |
| 4.3.3 | Positive Formations          | 27 |
| 4.3.4 | Negative Formations          | 28 |
| 4.3.5 | Very Negative Formations     | 28 |
| 4.4   | Chart Settings               | 30 |
| 4.4.1 | Chart Type                   | 30 |
| 4.4.2 | Line Style                   | 30 |
| 4.4.3 | Show Info                    | 31 |
| 4.4.4 | Grid                         | 31 |
| 4.4.5 | Chart Background             | 31 |
| 4.4.6 | Tool Tips                    | 31 |
| 4.4.7 | Chart Profile                | 31 |
| 4.4.8 | Free Time Span               | 31 |
| 4.4.9 | Create, Delete, Save Profile | 31 |
| 4.5   | Advanced Search              | 32 |
| 4.6   | Global Functions             | 32 |
| 4.6.1 | Create...                    | 32 |
| 4.6.2 | Delete...                    | 32 |
| 4.6.3 | Save                         | 32 |
| 4.6.4 | OK                           | 32 |
| 5     | The Chart Area               | 33 |

# 1 InteractiveCharts – An Overview

InteractiveCharts is a chart analysis product for professional technical analysis of stock charts, using comprehensive charting and analytical features. Up-to-date, high-quality quote histories and modern methods of technical analysis enable qualified investment decisions.

Historical and intraday charts are available in bar, candlestick, mountain, equi-volume, step, high/low bands or pointed type. Over 30 customizable analytical indicators are supported by automatic pattern recognition of pennants, triangles, flags, head-shoulder and channels.

These powerful features provide answers to questions such as: When will a stop successfully limit the risk of an investment? When did an instrument reach its all-time high? When will a trend likely weaken or even reverse?

In your analysis, you are free to zoom and scroll in your chart, select instruments from a watch list or your portfolio, add annotations and lines, print the results or send it by e-mail.

InteractiveCharts is a fast, platform-independent Java applet which can run in any modern web browser.



The user interface of InteractiveCharts consists of four areas to select, present and analyze data, for benchmarking, to search for instruments, to administrate users, etc. They are from top to bottom:

- 1 **The Options Bar: Global Features** (top bar) offers various global functions at the top of the window.
- 2 **The Chart Bar: Chart Settings** (second bar) provides various chart settings below the options bar in pull-down menus and icons.
- 3 **The Selection Area** (left half of the window) allows you to select instruments, indicators and settings.
- 4 **The Chart Area** (right half of the window) presents the selected chart for editing and analyzing.

## 2 The Options Bar: Global Features

Standard global features are available at any time in the options bar:



- **Quick Search** to find instruments by symbol, name or ISIN
- **Back / Forward** to easily browse through the displayed list
- **Benchmark** to add up to four benchmarks to the chart
- **Print** to print the current chart as you see it
- **E-Mail** to send the current chart as a GIF attachment by mail
- **About** to show copyright information of InteractiveCharts

### 2.1 Quick Search



Quick search helps you to find a specific instrument by its symbol, its name (or part of its name) or its WKN/ISIN. To limit your search to a specific exchange, select the exchange from the pull down menu next to the quick search entry field. To start the search, click on the OK button next to the exchange pull down menu or hit Return after entering a search term in the quick search field.

A search window opens to list all search results, giving exchange, WKN/ISIN, current quote, change to last close, traded volume (if available) and time of quote.

To select one or more instruments, click on the checkbox at the beginning of the line. At the bottom of the search results window determine whether the selected instruments will be added to one of the existing lists or to a new list.

### 2.2 Back / Forward



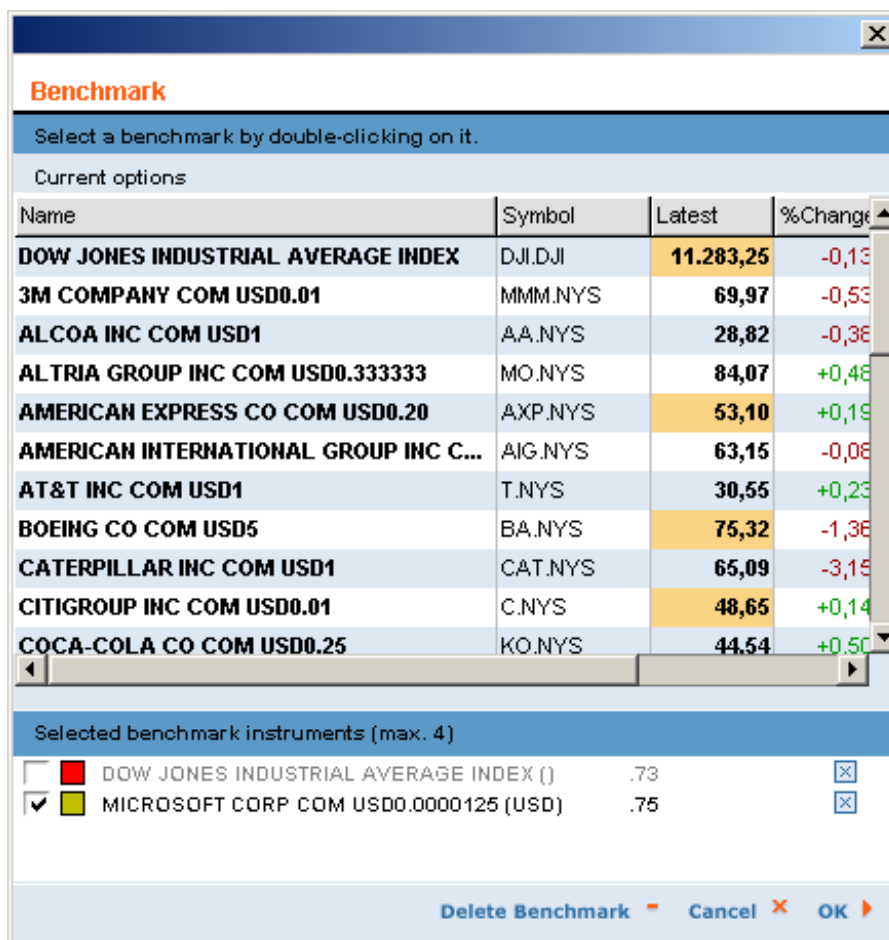
Use these functions to step back and forward through your current list or portfolio to display the chart of the previous or next instrument. Current chart settings like time, frequency, chart style, etc. remain unchanged.

## 2.3 Benchmark



This option draws up to four instruments or indices of your current list or portfolio as benchmark lines into the chart area.

