

# Mass Index [ChartSchool]

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## Mass Index

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### Introduction

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Developed by Donald Dorsey, the Mass Index uses the high-low range to identify trend reversals based on range expansions. In this sense, the Mass Index is a volatility indicator that does not have a directional bias. Instead, the Mass Index identifies range bulges that can foreshadow a reversal of the current trend.

### SharpCharts Calculation

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There are four parts involved in the Mass Index calculation:

Single EMA = 9-period exponential moving average (EMA) of the high-low differential

Double EMA = 9-period EMA of the 9-period EMA of the high-low differential

EMA Ratio = Single EMA divided by Double EMA

Mass Index = 25-period sum of the EMA Ratio



The calculation is fairly straightforward. First, the Single EMA provides the average for the high-low range. Second, the Double EMA provides a second smoothing of this volatility measure. Using a ratio of these two exponential moving averages normalizes the data series. This ratio shows when the Single EMA becomes large relative to the Double EMA. The final step, a 25-period summation, acts like a moving average to further smooth the data series. Overall, the Mass Index rises as the high-low range widens, and falls as the high-low range narrows. A spreadsheet example is shown below.

Mass Index \$SPX								
	Date	High	Low	High-Low	9-period EMA	EMA of EMA	Ratio of EMAs	Mass Index
1	11-Jun-12	1335.52	1307.73	27.79				
2	12-Jun-12	1324.31	1306.62	17.69				
3	13-Jun-12	1327.28	1310.51	16.77				
4	14-Jun-12	1333.68	1314.14	19.54				
5	15-Jun-12	1343.32	1329.19	14.13				
6	18-Jun-12	1348.22	1334.46	13.76				
7	19-Jun-12	1363.46	1344.83	18.63				
8	20-Jun-12	1361.57	1346.45	15.12				
9	21-Jun-12	1358.27	1324.41	33.86	19.70			
10	22-Jun-12	1337.82	1325.92	11.90	18.14			
11	25-Jun-12	1334.90	1309.27	25.63	19.64			
12	26-Jun-12	1324.24	1310.30	13.94	18.50			
13	27-Jun-12	1334.40	1320.71	13.69	17.54			
14	28-Jun-12	1331.52	1313.29	18.23	17.68			
15	29-Jun-12	1362.17	1330.12	32.05	20.55			
16	2-Jul-12	1366.35	1355.70	10.65	18.57			
17	3-Jul-12	1374.81	1363.53	11.28	17.11	18.60		
18	5-Jul-12	1373.85	1363.02	10.83	15.86	18.05	0.88	
19	6-Jul-12	1367.09	1348.03	19.06	16.50	17.74	0.93	
20	9-Jul-12	1354.87	1346.65	8.22	14.84	17.16	0.86	
21	10-Jul-12	1361.54	1336.27	25.27	16.93	17.11	0.99	
22	11-Jul-12	1345.00	1333.25	11.75	15.89	16.87	0.94	
23	12-Jul-12	1341.3	1325.41	15.88	15.89	16.67	0.95	
24	13-Jul-12	1357.7	1334.81	22.89	17.29	16.80	1.03	
25	16-Jul-12	1357.3	1348.51	8.75	15.58	16.55	0.94	
26	17-Jul-12	1365.4	1345.07	20.29	16.52	16.55	1.00	
27	18-Jul-12	1375.3	1358.96	16.30	16.48	16.53	1.00	
28	19-Jul-12	1380.4	1371.21	9.18	15.02	16.23	0.93	
29	20-Jul-12	1376.5	1362.19	14.32	14.88	15.96	0.93	
30	23-Jul-12	1362.3	1337.56	24.78	16.86	16.14	1.04	
31	24-Jul-12	1351.5	1329.24	22.29	17.95	16.50	1.09	
32	25-Jul-12	1344	1331.50	12.48	16.85	16.57	1.02	
33	26-Jul-12	1363.1	1338.17	24.96	18.47	16.95	1.09	
34	27-Jul-12	1389.2	1360.05	29.14	20.61	17.68	1.17	
35	30-Jul-12	1391.7	1381.37	10.37	18.56	17.86	1.04	
36	31-Jul-12	1387.2	1379.17	7.99	16.45	17.58	0.94	
37	1-Aug-12	1385	1373.35	11.68	15.49	17.16	0.90	
38	2-Aug-12	1375.1	1354.65	20.48	16.49	17.03	0.97	
39	3-Aug-12	1394.2	1365.45	28.71	18.93	17.41	1.09	
40	6-Aug-12	1399.6	1391.04	8.59	16.87	17.30	0.97	
41	7-Aug-12	1407.1	1394.46	12.68	16.03	17.04	0.94	
42	8-Aug-12	1404.1	1396.13	8.01	14.42	16.52	0.87	24.51
43	9-Aug-12	1406	1398.80	7.15	12.97	15.81	0.82	24.45
44	10-Aug-12	1406	1395.62	10.36	12.45	15.14	0.82	24.34
45	13-Aug-12	1405.9	1397.32	8.55	11.67	14.44	0.81	24.28
46	14-Aug-12	1410	1400.60	9.43	11.22	13.80	0.81	24.11
47	15-Aug-12	1407.7	1401.83	5.90	10.16	13.07	0.78	23.94
48	16-Aug-12	1417.4	1404.15	13.29	10.78	12.61	0.85	23.85
49	17-Aug-12	1418.7	1414.67	4.04	9.43	11.98	0.79	23.60
50	20-Aug-12	1418.1	1412.12	6.01	8.75	11.33	0.77	23.43 ★

Some of the spreadsheet values are off by a penny because the exponential moving average calculation extends back less than three months. Calculations in SharpCharts extend back two years, which makes the exponential moving average calculation more robust. [Click here to download this spreadsheet example.](#)

## Signals

Donald Dorsey looked for “reversal bulges” to signal a trend reversal. According to Dorsey, a bulge occurs when the Mass Index moves above 27. This initial bulge does not complete the signal though. Dorsey waited for this bulge to reverse with a move back below 26.50.

