Module 08 · Printable reference

Technical Indicators

Key concepts, worked examples and risk reminders. Use alongside the full free course.

093 Simple moving average

SMA averages the last n observations with equal weights.

Example: Closes 100,102,104 give a three-period SMA of 102.

Check: Closes 100,102,104,106: latest three-period SMA?

Answer: 104.

Caution: It lags and is not a forecast.

094 Exponential moving average

EMA weights recent values more heavily using alpha=2/(n+1).

Example: For n=3, prior EMA 100 and close 104 give EMA 102.

Check: With α=0.5, prior EMA 102 and close 106, what is the new EMA?

Answer: 104.

Caution: Initialization affects early values.

095 Moving average crossover

A crossover compares a fast average with a slower average.

Example: Fast moves from 99 to 102 while slow stays 101.

Check: Fast stays above slow for five bars. How many new crosses necessarily occurred?

Answer: None after the original crossing, unless the relationship changed again.

Caution: Whipsaws can dominate in ranges.

096 RSI

Wilder RSI transforms smoothed average gains and losses into a 0–100 oscillator.

Example: Average gain 3 and loss 1 give RSI 75.

Check: If positive smoothed average gain equals positive smoothed average loss, what is RSI?

Answer: 50.

Caution: Overbought does not mean sell immediately.

097 MACD

MACD is the difference between fast and slow EMAs; a signal EMA smooths it.

Example: EMA12=105 and EMA26=101 give MACD 4.

Check: MACD=4, signal=2: histogram?

Answer: 2.

Caution: Parameter choices affect timing.

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098 Bollinger Bands

Bands place a multiple of rolling standard deviation around an average.

Example: Mean 100, standard deviation 3, multiplier 2 give 94 and 106.

Check: Mean 100, SD 3, multiplier 2: bandwidth in points?

Answer: 12, from 94 to 106.

Caution: Touching a band is not a reversal signal.

099 Average true range

True range is the maximum of high-low and absolute gaps from prior close; ATR smooths it.

Example: H=108 L=103 previous close=100 gives TR 8.

Check: H=108,L=103, previous close=100: TR?

Answer: 8.

Caution: ATR measures magnitude, not direction.

100 ADX

ADX smooths directional movement measures to estimate trend strength.

Example: An ADX rise from 15 to 30 may indicate strengthening directional movement.

Check: Can ADX be high during a strong decline?

Answer: Yes; strength is not direction.

Caution: ADX does not tell whether the trend is bullish.

101 Stochastic oscillator

Stochastic compares close with the recent high-low range.

Example: Close 108 in range 100–110 gives %K 80.

Check: Close 105 within range 100–110: %K?

Answer: 50.

Caution: A zero range requires explicit handling.

102 Rate of change

ROC expresses change from a past price as a percentage.

Example: Current 110 versus earlier 100 gives 10%.

Check: Price falls from 100 to 90: ROC?

Answer: −10%.

Caution: Near-zero denominators distort results.

103 VWMA

VWMA weights recent prices by corresponding volume.

Example: Prices 100 and 106 with volumes 1 and 2 give 104.

Check: Equal volumes at prices 100 and 106: VWMA?

Answer: 103, equal to their simple average.

Caution: Unlike session VWAP it uses a rolling window.

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104 Pivot points

Classic pivot uses prior high, low and close.

Example: H=110 L=90 C=100 gives pivot 100.

Check: H=110,L=90,C=100: R1 and S1?

Answer: 110 and 90.

Caution: Different pivot conventions yield different levels.

105 Fibonacci retracement

Traders mark ratios of a selected price swing.

Example: A 100–120 rise retracing 38.2% reaches 112.36.

Check: 100 to 120, 50% retracement?

Answer: 110.

Caution: Anchor selection is subjective.

106 Indicator combinations

Use distinct information sources rather than duplicate indicators.

Example: Combine a trend filter with a volatility sizing rule.

Check: Why might RSI plus stochastic add little information?

Answer: Both are derived from recent price movement and can overlap in what they measure.

Caution: Many indicators share the same price inputs.

107 Indicator validation

Compare a rule with simple baselines over unseen periods.

Example: Test a crossover after costs against buy-and-hold with comparable exposure.

Check: Why test nearby settings?

Answer: An isolated peak may reflect noise rather than a stable relationship.

Caution: Optimizing many parameters inflates apparent performance.

Further reading

SEBI investor education: investor.sebi.gov.in · NSE: nseindia.com. References for background only; no endorsement or independent validation is implied.

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