To insert a benchmark, select an entry from the popup list and double click on it. Benchmarks are scaled to 100% at the earliest date in the chart and inserted into the chart as colored lines. Symbols of the same colors are displayed in the upper left corner of the chart to identify the benchmarks. Selecting a fifth benchmark will replace the fourth line in the chart:



To remove a benchmark line from the chart, "uncheck" it by clicking on the check box on the left.

To delete a benchmark from the list, click on the box on the right: .

To delete all benchmarks, click Delete Benchmark on the bottom of the window.

## 2.4 Print



You can print the current chart "as is", including benchmarks, indicators and annotations in standard letter and small letter formats or in a customizable size of up to 1024 x 800 pixels.

## 2.5 E-Mail



As an alternative to printing, you can use the e-mail option to send out the chart area "as is" as a .gif attachment in an e-mail. A window will pop up, asking for sender and receiver address and the desired size of the chart in pixels of up to 1024 x 800 pixels. The current size of the chart will be given as default. (Please keep in mind that the size of the chart determines the size of the attachment.) A message can be sent along with the chart attachment.

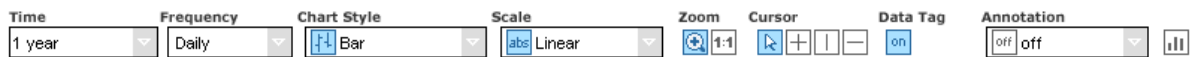
## 2.6 About



About displays copyright information of InteractiveCharts.

## 3 The Chart Bar: Chart Settings

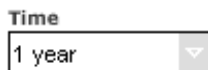
The chart bar determines the settings for the displayed charts.



The individual settings described below are

- **Time** to set the charted time period
- **Frequency** to set quote sampling rate
- **Chart Style**, such as bar chart, candlestick, line chart, etc.
- **Scale** to switch between linear and logarithmic scaling
- **Zoom** to enable zooming into the chart
- **Cursor** to use different cursor shapes
- **Data Tag** to switch the tool tip with quote data in on and off
- **Annotation** within the chart for analysis, illustration, etc.
- **Volume** to switch a volume chart on and off

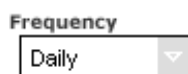
### 3.1 Time



Select the time period to be displayed in the chart from intraday (up to 10 days) and daily quotes from 1 month to up to 10 years.

For daily quotes, charts can be zoomed to any period down to five days, see Zoom below.

### 3.2 Frequency



This setting determines the number of chart entries per time period. By default, intraday charts are displayed up to the minute, but for a better overview, intervals of 3, 5, 15, 30 and 60 minutes are also available. For other time periods, daily, weekly or monthly sampling is available.

### 3.3 Chart Style

#### Chart Style

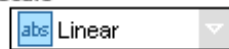


Select the desired chart type from the available styles: bar, candlestick, line, mountain, equi-volume, step, high/low bands or pointed.

Chart styles bar, candlestick and equi-volume use two colors, green and red, to distinguish rising and falling quotes, also see Chart Type below.

### 3.4 Scale

#### Scale



This setting determines the chart's vertical scale as linear in absolute values, in percent (for benchmark comparisons) or on log scale.

### 3.5 Zoom

#### Zoom



The left button with the magnifying glass toggles the zoom function in the chart area. When switched on, point anywhere in the chart and keep the left mouse button pressed while moving the mouse sideways to select a time period for closer examination. Releasing the mouse button will zoom in on the selected area. While marking the time period, the selected dates will be displayed at the top of the chart. Please note that intraday charts cannot be zoomed.

The right icon (1:1) “unzooms” a zoomed chart and returns to the time period selected in the Time setting. Alternatively, you can “unzoom” by clicking right in the chart area.

### 3.6 Cursor

#### Cursor



You can select one of four cursor styles for the chart area to enable convenient and precise navigation. See also the Data Tag which adds a tool tip with chart data at the cursor position.

The best way to understand the different styles is to try them out:

- The first button selects the standard arrow cursor.
- The second button displays crosshairs which add tool tips for the date and vertical value that correspond to the cursor position.
- The third button reduces the crosshairs to the vertical time display and tool tip.
- The fourth button displays only a horizontal line and tool tip at the cursor position according to the selected scale.

## 3.7 Data Tag

### Data Tag



The data tag toggles the tool tip with date and corresponding quote data which is displayed in the chart according to the cursor's vertical position in the chart area. See also Cursor.

## 3.8 Annotation

### Annotation



These settings provide various means of annotating and editing and the displayed chart. The pull down menu offers elements for

- Analysis (such as Fibonacci Lines and Gann Lines and Fans)
- Drawing (lines for trend channels and limits)
- Text Input
- Pattern Recognition
- The Delete options let you delete any annotations.

### 3.8.1 Analysis

Available analysis elements are Fibonacci Lines and Gann Lines and Fans. Fibonacci lines can be added horizontally as time zones and vertically as retracements. Gann lines and fans can be freely scaled and moved.

(Note that the analysis elements are only described briefly here. In-depth knowledge of technical analysis is required to get the full benefit of these instruments.)

#### 3.8.1.1 Fibonacci Lines

**Fibonacci time zones** serve to assess periodical quote and market movements based on the Fibonacci sequence. (The Fibonacci sequence starts with 0 and 1, each subsequent number equals the sum of the previous two numbers: 0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, etc.) The theory behind using Fibonacci numbers in technical analysis assumes that significant market turning points occur in periods according to numbers of the sequence.

Use this element to add vertical Fibonacci lines to the chart. Keep the mouse button pressed to scale the lines along the time line. To move an existing set of lines, click on the first line and drag them to the desired position.

**Fibonacci Retracements** are used in connection with the Elliott Wave theory. They are based on the rounded mathematical limit of Fibonacci quotients: .618, its square .382 and its cube .236. (The significance of these numbers for the wave theory can be inferred by considering that the first two are equally distant from the mean value of .5 and that the difference between both equals the third.)

The wave theory assumes that market movements are followed by corrections of the size of retracement values. Accordingly, a strong trend will be corrected by a reversal by at least 38%, while a weak trend will be followed by correction of no more than 62%.

Use this element to add Fibonacci retracements to the chart. After selecting the element, click on the desired 0% position in the chart, keep the mouse button pressed, drag the cursor to the 100% position and release the button. To move retracements, select the retracement lines by clicking on one of the outer lines and drag the set into the desired position.

### 3.8.1.2 Gann Lines and Fans

These elements (pointing either up or down) use geometric figures to assess market movements.

**Gann lines** add 9 equidistant resistance lines to the chart. Select the element, click on the desired 0% position in the chart, keep the mouse button pressed, drag the cursor to the 100% position and release the button. Existing sets of Gann lines can be selected and dragged into a new position or scaled differently.