Once the reversal bulge is complete, traders should use other analysis techniques to determine the direction of the next move. Ideally, a downtrend followed by a reversal bulge would suggest a bullish trend reversal. Conversely, an uptrend followed by a reversal bulge would suggest a bearish trend reversal.



The example above shows Chipotle with the Mass Index producing two reversal bulges over a 12 month period. In both cases, the trend was up when the Mass Index moved above 27, which means a bearish reversal was expected. The first signal foreshadowed a trading range. The second signal foreshadowed a sharp decline. Chartists looking for signals will most likely have to relax Dorsey's requirements for the reversal bulge because the Mass Index rarely exceeds 27. It takes exceptional volatility to push the index above this level.

## Tweaking

Chartists can lower the threshold for a reversal bulge to generate more signals. One size does not fit all when it comes to volatility. In other words, chartists may need to compare Mass Index levels over time to identify historical highs and lows. A move that nears the high end of the historical range would suggest a volatility bulge that could foreshadow a reversal.

The chart below shows International Paper with the Mass Index moving above 26 twice. Even though the Mass Index touched 27 in August 2011, the 26 level seems more appropriate for a reversal bulge. Also keep in mind that August 2011 was an extremely

volatile period for the entire stock market and this reading looks like an outlier. The trend was down when the Mass Index moved above 26 in August 2011 and May 2012. This suggested that a bullish reversal would follow and chartists could then use other analytical techniques to identify such a reversal.



The bottom indicator is the TRIX oscillator, which is the one-period rate-of-change for the triple smoothed exponential moving average. The TRIX is like the smoothed version of MACD. Once the reversal bulge is in place and the trading bias established, chartists can use the TRIX to generate a directional signal. Because the trends were down when these reversal bulges occurred, the trading bias was bullish and only bullish signals were considered. The green arrows show when the TRIX moved above its signal line to signal an upturn in prices.

## Conclusions

The Mass Index uses the high-low differential to provide a smoothed volatility measure. The indicator typically fluctuates in the mid-20s. Readings near the high end of the historical range suggest increasing volatility, which increases the chances for a trend reversal.

Although Dorsey set the bulge threshold at 27, chartists should consider a lower threshold to produce more signals. Keep in mind that the Mass Index does not have a directional bias. The directional bias depends on the existing trend. As with all indicators, chartists should use other analysis techniques to complement the Mass Index.

## Using with SharpCharts

The Mass Index can be found in the “indicators” section under the chart. Users can adjust the summation periods by changing the number in the “parameters” box. The indicator can then be positioned “behind price”, “above” the main window or “below” the main window. Chartists can add a horizontal line by using the “advanced” options. This line can be used to set the thresholds for the reversal bulge signal. [Click here for a live example.](#)



Indicators	Parameters	Position	Overlay	Parameters
Mass Index *	25	Below	Horizontal Line	26.5
Pct Price Oscillator (PPO)	5,35,5	Below	- None -	
- None -		Below	★ Advanced Options	

Update Clear All

## Suggested Scans

### Mass Index Bullish Reversal

This scan searches for stocks that are trading below their 200-day moving average to define a long-term downtrend. A bullish reversal is identified when Mass Index moves below 26.5.

```
[type = stock] AND [country = US]
AND [Daily SMA(20,Daily Volume) > 40000]
AND [Daily SMA(60,Daily Close) > 20]

AND [Daily Close < Daily SMA(200,Daily Close)]
AND [26.5 x Daily MASS(25)]
```

### Mass Index Bearish Reversal

This scan searches for stocks that are trading above their 200-day moving average to define a long-term uptrend. A bearish reversal is identified when Mass Index moves below 26.5.

```
[type = stock] AND [country = US]
AND [Daily SMA(20,Daily Volume) > 40000]
AND [Daily SMA(60,Daily Close) > 20]

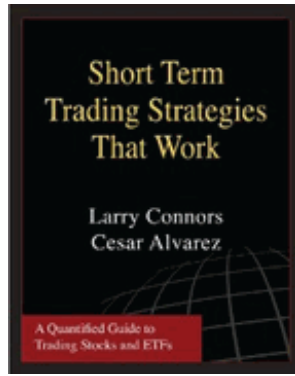
AND [Daily Close > Daily SMA(200,Daily Close)]
AND [26.5 x Daily MASS(25)]
```

For more details on the syntax to use for Mass Index scans, please see our [Scanning Indicator Reference](#) in the Support Center.

## Further Study

This books details 16 simple, yet effective, strategies crucial to the success of any trader or investor. Readers will learn oscillator techniques, mean reversion strategies and even see back-tested results.

**Short Term Trading Strategies That Work**  
Larry Connors and Cesar Alvarez



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