



## ETF S-Factor Feed

Universe: 1,600+ ETFs

Data Delivery: SMA's data feeds are available 24\*7 in real time through a RESTful JSON and XML API or as FTP files. The data can be packaged at different frequencies ranging from 1-minute updates to daily snapshots.

Data Sample:

ticker	date	raw-s	raw-s-mean	raw-volatility	raw-score	s	s-mean	s-volatility	s-score	s-volume	sv-mean	sv-volatility	sv-score	s-dispersion	s-buzz	s-delta	center-date	center-time	center-time-zone
SPY	9/1/2018 0:10	1.17	2.508	3.391	-0.395	1.8	1.334	1.866	0.25	337	349.86	144.545	-0.089	0.478	0.68	-0.019	8/31/2018	20:10:00	US/Eastern
SPY	9/1/2018 0:25	1.133	2.504	3.396	-0.404	1.744	1.33	1.867	0.222	338	350.039	144.457	-0.083	0.476	0.684	-0.028	8/31/2018	20:25:00	US/Eastern
SPY	9/1/2018 0:40	1.195	2.505	3.399	-0.385	1.788	1.331	1.869	0.244	338	350.168	144.374	-0.084	0.476	0.684	0.023	8/31/2018	20:40:00	US/Eastern
SPY	9/1/2018 0:55	1.287	2.507	3.401	-0.359	1.803	1.331	1.871	0.253	337	350.246	144.296	-0.092	0.475	0.68	0.008	8/31/2018	20:55:00	US/Eastern
SPY	9/1/2018 1:10	1.412	2.511	3.403	-0.323	1.862	1.332	1.874	0.282	336	350.325	144.217	-0.099	0.479	0.677	0.03	8/31/2018	21:10:00	US/Eastern
SPY	9/1/2018 1:25	1.787	2.527	3.401	-0.218	1.98	1.337	1.878	0.342	334	350.354	144.145	-0.113	0.479	0.67	0.06	8/31/2018	21:25:00	US/Eastern
SPY	9/1/2018 1:40	2.027	2.536	3.403	-0.15	2.047	1.339	1.881	0.376	331	350.332	144.081	-0.134	0.477	0.66	0.034	8/31/2018	21:40:00	US/Eastern
SPY	9/1/2018 1:55	2.306	2.548	3.405	-0.071	2.128	1.342	1.885	0.417	328	350.311	144.02	-0.155	0.482	0.65	0.041	8/31/2018	21:55:00	US/Eastern
SPY	9/1/2018 2:10	2.182	2.539	3.41	-0.105	2.061	1.338	1.885	0.383	326	350.34	143.954	-0.169	0.482	0.644	-0.033	8/31/2018	22:10:00	US/Eastern
SPY	9/1/2018 2:25	2.882	2.572	3.414	0.091	2.295	1.348	1.893	0.5	323	350.318	143.899	-0.19	0.477	0.635	0.117	8/31/2018	22:25:00	US/Eastern
SPY	9/1/2018 2:40	2.882	2.57	3.418	0.092	2.271	1.346	1.894	0.488	322	350.397	143.825	-0.197	0.478	0.632	-0.012	8/31/2018	22:40:00	US/Eastern
SPY	9/1/2018 2:55	2.882	2.567	3.421	0.092	2.247	1.344	1.895	0.477	322	350.526	143.741	-0.198	0.478	0.632	-0.012	8/31/2018	22:55:00	US/Eastern
SPY	9/1/2018 3:10	2.77	2.559	3.425	0.062	2.183	1.339	1.896	0.445	320	350.554	143.679	-0.213	0.478	0.626	-0.032	8/31/2018	23:10:00	US/Eastern
SPY	9/1/2018 3:25	2.77	2.557	3.429	0.062	2.161	1.337	1.897	0.434	320	350.683	143.595	-0.214	0.478	0.626	-0.011	8/31/2018	23:25:00	US/Eastern
SPY	9/1/2018 3:40	2.62	2.547	3.433	0.021	2.052	1.33	1.896	0.38	319	350.761	143.522	-0.221	0.477	0.624	-0.054	8/31/2018	23:40:00	US/Eastern
SPY	9/1/2018 3:55	2.62	2.544	3.437	0.022	2.031	1.328	1.898	0.37	319	350.89	143.438	-0.222	0.477	0.624	-0.01	8/31/2018	23:55:00	US/Eastern
SPY	9/1/2018 4:10	2.62	2.542	3.44	0.023	2.009	1.326	1.899	0.36	319	351.019	143.354	-0.223	0.477	0.624	-0.01	9/1/2018	0:10:00	US/Eastern
SPY	9/1/2018 4:25	2.62	2.539	3.444	0.023	1.989	1.324	1.901	0.35	321	351.247	143.246	-0.211	0.474	0.629	-0.01	9/1/2018	0:25:00	US/Eastern
