**Alpha Vantage API - Key Features for Pattern Detection**

**📊 Core Time Series APIs (Most Important for Your Use Case)**

**1. TIME\_SERIES\_INTRADAY (PRIMARY CHOICE)**

**Perfect for hourly chart analysis**

* **Intervals**: 1min, 5min, 15min, 30min, **60min** ← Use this for hourly charts
* **Data Points**:
  + Compact: 100 most recent bars (default)
  + Full: 30 days of recent data (or specific month if using month parameter)
* **Historical Access**: 20+ years (since 2000-01)
* **Features**:
  + Extended hours support (pre-market & post-market: 4am-8pm ET)
  + Split/dividend adjustment available (adjusted=true)
  + Returns OHLCV data (Open, High, Low, Close, Volume)

**API Example**:

url = 'https://www.alphavantage.co/query?function=TIME\_SERIES\_INTRADAY&symbol=AAPL&interval=60min&outputsize=full&apikey=YOUR\_KEY'

**Data Timeliness**:

* Free tier: End-of-day updates
* Premium: Realtime or 15-min delayed data

**2. TIME\_SERIES\_DAILY (Backup Option)**

**For daily chart analysis**

* **Data**: Raw OHLCV daily data
* **History**: 20+ years
* **Compact**: 100 recent data points
* **Full**: Entire 20+ year history

**API Example**:

url = 'https://www.alphavantage.co/query?function=TIME\_SERIES\_DAILY&symbol=AAPL&outputsize=full&apikey=YOUR\_KEY'

**3. GLOBAL\_QUOTE (Real-time Price Check)**

**For current price snapshot**

* Returns latest price and volume for a single ticker
* Good for: Pre-filtering active stocks before deep analysis
* One ticker per request

**API Example**:

url = 'https://www.alphavantage.co/query?function=GLOBAL\_QUOTE&symbol=AAPL&apikey=YOUR\_KEY'

**🔍 Alpha Intelligence APIs (Confluence Filters)**

**4. NEWS\_SENTIMENT**

**Add sentiment confluence to your patterns**

* Real-time news articles with AI sentiment scores
* Filter by ticker, topics, time range
* Use to confirm/reject pattern signals

**Use Case**: Confirm bullish patterns with positive news sentiment

**API Example**:

url = 'https://www.alphavantage.co/query?function=NEWS\_SENTIMENT&tickers=AAPL&apikey=YOUR\_KEY'

**5. TOP\_GAINERS\_LOSERS**

**Pre-filter high-momentum stocks**

* Top 20 gainers, losers, most active tickers
* Updated end-of-day (realtime with premium)
* Great for building your initial watchlist

**API Example**:

url = 'https://www.alphavantage.co/query?function=TOP\_GAINERS\_LOSERS&apikey=YOUR\_KEY'

**6. INSIDER\_TRANSACTIONS**

**Confluence: Insider buying/selling**

* Track insider activity for stocks showing patterns
* Historical data available
* Insider buying + bullish pattern = stronger signal

**API Example**:

url = 'https://www.alphavantage.co/query?function=INSIDER\_TRANSACTIONS&symbol=AAPL&apikey=YOUR\_KEY'

**🛠️ Utility APIs**

**7. MARKET\_STATUS**

**Check if market is open/closed**

* Global market status (equities, forex, crypto)
* Use to: Only run scanner during market hours

**API Example**:

url = 'https://www.alphavantage.co/query?function=MARKET\_STATUS&apikey=YOUR\_KEY'

**8. SYMBOL\_SEARCH**

**Find tickers dynamically**

* Search stocks by keyword
* Returns match scores
* Build autocomplete features

**API Example**:

url = 'https://www.alphavantage.co/query?function=SYMBOL\_SEARCH&keywords=tesla&apikey=YOUR\_KEY'

**💡 Recommended Implementation for Your Pattern Detector**

**Primary Workflow**

1. **Market Hours Check**:
2. MARKET\_STATUS → Check if US market is open
3. **Get Live Data**:
4. TIME\_SERIES\_INTRADAY (60min interval) → Fetch OHLCV bars
5. **Pattern Detection**:
   * Run your custom pattern algorithms (engulfing, hammer, breakouts)
   * Calculate volume/MA confluence
6. **Add Confluence Filters** (Optional but powerful):
7. NEWS\_SENTIMENT → Check if positive/negative news
8. INSIDER\_TRANSACTIONS → Check for insider buying/selling
9. **Send Telegram Alert**:
   * Only if pattern + confluence align

**📋 API Rate Limits & Pricing**

**Free Tier**

* **Rate Limit**: 25 requests per day
* **Data Update**: End-of-day
* **Best For**: Learning, backtesting historical data

**Premium Plans**

* **$49.99/month**: 75 API requests/min + realtime data
* **$99.99/month**: 150 API requests/min + realtime data
* **$249.99/month**: 300 API requests/min + realtime data
* **$499.99/month**: 600 API requests/min + realtime data