**Gann fans** are used in the theory that trend support and resistance lines often form certain geometric angles in charts. Gann specified the angles of 7.5°, 15°, 18.75°, 26.25°, 45°, 63.75°, 71.25°, 75° and 82.5°.

Use a Gann fan up to add the fan lines to the starting point of an upwards trend and assess potential support and resistance points along the fan lines. A fan down is used inversely in downward trends.

## 3.8.2 Drawing

Available drawing elements are lines, limit lines, arrows, rectangles, ellipses and arcs.

You can add random **lines** to the chart by selecting the element, clicking on the starting point in the chart, keeping the mouse button pressed and dragging the cursor to the desired end point of the line. Existing lines can be grabbed by either end and dragged into new positions. Use lines to add freehand trend channels and support and resistance lines.

**Limit lines** indicate horizontal lines parallel to the time line. The corresponding limit value is displayed above the limit line while you place it. Existing limit lines can be dragged into new positions.

**Arrows** can be added to draw attention to certain patterns or areas in the chart. They may also be used as alternatives to freehand lines.

To mark specific chart areas or to edit your comments to the chart, use **rectangles**, **ellipses** or **arcs**. Select one of these elements, click on the starting point in the chart, keep the mouse button pressed, drag the element to the desired size and release the button.

### 3.8.3 Text Input

This element allows to add text, like comments, explanations or advice, to the chart and edit it. Selecting this element will open a separate window to set font, color, etc. The selected style is shown in a preview area. Existing text can be dragged to a new position or edited after double-clicking.

### 3.8.4 Pattern Recognition

InteractiveCharts offers five options for pattern recognition to cover the most common patterns. Please note that the time and resources which InteractiveCharts requires to recognize patterns depends on the available history and the selected frequency. For intraday charts, pattern recognition is not available.

**Triangles** are chart patterns with decreasing amplitude, i.e. increasingly narrowing trend channels. In general, triangles are considered to confirm trends. Common interpretation stipulates that existing trends will continue after consolidation in a triangle pattern.

**Flags** are short-term, trend-confirming patterns. Their amplitude decreases like those of triangles. Flags are often accompanied by decreasing trading volume, which may rise sharply when the flag pattern ends. (A special kind of flag are the *pennants* which are described below.)

**Channels** are trend-confirming patterns moving between two parallel trend lines. Ascending trend channels confirm a bull market, descending channels indicate a bear market. Horizontal trends are often expected to continue after an interruption of shortly increased volume.

**Head-shoulder** patterns (as well as inverse head-shoulder patterns) indicate a trend reversal. The end of an upwards trend will often be marked by a three-pointed head-shoulder pattern, where the second is the highest of the three peaks. The lows between the three peaks form the so-called neck line. A chart crossing the neck line after the right shoulder (i.e. after the third peak) is usually interpreted as a sell signal.

Inverse head-shoulder patterns are interpreted inversely: they mark the end of a downward trend. Inverse head-shoulder patterns are usually accompanied by decreasing trading volume.

**Pennants** are a special sort of *flag* (see above), where the two trend lines converge symmetrically over time.

### 3.8.5 Delete

Use the **Delete** function to delete individual annotations from the chart. First select the item by clicking on it (you have to select certain elements by clicking on their end), then select Delete. Alternatively, use the Delete key to delete a selected annotation.

To delete patterns, select the same pattern again.

Use the **Delete all** function to delete all annotations from the chart, i.e. analysis elements, drawing elements, text and patterns. To actually delete all annotations, select this function and click anywhere in the chart area to confirm deleting all.

## 3.9 Volume



Use this icon to switch the volume chart in the lower chart area on or off.

## 4 The Selection Area

The selection area determines *what* is displayed in the chart. It offers five options, accessible in grey and white tabs on the right edge of the selection area:

- **List / Portfolio** offers instruments for selection.
- **Indicators** offer a range of indicators for technical analysis.
- **Patterns** provide automatic detection of candlestick patterns in charts.
- **Chart Settings** determine chart area settings.
- **Advanced Search** retrieves instruments by type or exchange.

**Global Functions** at the bottom allow storing and retrieving custom settings.

## 4.1 List / Portfolio

This option shows quote lists of available indices, as well as of custom portfolios and watch lists, from which one instrument can be selected to be displayed in the chart area.

| Name                           | Symbol   | Latest    | %Change |   |
|--------------------------------|----------|-----------|---------|---|
| <b>List</b>                    |          |           |         |   |
| DOW JONES INDUSTRIAL AVERAGE ▾ |          |           |         |   |
| DOW JONES INDUSTRIA...         | DJI.DJI  | 11.281,65 | -0,14%  | ↕ |
| 3M COMPANY COM US...           | MMM.NYS  | 69,88     | -0,65%  | ↕ |
| ALCOA INC COM USD1             | AA.NYS   | 28,86     | -0,24%  | ↕ |
| ALTRIA GROUP INC CO...         | MO.NYS   | 84,02     | +0,42%  | ↕ |
| AMERICAN EXPRESS C...          | AXP.NYS  | 53,10     | +0,19%  | ↕ |
| AMERICAN INTERNATIO...         | AIG.NYS  | 63,15     | -0,08%  | ↕ |
| AT&T INC COM USD1              | T.NYS    | 30,54     | +0,20%  | ↕ |
| BOEING CO COM USD5             | BA.NYS   | 75,38     | -1,28%  | ↕ |
| CATERPILLAR INC CO...          | CAT.NYS  | 65,01     | -3,27%  | ↕ |
| CITIGROUP INC COM U...         | C.NYS    | 48,68     | +0,21%  | ↕ |
| COCA-COLA CO COM ...           | KO.NYS   | 44,54     | +0,50%  | ↕ |
| DU PONT(E.I.)DE NEMOU...       | DD.NYS   | 39,53     | -0,40%  | ↕ |
| EXXON MOBIL CORP C...          | XOM.NYS  | 69,84     | +0,30%  | ↕ |
| GENERAL ELECTRIC CO...         | GE.NYS   | 33,81     | +0,06%  | ↕ |
| GENERAL MOTORS CO...           | GM.NYS   | 29,84     | -1,13%  | ↕ |
| HEWLETT-PACKARD FI...          | HPQ.NYS  | 35,31     | +0,15%  | ↕ |
| HOME DEPOT INC COM ...         | HD.NYS   | 33,26     | -1,16%  | ↕ |
| HONEYWELL INTERNATI...         | HON.NYS  | 38,67     | -0,34%  | ↕ |
| INTEL CORP COM USD0...         | INTC.NAS | 18,36     | -0,16%  | ↕ |
| INTERNATIONAL BUS M...         | IBM.NYS  | 79,10     | +0,55%  | ↕ |
| JOHNSON & JOHNSON ...          | JNJ.NYS  | 64,84     | +1,46%  | ↕ |
| JP MORGAN CHASE & ...          | JPM.NYS  | 45,93     | +0,90%  | ↕ |
| MCDONALD'S CORPOR...           | MCD.NYS  | 35,41     | -0,51%  | ↕ |
| MERCK & CO INC COM ...         | MRK.NYS  | 40,22     | -0,59%  | ↕ |
| MICROSOFT CORP CO...           | MSFT.NAS | 25,61     | -0,31%  | ↕ |
| PFIZER INC COM USD0.05         | PFE.NYS  | 27,16     | +0,07%  | ↕ |
| PROCTER & GAMBLE C...          | PG.NYS   | 61,03     | +0,18%  | ↕ |
| UNITED TECHNOLOGIES...         | UTX.NYS  | 61,07     | +0,49%  | ↕ |

