

Technical Indicators and Trading Signals

Your Name

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1 Technical Indicators and Trading Signals

2 Descriptions

10-Day Moving Average (10D MA): A short-term trend indicator showing the average price over 10 days. *Buy* when price is above MA, indicating an uptrend. *Sell* when below, indicating a downtrend.

30-Day Moving Average (30D MA): A medium-term trend indicator showing the average price over 30 days. *Buy* when price is above 3MA, indicating an uptrend. *Sell* when below, indicating a downtrend.

Stochastic Oscillator (%K and %D): Measures momentum by comparing a security's closing price to its price range over a specific period. *Buy* if %K or %D is increasing, indicating upward momentum. *Sell* if decreasing.

Relative Strength Index (RSI): Measures the speed and change of price movements. *Buy* when $RSI \leq 30$ (oversold). *Sell* when $RSI \geq 70$ (overbought).

Momentum: Measures the rate of price change. *Buy* if Momentum is positive, indicating continued upward movement. *Sell* if negative.

Moving Average Convergence Divergence (MACD): Indicates changes in momentum by comparing short-term and long-term moving averages. *Buy* if MACD is rising. *Sell* if falling.

Commodity Channel Index (CCI): Measures the deviation of the price from its average. *Buy* when $CCI \leq -100$ (potential bottom). *Sell* when $CCI \geq 100$ (potential top).

| Indicator | Formula |
|--|--|
| 10-Day Moving Average (10D MA) | $MA = \frac{\sum_{i=0}^9 \text{Price}_i}{10}$ |
| 30-Day Moving Average (30D MA) | $3MA = \frac{\sum_{i=0}^{29} \text{Price}_i}{30}$ |
| Stochastic Oscillator (%K and %D) | $\%K = \frac{\text{Price} - \text{Lowest Low}_{10}}{\text{Highest High}_{10} - \text{Lowest Low}_{10}} \times 100$ $\%D = \frac{\sum_{i=0}^2 \%K_i}{3}$ |
| Relative Strength Index (RSI) | $\Delta \text{Price} = \text{Price}_i - \text{Price}_{i-1}$ $\text{Gain} = \frac{\sum_{i=0}^{13} \max(\Delta \text{Price}_i, 0)}{14}$ $\text{Loss} = \frac{\sum_{i=0}^{13} \max(-\Delta \text{Price}_i, 0)}{14}$ $RS = \frac{\text{Gain}}{\text{Loss}}$ $RSI = 100 - \frac{100}{1 + RS}$ |
| Momentum | Momentum = Price – Price _{shift(10)} |
| Moving Average Convergence Divergence (MACD) | $EMA_{12} = \text{Price}_{\text{ewm}(\text{span}=12, \text{adjust}=\text{False})}$ $EMA_{26} = \text{Price}_{\text{ewm}(\text{span}=26, \text{adjust}=\text{False})}$ $MACD = EMA_{12} - EMA_{26}$ Signal Line = $MACD_{\text{ewm}(\text{span}=9, \text{adjust}=\text{False})}$ |
| Commodity Channel Index (CCI) | $TP = \frac{\text{High} + \text{Low} + \text{Price}}{3}$ $SMA_{TP} = \frac{\sum_{i=0}^{19} TP_i}{20}$ $MD = \frac{\sum_{i=0}^{19} TP_i - SMA_{TP} }{20}$ $CCI = \frac{TP - SMA_{TP}}{0.015 \times MD}$ |

Table 1: Technical Indicators and Their Trading Signals