

## Specification Requirements

### General Description

Program for EA in MQL5 with trading account in USD.

### Criteria to open an operation

1. The EA must select an instrument at **random** from a list of options.
2. The list of options should be able to be preselected from **a single instrument** to **all the currency instruments available in MT5 that include the USD**. For example, EURUSD, USDJPY, and USDSGD.
3. When the EA is turned on, the first instruction is to read the current BID price, which will be called PriceBID, and the current ASK price, which will be called PriceASK.
4. The EA should read the last 5-minute candle (M5) and calculate the difference between the High Price and Low Price of the candle and multiply it by 100,000 to calculate the size of the candle in points. This multiplying factor should be reviewed in the EA tests and corrected if necessary.
5. The point value calculated in the previous step must be added to the PriceASK to find the PriceASK+ and subtracted from the PriceBID to find the PriceBID-.
6. The PriceASK+ is the price at which a **Buy Stop** Order or **Sell Limit** Order will be placed. The EA must decide between these two options at **random**. This order is called PendingASK+.
7. At the same time as the previous step, the PriceBID- is the price at which a **Sell Stop** Order or a **Buy Limit** Order will be placed. The EA must decide between these two options at **random**. This order is called PendingBID-. See Figure 1.



Figure 1.

8. If the instrument price triggers the PendingASK+ order, the EA must cancel the PendingBID- order.
9. If the instrument price triggers the PendingBID- order, the EA must cancel the PendingASK+ order.
10. The next step of the EA is to read the value of the ATR indicator in a given timeframe.
11. EA must allow the timeframe of the ATR indicator to be set in the initial configuration parameters (e.g., M5, M15, H1, etc.)

12. EA must allow the ATR indicator periods to be set in the initial configuration parameters (e.g., 7, 14, 21, etc.)
13. EA must establish a variable that will be called ATRMax and that will be the ATR maximum value in the last 48 hours with the timeframe and the periods selected in the previous step.
14. EA must allow a factor to be called FactorATR to be set in the initial configuration parameters.
15. FactorATR must be multiplied by the ATRMax value and this value will be equal to the absolute value of the Stop Loss (SL) that will be called SLVar. That is, if a Buy operation was opened, then the price at which the SL will be set will be:

$$Price_{SL} = EntryPrice - SLVar \quad (1)$$

16. However, if a Sell trade was opened, then the price at which the Stop Loss will be set will be:

$$Price_{SL} = EntryPrice + SLVar \quad (2)$$

17. Where the EntryPrice is the Entry Price where the PendingASK+ or the PendingBID- was activated.
18. The volume of the lot will be called LotVol.
19. Formulas to calculate the LotVol will be:

$$LotVol = \frac{R \times FM}{SLpips \times PipValue} \quad (3)$$

Where:

R = It is the risk of the free margin in percentage (%). The EA must allow this variable to be entered in the initial conditions.

FM = It is the Free Margin of the account balance.

SLpips = It is the size of the Stop Loss in pips that is calculated as SLVar per 10,000. The tests will review whether it is better to use pips or use points.

PipValue = It is the value of the pip according to the currency pair and the base currency of the account.

$$LotVol = \frac{R(USD)}{SLpips \times PipValue} \quad (4)$$

Where:

R (USD) = It is the risk in USD. It is a fixed and non-variable amount. The EA must allow this value to be entered in the initial conditions.

SLpips = It is the size of the Stop Loss in pips that is calculated as SLVar per 10,000. The tests will review whether it is better to use pips or use points.

PipValue = It is the value of the pip according to the currency pair and the base currency of the account.

More information is in the following links:

<https://frommedia.com/what-is-forex-lot-size-and-how-to-calculate-lot-size-in-forex-accurately/>

<https://thetradingbible.com/forex-lot-sizes-and-pip-value>

20. EA must allow the calculation of the LotVol based on formula (3) or formula (4). In the initial conditions, a menu must be displayed that allows the EA to be commanded to do so by formula (3) or by (4).
21. EA must allow the Take Profit (TP) to be placed as a value calculated based on the SLpips. This must be done through a factor that will be called FactorTP. If the FactorTP is 3 then the TP will be 300% of the SLpips, which means that the Risk-Reward Ratio (RRR) is 1:3. If the FactorTP is 0.2 the TP will be 20% of the SLpips or in other words, the SLpips will be 500% of the TP which is calculated as  $(1 / 0.2) \times 100 = 500$ . In this last example, the RRR is 5:1.
22. EA must allow trading **with and without** Trailing Stop (TS). The TS must give the option to be placed in Break-Even (BE). This must be done with a manual factor that will be called

FactorTS and that must be multiplied by the Take Profit. If the Spot price reaches the value equal to FactorTS x Take Profit, then the EA must place the Stop Loss at Break Even. The Stop Loss must not move beyond the Break-Even.

23. Break-Even must be adjusted to the point that if the price triggers the Stop Loss, there will be no losses due to commissions, fees, and swaps.
24. EA must give the option of how long after closing a trade the next should be opened. The time must be entered in hours with up to one decimal precision (e.g., 1.0 hours, 60.5 hours, 0.4 hours, etc.) Minimum value 0.1 hours. No maximum value. In other words, when a trade is closed by triggering SL or TP, the EA must wait a while before repeating the process of opening another trade with the algorithm of the previous steps. This time is entered manually in the initial conditions.

## Notes

25. EA should only have one trade open at a time. EA should never have more than one trade open at the same time.
26. EA must work for whatever leverage the account uses.
27. EA must read the leverage value to use it in the formulas. For example, if the leverage is 1:500 then the value Lev = 500 will be used in the formulas. If this information is already given in the MT5, then it is unnecessary to do any additional calculations.
28. EA should not operate when the spread is very high. Conditions to meet this requirement can be reviewed together with the developer during the development of the EA.
29. EA must be able to work 24/7 even if the computer is turned off using a VPS: <https://www.mql5.com/es/vps>
30. EA is manually turned on and manually turned off.
31. EA must send an email every X operations with a balance. This X number of email transactions must be configurable and changeable when necessary.
32. EA must give results of won and lost trades with a success rate. This can be reflected in a file generated by the EA or in a window.