[Create New List](#) + [Delete List](#) - [Save](#) [OK](#) ▶

### 4.1.1 Select a List

#### List

DOW JONES INDUSTRIAL AVERAGE ▾

Use the **List** pull down menu at the top of the selection area to select an index, a portfolio or a watch list.

### 4.1.2 Select an Instrument

| Name                         | Symbol  | Latest    | %Change |   |
|------------------------------|---------|-----------|---------|---|
| DOW JONES INDUSTRIAL AVERAGE | DJI.DJI | 11.293,82 | -0,04%  | ⬇ |
| 3M COMPANY COMMON STOCK      | MMM.NYS | 70,03     | -0,44%  | ⬇ |

To select an instrument for charting, simply click on the line of the desired instrument in the list.


### 4.1.3 Display / Sort


| Name                         | Symbol  | Latest    | %Change |
|------------------------------|---------|-----------|---------|
| DOW JONES INDUSTRIAL AVERAGE | DJI.DJI | 11.292,62 | -0,05%  |

By default, the list displays the name of the instrument (or the index), its symbol, its latest quote (though possibly as a delayed quote) as well as the difference to the last close.

To resort the list table by a column, click on the column header. To invert the sort order, click on the column head again.

### 4.1.4 Copy, Move, Delete Instruments

To copy an instrument entry from a list or to move it to another table, click on the icon in the right column . A popup window opens with the corresponding options. Entries can be moved or copied into existing lists. Alternatively, new lists can be created to contain the copied or moved items.

To delete an instrument entry from a list, select it and hit the Delete key. Alternatively, click on the icon  in the right column and select the delete option in the popup window.

### 4.1.5 Create, Delete, Save Lists

To create new lists, to delete or save lists, use the Global Functions at the bottom of the selection area.

While you may edit or delete any list for your current session, you can permanently edit or delete custom lists only. Standard index lists will be restored in their original format at the next session.

## 4.2 Indicators

Technical analysis uses different indicators to assess market movements and trends. Technical indicators are the results of mathematical and logical operations based on historical quote data.

InteractiveCharts includes a set of over 30 indicators, ranging from classics such as moving average and RSI to recent developments like the Aroon indicator.

| All indicators           | Cyclical analysis                             | Trend analysis |
|--------------------------|---|----------------|
| <b>Chart window</b>      |   |                |
| <input type="checkbox"/> | 1. Simple Moving Average (MA)                 | (14)           |
| <input type="checkbox"/> | 2. Simple Moving Average (MA)                 | (50)           |
| <input type="checkbox"/> | 1. Exponential Moving Average (EMA)           | (20)           |
| <input type="checkbox"/> | 2. Exponential Moving Average (EMA)           | (50)           |
| <input type="checkbox"/> | Weighted Moving Average (WMA)                 | (20)           |
| <input type="checkbox"/> | Bollinger Bands (BOL)                         | (2.0, 20)      |
| <input type="checkbox"/> | Envelopes (ENV)                               | (6.0, 20)      |
| <input type="checkbox"/> | Parabolic SAR (SAR)                           | (0.02->0.2)    |
| <input type="checkbox"/> | ZigZag (Basic)                                | (8.0%)         |
| <b>Indicator window</b>  |   |                |
| <input type="checkbox"/> | Volume  |                |
| <input type="checkbox"/> | Volume + (coloured depending on price change) |                |
| <input type="checkbox"/> | Accumulation Distribution Line (ADL)          | (38)           |
| <input type="checkbox"/> | Aroon Up/Down                                 | (25)           |
| <input type="checkbox"/> | Aroon Oscillator (Aroon Osc)                  | (25)           |
| <input type="checkbox"/> | Average Directional Index (ADX)               | (14)           |
| <input type="checkbox"/> | Average True Range (ATR)                      | (14)           |
| <input type="checkbox"/> | Chaikin Money Flow (CMF)                      | (20)           |
| <input type="checkbox"/> | Chaikin Oscillator (Chai Osc)                 | (3, 10)        |
| <input type="checkbox"/> | Commodity Channel Index (CCI)                 | (0.015, 20)    |
| <input type="checkbox"/> | Directional Movement Index (DMI, DMI+, DMI-)  | (14)           |
| <input type="checkbox"/> | Fast Stochastics (Fast Stoch)                 | (14, 3)        |
| <input type="checkbox"/> | MACD  | (12, 26, 9)    |
| <input type="checkbox"/> | Momentum                                      | (12)           |

On this selection area option, a List of Available Indicators is available on three different tabs: The **All indicators** tab offers the complete set by display option. The first heading "Chart window" lists all indicators which are drawn directly into the chart window.

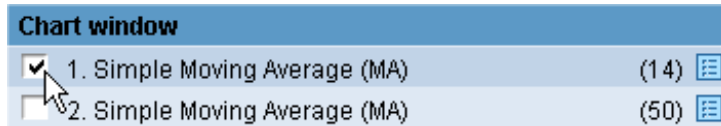
The heading "Indicator window" means that a smaller separate window is added to the bottom of the chart area to display indicators that use a different vertical scale. Such windows include two icons in the window header bar. The first opens the indicator's parameter edit window (see Edit Indicators), the second one removes the separate indicator window.

The **Cyclical analysis** tab distinguishes momentum oscillators, which are useful in sideways moving markets, and volume and volatility indicators, which monitor the amplitude of quotes and trading volume.

The **Trend analysis** tab offers trend indicators, which are useful during trend phases, and trend confirming indicators which measure the strength of a trend and help to distinguish trend phases.