SPY	9/1/2018 4:40	2.62	2.537	3.448	0.024	1.968	1.321	1.902	0.34	322	351.426	143.15	-0.206	0.472	0.632	-0.01	9/1/2018	0:40:00	US/Eastern
SPY	9/1/2018 4:55	2.485	2.528	3.452	-0.012	1.898	1.317	1.903	0.306	316	351.255	143.136	-0.246	0.475	0.615	-0.034	9/1/2018	0:55:00	US/Eastern
SPY	9/1/2018 5:10	2.535	2.528	3.456	0.002	1.928	1.317	1.905	0.321	316	351.383	143.051	-0.247	0.475	0.615	0.015	9/1/2018	1:10:00	US/Eastern
SPY	9/1/2018 5:25	2.785	2.538	3.46	0.071	2	1.319	1.909	0.356	314	351.412	142.993	-0.262	0.478	0.61	0.036	9/1/2018	1:25:00	US/Eastern
SPY	9/1/2018 5:40	2.785	2.536	3.464	0.072	1.979	1.317	1.91	0.346	313	351.491	142.922	-0.269	0.479	0.608	-0.01	9/1/2018	1:40:00	US/Eastern
SPY	9/1/2018 5:55	3.097	2.549	3.47	0.158	2.073	1.321	1.914	0.393	311	351.519	142.866	-0.284	0.476	0.602	0.047	9/1/2018	1:55:00	US/Eastern
SPY	9/1/2018 6:25	3.097	2.544	3.478	0.159	2.03	1.316	1.917	0.372	312	351.827	142.68	-0.279	0.474	0.605	-0.013	9/1/2018	2:25:00	US/Eastern
SPY	9/1/2018 6:40	3.047	2.539	3.481	0.146	1.991	1.313	1.918	0.353	311	351.905	142.609	-0.287	0.473	0.602	-0.019	9/1/2018	2:40:00	US/Eastern
SPY	9/1/2018 6:55	3.047	2.537	3.485	0.147	1.97	1.311	1.919	0.343	311	352.034	142.523	-0.288	0.473	0.602	-0.01	9/1/2018	2:55:00	US/Eastern
SPY	9/1/2018 7:10	3.047	2.534	3.489	0.147	1.95	1.309	1.921	0.334	311	352.163	142.437	-0.289	0.473	0.602	-0.01	9/1/2018	3:10:00	US/Eastern
SPY	9/1/2018 7:25	2.972	2.528	3.492	0.127	1.902	1.305	1.922	0.31	309	352.191	142.382	-0.303	0.473	0.597	-0.023	9/1/2018	3:25:00	US/Eastern
SPY	9/1/2018 7:40	2.837	2.519	3.496	0.091	1.833	1.301	1.923	0.277	309	352.32	142.296	-0.304	0.476	0.597	-0.034	9/1/2018	3:40:00	US/Eastern
SPY	9/1/2018 7:55	2.837	2.516	3.499	0.091	1.814	1.298	1.924	0.268	309	352.448	142.209	-0.306	0.476	0.597	-0.009	9/1/2018	3:55:00	US/Eastern
SPY	9/1/2018 8:10	2.837	2.514	3.503	0.092	1.795	1.296	1.926	0.259	309	352.577	142.122	-0.307	0.476	0.597	-0.009	9/1/2018	4:10:00	US/Eastern
SPY	9/1/2018 8:25	2.917	2.516	3.508	0.114	1.856	1.298	1.928	0.289	310	352.756	142.019	-0.301	0.477	0.6	0.03	9/1/2018	4:25:00	US/Eastern
SPY	9/1/2018 8:40	3.05	2.52	3.512	0.151	1.854	1.297	1.93	0.289	310	352.884	141.932	-0.302	0.481	0.6	-0.001	9/1/2018	4:40:00	US/Eastern
SPY	9/1/2018 8:55	3.05	2.517	3.516	0.151	1.835	1.295	1.932	0.279	310	353.013	141.845	-0.303	0.484	0.6	-0.009	9/1/2018	4:55:00	US/Eastern
SPY	9/1/2018 9:10	3	2.513	3.52	0.138	1.766	1.29	1.933	0.246	311	353.192	141.742	-0.298	0.486	0.602	-0.033	9/1/2018	5:10:00	US/Eastern
SPY	9/1/2018 9:25	2.95	2.508	3.523	0.126	1.706	1.286	1.934	0.217	310	353.27	141.67	-0.305	0.487	0.6	-0.029	9/1/2018	5:25:00	US/Eastern
SPY	9/1/2018 9:40	2.95	2.505	3.527	0.126	1.688	1.284	1.935	0.209	310	353.399	141.582	-0.307	0.487	0.6	-0.008	9/1/2018	5:40:00	US/Eastern
SPY	9/1/2018 9:55	2.95	2.503	3.531	0.127	1.67	1.282	1.937	0.201	311	353.578	141.478	-0.301	0.489	0.602	-0.008	9/1/2018	5:55:00	US/Eastern