**🎯 Optimal API Setup for Your Use Case**

**Scenario 1: Testing Phase (Free Tier)**

# Use for backtesting only

function = "TIME\_SERIES\_INTRADAY"

interval = "60min"

outputsize = "full" # Get 30 days of data

month = "2025-01" # Specify specific month for historical data

**Limitation**: 25 calls/day means you can only scan ~25 stocks per day

**Scenario 2: Live Scanning (Premium $49.99/month)**

# Scan 50-100 stocks every hour

function = "TIME\_SERIES\_INTRADAY"

interval = "60min"

outputsize = "compact" # Just latest 100 bars (enough for patterns)

**Benefit**: 75 requests/min = Can scan 75 stocks per minute = 4,500 stocks per hour

**Scenario 3: High-Frequency Scanning (Premium $99.99/month)**

# Scan 200+ stocks every hour with confluence

- TIME\_SERIES\_INTRADAY for each ticker

- NEWS\_SENTIMENT for confirmation

- INSIDER\_TRANSACTIONS for strong signals

**Benefit**: 150 requests/min = Can handle multi-factor analysis

**⚠️ Important API Considerations**

**Data Format**

{

"Meta Data": {

"1. Information": "Intraday (60min) open, high, low, close prices and volume",

"2. Symbol": "AAPL",

"3. Last Refreshed": "2025-10-15 16:00:00",

"4. Interval": "60min",

"5. Output Size": "Compact",

"6. Time Zone": "US/Eastern"

},

"Time Series (60min)": {

"2025-10-15 16:00:00": {

"1. open": "150.2500",

"2. high": "151.5000",

"3. low": "149.8000",

"4. close": "150.7500",

"5. volume": "52000000"

}

}

}

**Key Points**

1. Timestamps are in **US/Eastern timezone**
2. All values are **strings** (need to convert to float)
3. Keys have numbered prefixes (1. open, 2. high, etc.)
4. Compact mode gives **100 data points** (enough for most patterns)

**🚀 Quick Start Code Structure**

import requests

import pandas as pd

class AlphaVantageClient:

def \_\_init\_\_(self, api\_key):

self.api\_key = api\_key

self.base\_url = "https://www.alphavantage.co/query"

def get\_intraday\_data(self, symbol, interval="60min", outputsize="compact"):

params = {

"function": "TIME\_SERIES\_INTRADAY",

"symbol": symbol,

"interval": interval,

"outputsize": outputsize,

"apikey": self.api\_key

}

response = requests.get(self.base\_url, params=params)

data = response.json()

# Parse into DataFrame

time\_series\_key = f"Time Series ({interval})"

if time\_series\_key not in data:

return pd.DataFrame()

df = pd.DataFrame.from\_dict(data[time\_series\_key], orient='index')

df.columns = ['open', 'high', 'low', 'close', 'volume']

df.index = pd.to\_datetime(df.index)

df = df.astype(float)

df = df.sort\_index()

return df

**✅ Recommended Features for Your Indicator**

| **Feature** | **API Endpoint** | **Priority** | **Use Case** |
| --- | --- | --- | --- |
| **OHLCV Data** | TIME\_SERIES\_INTRADAY | ⭐⭐⭐⭐⭐ | Core pattern detection |
| **Market Status** | MARKET\_STATUS | ⭐⭐⭐⭐⭐ | Only scan when market open |
| **News Sentiment** | NEWS\_SENTIMENT | ⭐⭐⭐⭐ | Confirm pattern bias |
| **Top Movers** | TOP\_GAINERS\_LOSERS | ⭐⭐⭐ | Build dynamic watchlist |
| **Insider Activity** | INSIDER\_TRANSACTIONS | ⭐⭐⭐ | Confluence filter |
| **Company Info** | OVERVIEW | ⭐⭐ | Filter by market cap/sector |

**💰 Cost-Benefit Analysis**

**For 50-Stock Watchlist (Hourly Scanning)**

* **API Calls Per Day**: 50 stocks × 6.5 market hours = 325 calls
* **Free Tier**: ❌ Only 25 calls/day (insufficient)
* **$49.99/month**: ✅ 75 calls/min = More than enough
* **Recommendation**: Start with $49.99/month premium plan

**For 200-Stock Watchlist**

* **API Calls Per Day**: 200 stocks × 6.5 hours = 1,300 calls
* **$49.99/month**: ✅ Can handle it (75/min × 60 = 4,500/hour)
* **Recommendation**: $49.99/month is still sufficient

**🎯 Final Recommendation**

**Best Setup for Your Pattern Detector:**

1. **Primary Data**: TIME\_SERIES\_INTRADAY with interval=60min
2. **Market Hours**: MARKET\_STATUS to check before scanning
3. **Confluence**: NEWS\_SENTIMENT for sentiment confirmation
4. **Subscription**: $49.99/month (sufficient for 50-200 stock watchlist)
5. **Backup**: TIME\_SERIES\_DAILY for longer-term pattern analysis

This combination gives you:

* ✅ Real-time hourly OHLCV data
* ✅ Extended hours support
* ✅ Sentiment analysis
* ✅ 20+ years of historical data for backtesting
* ✅ Affordable pricing ($49.99/month vs Polygon's $25-200/month)