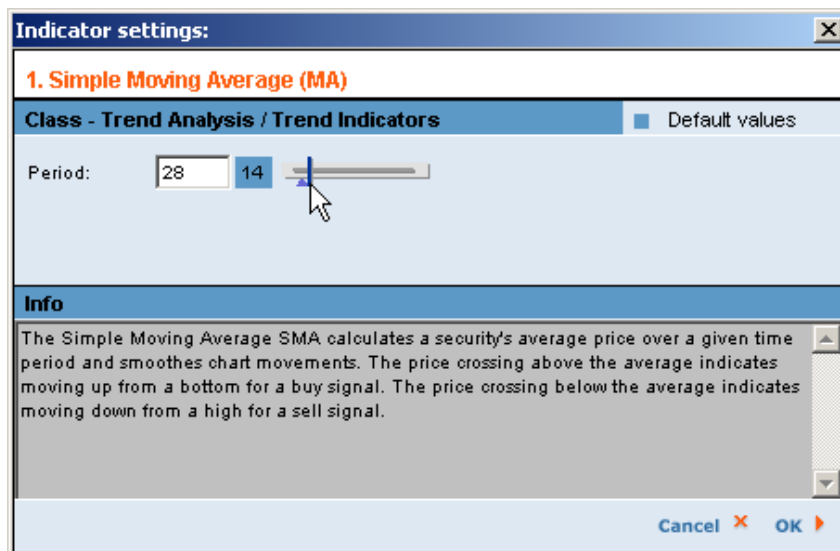
Each indicator entry lists the name, followed by the indicator's current parameter settings in parentheses. The 1. Simple Moving Average, for example, is set to 14 days by default.


#### 4.2.1 Display Indicators



To display an indicator, select it by clicking on the check box left of the indicator name. The indicator is added to the chart area immediately.


#### 4.2.2 Edit Indicators



To change the parameters of an indicator, click on the icon  next to the parentheses. A popup window appears with parameter input fields and slide rulers. The default parameter values are listed on the blue background next to the input fields. Below is a short explanation of the indicator. Edit the parameter(s) and click on OK to change the indicator settings. Customized settings appear in red in the indicator selection tabs.

#### 4.2.3 Remove Indicators from Chart

To remove an indicator from the chart area, uncheck the check box left of the indicator name. The indicator is deleted from the chart area immediately.

Separate indicator windows can also be closed by clicking on the right close icon  in the window heading.

## 4.2.4 Create, Delete, Save Set



To create new indicator sets, to delete or save sets, use the Global Functions at the bottom of the selection area.

You may create a custom list of selected indicators and/or with custom parameters. Note that you cannot delete the preconfigured sets.

## 4.2.5 List of Available Indicators

The following only describes indicators briefly. Note that in-depth knowledge of technical analysis is required to get the full benefit of these instruments.

### 4.2.5.1 AD Line

The Accumulation Distribution AD line supposes that price movements become more meaningful with trading volume. A rising AD line indicates a rising demand for the security. An AD line opposing the security's trend forecasts the end or at least a weakening of the trend.

### 4.2.5.2 Aroon

The Aroon indicator consists of an up line and a down line which illustrate a trend's intensity. An Aroon up above the Aroon down line indicates a positive development and vice versa. Values over 50 signify a trend, values over 70 a strong trend.

### 4.2.5.3 Aroon Oscillator

The Aroon oscillator indicate a trend and its intensity. It is calculated from the difference between the Aroon up and down values (see Aroon indicator). Values above 0 mark a positive, above 50 a strong positive trend. Below 0 the trend is negative, below -50 it is a strong negative trend.

### 4.2.5.4 Average Directional Movement Index

The Average Directional Movement Index ADX is based on a smoothed Directional Movement Index. It measures trend intensity without indicating the trend's direction. A rising ADX line confirms the trend, while a decreasing indicator points to a weakening or reversing trend. The ADX is often used to put into action suggestions from other indicators. Smoothing of the ADX uses the same parameters as the DMI on which it is based.

#### 4.2.5.5 Average True Range

The Average True Range averages three maximum figures: the period high minus the previous period's low, the period high minus the previous period's closing price, and the period low minus the previous period's closing price. Extreme ATR values indicate exaggerations and thus imminent trend reversals.

#### 4.2.5.6 Bollinger Bands

Two Bollinger Bands envelop a moving average where the distance of each band from the average corresponds to the security's current volatility. A security's price generates a sell signal when it meets resistance at the upper band and a buy signal upon touching the supporting lower band.

#### 4.2.5.7 Chaikin Money Flow

The CMF indicator measures the intensity in a security's supply and demand. It determines the closing price in relation to the examined period, multiplies it by the trading volume and adds it up for the period. A CMF above 0 indicates more demand of a security, below 0 marks excess supply.

#### 4.2.5.8 Chaikin Oscillator

The Chaikin oscillator takes the difference between two exponential averages of the Accumulation Distribution line (see AD Line). Values above 0 are considered positive, below 0 negative. Divergence between the chart and the indicator point to imminent trend reversals.

#### 4.2.5.9 Commodity Channel Index

The Commodity Channel Index CCI measures the current position of commodities (and other security prices) in a cyclical, sideways-moving market. Usually, values above +100 indicate a strong upwards trend, while values below -100 indicate a strong downwards trend. The CCI is also frequently used to point to overbought or oversold securities.

#### 4.2.5.10 Directional Movement Index

The Directional Movement Index DMI indicates if a security is currently in a trend or not. +DI crossing above -DI marks a buy signal. Conversely, +DI crossing below -DI points to a sell. To avoid false or ambiguous signals, confirm the DMI signal by a price movement in the signaled direction over the next period.

#### 4.2.5.11 Envelopes

Two Envelope bands accompany averages at a set distance (often a percentage of the average) without regarding volatility as Bollinger Bands do. Depending on the width of the Envelope, a price touching an Envelope band may be interpreted as following a trend or as a counter signal.

#### 4.2.5.12 Exponential Moving Average

The Exponential Moving Average EMA calculates a security's weighted average price over a given time period and smoothes chart movements. An EMA is weighed exponentially in favor of recent prices. The price crossing above the average indicates moving up from a bottom for a buy signal. The price crossing below the average indicates moving down from a high for a sell signal.

#### 4.2.5.13 Fast Stochastic

Stochastic indicate the point of a security's price within the price range of the current period. They are useful to gauge sideways-moving markets. Indicator %K crossing above %D while %D is below 20 generates a buy, while indicator %K crossing below %D while %D is above 80 generates a sell. Fast stochastic are not smoothed (like Slow Stochastic) and thus get more market noise.

#### 4.2.5.14 MACD

The Moving Average Convergence/Divergence MACD gauges the difference between fast exponential moving average EMA and the slow EMA, with the fast EMA continually converging and diverging. An MACD above zero indicates an upward trend, below zero a downward trend. The MACD approaching zero while the quote still reaches new extremes may indicate a weakening or reversing trend.