## S-Factor Feed Field Descriptions

Column Name	Description
<b>Ticker</b>	Twitter product symbol
<b>Date</b>	Date and time of sentiment estimate (UTC)
<b>Raw-S</b>	Raw-S is the summation of sentiment of unique tweets received from credible accounts in a rolling 24-hour window at the time of observation. For e.g., at 09:10 AM, it is the summation of sentiment of tweets received between 09:10 AM the previous day and 09:10 AM today. Similarly, at 09:11 AM, it is the summation of sentiment of tweets received between 09:11 AM the previous day and 09:11 AM today.
<b>Raw-S-Mean</b>	Raw-S-Mean is the 20-day moving average of Raw-S at the time of observation. E.g.- At 09:10, it is the average of 20 historical Raw-S values at 09:10 (including present value). At 15:40, it is the average of 20 historical Raw-S values at 15:40.
<b>Raw-Volatility</b>	Raw-S-Mean is the 20-day moving standard deviation of Raw-S at the time of observation. E.g.- At 09:10, it is the standard deviation of 20 historical Raw-S values at 09:10 (including present value). At 15:40, it is the standard deviation of 20 historical Raw-S values at 15:40.
<b>Raw-Score</b>	This is the statistical Z-Score of Raw-S at the observation time At 09:10, for e.g. $RawScore_{09:10} = \frac{RawS_{09:10} - RawSMean_{09:10}}{RawSVolatility_{09:10}}$ At 09:11, we would use $RawScore_{09:11} = \frac{RawS_{09:11} - RawSMean_{09:11}}{RawSVolatility_{09:11}}$
<b>S</b>	Similar to Raw-S. The key difference here is that S is the exponentially time weighted summation of tweets in the 24-hour window. Tweets arriving closer to the observation time have a higher weight than the tweets arriving farthest from observation window.
<b>S-Mean</b>	The 20-day moving average of S at the time of observation. E.g.- At 09:10, it is the average of 20 historical S values at 09:10 (including present value). At 15:40, it is the average of 20 historical S values at 15:40. The 20-day mean provides a baseline to calculate a S-Score.
<b>S-Volatility</b>	The 20-day moving standard deviation of S at the time of observation. E.g.- At 09:10, it is the standard deviation of 20 historical S values at 09:10 (including present value). At 15:40, it is the standard deviation of 20 historical S values at 15:40.



<b>S-Score</b>	<p>Normalized value of <i>S</i>. <b>This is SMA's S-Score™</b></p> <p>This is the statistical Z-Score of <i>S</i> at the observation time At 09:10, for e.g.</p> $SScore_{09:10} = \frac{S_{09:10} - SMean_{09:10}}{SVolatility_{09:10}}$ <p>At 09:11, we would use</p> $SScore_{09:11} = \frac{S_{09:11} - SMean_{09:11}}{SVolatility_{09:11}}$
<b>S-Volume</b>	<p>Indicative Tweet volume used to compute the sentiment estimate. This is the number of unique tweets arriving in a 24-hour interval from certified SMA accounts.</p>
<b>SV-Mean</b>	<p>20 day moving average of <i>S-Volume</i> at the time of observation. The <i>SV-mean</i> provides a base line for calculating <i>SV-Score</i>.</p>
<b>SV-Volatility</b>	<p>20 day moving standard deviation of <i>S-Volume</i> at the time of observation</p>
<b>SV-Score</b>	<p>Normalized value of <i>S-Volume</i> A Z-score of the <i>S-Volume</i>, computed like <i>Raw-Score</i> and <i>S-Score</i></p>
<b>S-Dispersion</b>	<p>Measure of the Tweet source diversity contributing to a sentiment estimate. At the time of observation, it is calculated as</p> $SDispersion = \frac{\# \text{ Unique Accounts}}{SVolume}$
<b>S-Buzz</b>	<p>A measure of unusual volume activity compared to a universe of stocks. Provides a cross sectional view of unusual Twitter activity at the observation time.</p>
<b>S-Delta</b>	<p>Change in <i>S-Score</i> over a 15-min lookback period.</p> $SDelta_{09:10} = SScore_{09:10} - SScore_{08:55}$ $SDelta_{09:11} = SScore_{09:11} - SScore_{08:56}$
<b>Center-Date</b>	<p>Date of sentiment estimate in US/Eastern time-zone</p>
<b>Center-Time</b>	<p>Time of sentiment estimate in US/Eastern time-zone (Daylight Savings Adjusted- 09:30 AM is always the open)</p>
<b>Center-Time-Zone</b>	<p>Center time-zone (US/Eastern)</p>