#### 4.2.5.15 Momentum

Momentum is an oscillator which measures the speed of price movements by relating the rate of price change to the price itself. The momentum's position and value determine speed and direction of the price movement. Turning points (not extremes) indicate a weakening trend. (See also Rate of Change Oscillator which measures momentum in percent.)

#### 4.2.5.16 Money Flow Index

The Money Flow Index indicates buying and selling pressure within a price movement. Its interpretation is similar to the Relative Strength Index: Values > 80 mark an overbought security, while values < 20 indicate oversold securities. A divergence of price and indicator points to a weakening trend.

#### 4.2.5.17 Negative Volume Index

The Negative Volume Index measures traded volume to determine trend strength or to confirm a price movement. It points to an upward trend when the index exceeds its long-term average. (See also Positive Volume Index.)

#### 4.2.5.18 On Balance Volume

On Balance Volume (OBV) relates price movement to volume, adding the traded volume to the indicator on up days and subtracting it on down days. OBV diverging from price movement may indicate an imminent trend reversal.

#### 4.2.5.19 Parabolic Stop and Reversal System

The Parabolic Stop and Reversal SAR system generates entry and exit signals. Any price above the indicator marks an upward trend and a buy signal. The indicator will then approach the price up to maximum acceleration. Conversely, any price below the indicator marks a sell. The SAR is often used in conjunction with other indicators for exit signals.

#### 4.2.5.20 Positive Volume Index

The Positive Volume Index measures traded volume to determine trend strength or to confirm a price movement. It points to an upward trend when the index exceeds its long-term average. (See also Negative Volume Index.)

#### 4.2.5.21 Rate of Change Oscillator

The Rate of Change oscillator indicates price change in percent over a given period (similar to Momentum). The indicator's position and value determine speed and direction of the price movement. Turning points (not extremes) indicate a weakening trend.

#### 4.2.5.22 Relative Strength Index

The Relative Strength Index RSI measures the strength of a security's development. It compares the average of prices on up days with that of down days. Values > 70 indicate overbought situations, while values < 30 indicate an oversold security. The RSI may be used to detect the weakening of trends when it opposes the chart's direction to hint at a correction.

#### 4.2.5.23 Simple Moving Average

The Simple Moving Average SMA calculates a security's average price over a given time period and smoothes chart movements. The price crossing above the average indicates moving up from a bottom for a buy signal. The price crossing below the average indicates moving down from a high for a sell signal.

#### 4.2.5.24 Slow Stochastic

Stochastic indicate the point of a security's price within the price range of the current period. They are useful to gauge sideways-moving markets. Indicator %K crossing above %D below 20 generates a buy, while indicator %K crossing below %D above 80 generates a sell. Slow stochastic are smoothed and thus get less market noise.

#### 4.2.5.25 StochRSI

StochRSI uses the stochastic formula on the Relative Strength Index, creating an oscillator which is more sensitive to the RSI. A buy signal is generated when the StochRSI turns upward in the oversold area (< .20), while a sell signal occurs on a downward turn in the overbought area (> .80).

#### 4.2.5.26 Trend Confirming Indicator

The TCI is calculated by dividing a shorter moving average by a longer MA. The TCI is then followed by a third MA. Positive signals occur when the indicator exceeds 100 or when crossing above its average, while sinking below 100 or crossing below its average are considered negative.

#### 4.2.5.27 Ultimate Oscillator

The Ultimate oscillator combines a short-, a medium- and a long-term Momentum, weighted in favor of shorter term values. The indicator oscillates around its mean value of 50. It generates a sell signal, when it turns downward from above 50, but marks a buy when it turns upward from below 50.

#### 4.2.5.28 Vertical/Horizontal Filter

The VHF distinguishes a trend in price movement from a sideways-moving market. A higher VHF indicates a stronger trend. A rising VHF points to a beginning trend, while a decreasing VHF marks the beginning of a sideways movement.

#### 4.2.5.29 Williams %R

The Williams %R relates the difference between a period high and the current price to the larger period. It uses the Stochastic' interpretation: sinking out of the overbought range ( $> -20$ ) is a negative signal, while rising out of the oversold range ( $< -80$ ) is a positive signal.

#### 4.2.5.30 Weighted Moving Average

The Weighted Moving Average WMA calculates a security's weighted average price over a given time period and smoothes chart movements. A WMA is weighed linearly in favor of recent prices. The price crossing above the average indicates moving up from a bottom for a buy signal. The price crossing below the average indicates moving down from a high for a sell signal.

#### 4.2.5.31 ZigZag

The ZigZag is not an indicator as such because its position and direction may change in retrospect. It is mainly used to illustrate and simplify chart movements and for Elliott Wave analysis. The ZigZag percentage indicates the price movement which starts a contrary wave.

### 4.3 Patterns

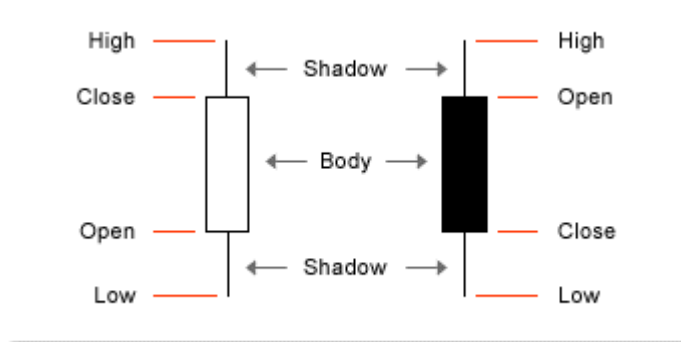
This selection area provides candlestick pattern analysis that can be added to the chart. Simply select the desired patterns which will automatically be marked in the current chart.

#### Patterns

|                                     |                                 |
|-------------------------------------|---------------------------------|
| <input type="checkbox"/>            | <b>Do not show patterns.</b>    |
| <input checked="" type="checkbox"/> | <b>Very positive formations</b> |
| <input type="checkbox"/>            | (BE) Bullish Engulfing          |
| <input checked="" type="checkbox"/> | (MS) Morning Star               |
| <input type="checkbox"/>            | (IR) Bullish Island Reversal    |
| <input type="checkbox"/>            | (HAM) Bullish Hammer            |
| <input type="checkbox"/>            | (IVH) Bullish Inverted Hammer   |
| <input type="checkbox"/>            | (BUB) Bullish Abandoned Baby    |
| <input type="checkbox"/>            | (TWS) Three White Soldiers      |
| <input checked="" type="checkbox"/> | <b>Positive formations</b>      |
| <input type="checkbox"/>            | (PL) Piercing Line              |
| <input type="checkbox"/>            | (PH) Positive Harami            |
| <input type="checkbox"/>            | (UPG) Upside Gap                |
| <input type="checkbox"/>            | (WM) White Marubozu             |
| <input checked="" type="checkbox"/> | <b>Negative formations</b>      |
| <input type="checkbox"/>            | (DC) Dark Cloud Cover           |
| <input type="checkbox"/>            | (NH) Negative Harami            |
| <input type="checkbox"/>            | (DNG) Downside Gap              |
| <input type="checkbox"/>            | (BM) Black Marubozu             |
| <input checked="" type="checkbox"/> | <b>Very negative formations</b> |
| <input type="checkbox"/>            | (BE) Bearish Engulfing          |
| <input type="checkbox"/>            | (ES) Evening Star               |
| <input type="checkbox"/>            | (IR) Bearish Island Reversal    |
| <input type="checkbox"/>            | (HGM) Hanging Man               |
| <input type="checkbox"/>            | (STS) Shooting Star             |
| <input type="checkbox"/>            | (BEB) Bearish Abandoned Baby    |

### 4.3.1 How to Read Candlesticks

Candles in candlestick charts consist of the 'body' and, usually, its upper and lower shadows. The body's size/length shows the difference between open and close. A white candle indicates a rising instrument where the close is higher than the open. A black candle indicates a falling instrument where the close is lower than the open. The shadows reaching over and under the body are sometimes called 'wicks'.



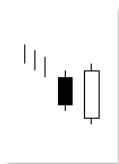
The upper shadow on a white body shows the high over the close. The upper shadow on a black body shows the high over the open. The lower shadow on a white body shows the low under the open. The lower shadow on a black body shows the low under the close.

In the illustrations below,

- a grey body indicates that the body can be either black or white.
- leading shadows indicate the general trend direction as up or down.

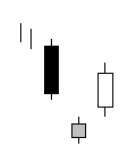
### 4.3.2 Very Positive Formations

#### 4.3.2.1 Bullish Engulfing (BE)



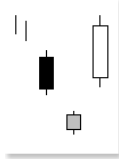
A small black body in a downtrend is followed by a large white body that completely contains the black body. This can be interpreted as a loss of momentum in the downtrend and a bottom reversal signal.

#### 4.3.2.2 Morning Star (MS)



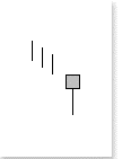
A large black body in a downtrend is followed by a small body that gaps in the trend direction. The third day is a large white body that closes 50% or more into the first black body. This can be interpreted as a trend reversal signal.

#### 4.3.2.3 Bullish Island Reversal (IR)



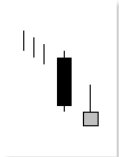
A body gaps down, the next body is below the gap, and for the third day gaps up and past the first gap. This can be interpreted as a bottom reversal signal.

#### 4.3.2.4 Hammer (HAM)



A small body in a downtrend occurs near the high with a long lower shadow and a small or no upper shadow. This can be interpreted as a bullish pattern in a downtrend.

#### 4.3.2.5 Inverted Hammer (IVH)



A small body in a downtrend occurs near the low with a long upper shadow and a small or no lower shadow. This indicates that many sell orders are in the market.

#### 4.3.2.6 Bullish Abandoned Baby (BUB)



A long black day in a downtrend is followed by a very small body and small shadows that gap below the previous close. The third day is a white day whose shadows do not overlap the previous day. This can be interpreted as a trend reversal signal and a potential for a rally.

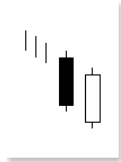
#### 4.3.2.7 Three White Soldiers (TWS)



Three long white days occur in a downtrend, each of which opens within the previous body and closes consecutively higher near its respective high. This is a bottom reversal signal, building on moderate upward steps.

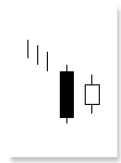
### 4.3.3 Positive Formations

#### 4.3.3.1 Piercing Line (PL)



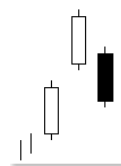
A long black day in a downtrend is followed by a white day that opens below the previous low, but closes in the upper half of the previous body. This can be interpreted as a bottom reversal signal.

#### 4.3.3.2 Positive Harami (PH)



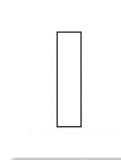
A long black day in a downtrend is followed a short white day whose body is completely contained by the black body. This signal of a trend reversal should be confirmed by the next day's continued trend reversal.

#### 4.3.3.3 Upside Gap (UPG)



Two long white days in an uptrend with a gap between them are followed by a black day that opens within the second day's body and closes in the first day's body or in the gap. This can be interpreted as temporary profit taking in a trend that continues upwards.

#### 4.3.3.4 White Marubozu (WM)



This is a white candle with no or only very small upper and lower shadows. It indicates a buyers' market.

## 4.3.4 Negative Formations

### 4.3.4.1 Dark Cloud Cover (DC)



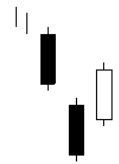
A long white day in an uptrend is followed by a black day that opens above the previous high and closes in the lower half of the previous body. This can be interpreted as a bearish reversal of an uptrend.

### 4.3.4.2 Negative Harami (NH)



A long white day in an uptrend is followed by a short black day whose body is completely contained by the white body. This can be interpreted as a bearish reversal of an uptrend.

### 4.3.4.3 Downside Gap (DNG)



Two long black days in a downtrend with a gap between them are followed by a white day that opens within the second day's body and closes in the first day's body or in the gap. This indicates that the current trend will continue.

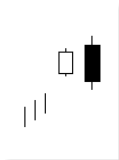
### 4.3.4.4 Black Marubozu (BM)



This is a black candle with no or only a very small upper and lower shadows. It indicates the continuation of a downtrend or a final sell-off.

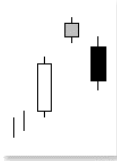
## 4.3.5 Very Negative Formations

### 4.3.5.1 Bearish Engulfing (BE)



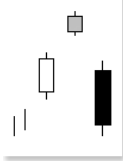
A small white body in an uptrend is followed by a large black body in that completely contains the black body. This can be interpreted as a loss of momentum or a trend reversal signal.

#### 4.3.5.2 Evening Star (ES)



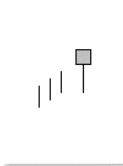
A large white body in an uptrend is followed by a small body that gaps in the trend direction. The third day is a large black body that closes 50% or more into the first white body. This can be interpreted as a trend reversal signal.

#### 4.3.5.3 Bearish Island Reversal (IR)



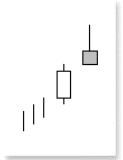
A body gaps up, the next body is above the gap, and the third day gaps down and past the first gap. This can be interpreted as a trend reversal signal.

#### 4.3.5.4 Hanging Man (HGM)



A small body in an uptrend occurs near the high with a long lower shadow and a small or no upper shadow. This can be interpreted as a trend reversal which can be confirmed by a black candlestick on the next day.

#### 4.3.5.5 Shooting Star (STS)



A small body in an uptrend occurs near the high with a long lower shadow and a small or no upper shadow. This can be interpreted as a trend reversal which can be confirmed by a black candlestick on the next day.

#### 4.3.5.6 Bearish Abandoned Baby (BEB)



A long white day in an uptrend is followed by a very small body and small shadows that gap above the previous close. The third day is a black day whose shadows do not overlap the previous day. This can be interpreted as a trend reversal signal.

#### 4.3.5.7 Three Black Crows (TBC)



Three long black days occur in an uptrend, each of which opens within the previous body and closes consecutively lower near its respective low. This is a trend reversal signal of compensating uptrend gains.

## 4.4 Chart Settings

This selection area option determines chart layout and appearance.

### Chart profile

| Chart  |   |
|--|---|
| Chart type:  | <input type="radio"/> Plain <input checked="" type="radio"/> <b>Two-tone</b>    |
| Line style:  | <input checked="" type="radio"/> <b>Normal</b> <input type="radio"/> Thick line |
| Show info:   | <input type="checkbox"/> Closeline  |
| Grid   |   |
| <input checked="" type="checkbox"/> Horizontal lines:  | <input checked="" type="checkbox"/> Vertical lines                              |
| Chart background   |   |
| Chart info:  | <input type="text" value="Logo"/>   |
| Chart background:  | <input type="text" value="white"/>  |
| Tool tips  |   |
| <input checked="" type="checkbox"/> Show tool tips   | <input type="checkbox"/> Tool tip only in active window                         |
| <input type="checkbox"/> Circle current ticks  |   |
| Chart profile  |   |
| <input checked="" type="checkbox"/> Set preferences as default   |   |
| <input checked="" type="checkbox"/> Save current chart settings<br>(duration, frequency, chart type & scale) |   |
| Assign indicator set   | <input type="text" value="no"/>   |
| Free time span   |   |
| from:  | <input type="text" value="mm/dd/yyyy"/>   |
| to:  | <input type="text" value="mm/dd/yyyy"/>   |

The various settings are described in the following, with the **default settings** in bold.

### 4.4.1 Chart Type

Two chart types are available. "Plain" displays chart lines or points in black. "**Two-tone**" draws falling quotes in red and rising quotes in green.

### 4.4.2 Line Style

As an alternative to "**normal**" line style, "thick line" is available in case normal lines do not display well in charts when printed or sent as e-mails.

#### 4.4.3 Show Info

This option adds additional information: "Closeline" will add a line at the level of the close price into intraday charts.

#### 4.4.4 Grid

**Horizontal** and **vertical** grid lines can be displayed individually in the background of the chart.

#### 4.4.5 Chart Background

The "chart info" label in the background shows the **product logo**, but the symbol of the selected instrument, with or without exchange abbreviation is also available, as are the local ID, the ISIN or no label.

For the "chart background", the **white** design can be altered to one of various colors.

#### 4.4.6 Tool Tips

A **tool tip** in the chart shows the date, open, high, low and close quotes under the cursor. This tool tip may be deactivated or marked in the chart by a red circle.

Tool tips can be activated **in all chart windows** or only for the window in which the cursor currently moves.

A third option allows you to circle the ticks to which the cursor points.

#### 4.4.7 Chart Profile

This option enables you to use custom settings beyond the current session. Note that chart profiles only apply to authenticated users, they are not available in anonymous sessions.

The current profile can be **set as default**, so they are available the next time you start InteractiveCharts.

Similarly, the current chart bar settings like time, frequency, chart style, etc. can be **saved for future sessions**.

And chart profiles can be assigned a standard or custom indicator set.

#### 4.4.8 Free Time Span

If you have selected a free time span in the Time pulldown-menu, this option allows you to set the time period.

#### 4.4.9 Create, Delete, Save Profile

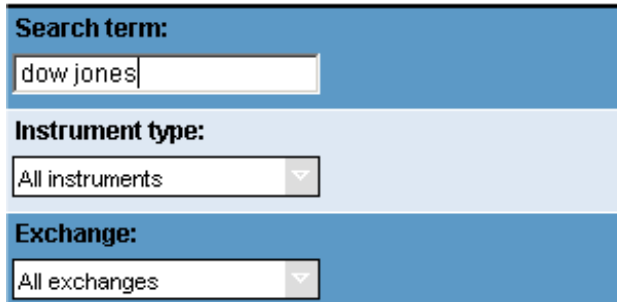


To create new chart profiles, to delete or save profiles, use the Global Functions at the bottom of the selection area. Each option will open a popup window to ask for the profile name, for confirmation before deleting the profile (if possible) or for a file name.

## 4.5 Advanced Search

This option enables a faster, more qualified search for instruments, for cases when the quick search function yields too many results.

### Instrument search



**Search term:**  
dow jones

**Instrument type:**  
All instruments

**Exchange:**  
All exchanges

To search for a specific instrument, enter the search term, either as a name or a symbol, then select an instrument type and/or a specific exchange.

Click **OK** to start the search. Matches will be displayed like Quick Search results.

## 4.6 Global Functions

Generic global functions are available at the bottom of the selection areas List / Portfolio, Indicators and Chart Settings. They apply to the currently selected tab of the selection area. Here is the example of the List / Portfolio functions:



### 4.6.1 Create...

This option creates a new, empty instrument list, indicator set or chart setting profile and displays a pop-up window to ask for a name of the newly created item.

### 4.6.2 Delete...

This option deletes the currently active list, indicator set or chart setting profile, but only after asking for a confirmation to do so.

### 4.6.3 Save

This option saves the current list, indicator set or chart setting profile under a new or an existing name.

### 4.6.4 OK

This option minimizes the selection area to expand the chart area to the width of the whole window. To display the selection area again, click on one of the grey selection area tabs on the left of the window.

## 5 The Chart Area

The chart area is the "working bench" which displays the selected chart and any indicators, lines and annotations you may have added to it. It is quite straightforward:



The chart header in bold shows the instrument name, its current quote and its change since the last close in absolute figures and in percent. Underneath is the instrument's symbol and ISIN.

The chart shows all selected charts and indicators. The volume chart is shown in a separate area underneath.