

## Expert Advisor

### Indicator

Firstly need to create a custom z score indicator – create an array which measures the z scores (OPEN live price – mean of the period / standard deviation of the period) for 5, 25, 100 periods for 9 time frames, and a manually entered z boundary i.e. as per below:

<b>Z Boundary Left</b>	-0.75	-0.75	-0.75	-0.75	-0.75	-0.75	-0.75	-0.75	-0.75
<b>Z Boundary Right</b>	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
<b>Period</b>	<b>1M</b>	<b>5M</b>	<b>15M</b>	<b>30M</b>	<b>1H</b>	<b>3H</b>	<b>12H</b>	<b>1D</b>	<b>3D</b>
<b>5</b>	(Z Score)	(Z Score)	(Z Score)	(Z Score)	(Z Score)	(Z Score)	(Z Score)	(Z Score)	(Z Score)
<b>25</b>	(Z Score)	(Z Score)	(Z Score)	(Z Score)	(Z Score)	(Z Score)	(Z Score)	(Z Score)	(Z Score)
<b>100</b>	(Z Score)	(Z Score)	(Z Score)	(Z Score)	(Z Score)	(Z Score)	(Z Score)	(Z Score)	(Z Score)

The array should be dynamic i.e. can change the time frames, periods and z boundary as necessary for experimentation. The indicator must be able to be applied to any currency pair. The z scores must be coloured green if they are outside of the Z boundary i.e. if the z score for 12H, 25 period is 0.88 then this should be green, however if the z score for 5M, 5 period is -0.56 then this will be red (within the boundary).

### Automatic Trading Robot Hypothesis

The strategy is based on mean reversion. Based on the manually entered z boundaries above the array will create buy / sell signals for a currency pair i.e. whatever flashes green.

### Trading Rules

Entry – based on a selected time frame i.e. 5M, 15M etc, If all 3 periods i.e. 5, 25, 100 in this example are flashing green i.e. are above or below the z boundary as manually entered above, then a buy / sell trade should be made. If each of the green z scores are below the 'z boundary left' ( $\leq -0.75$ ) then a buy is generated, if however each of the green z scores are above the 'z boundary right' ( $\geq 0.75$ ) then a sell is generated.

Exit – the trade should be exited if all 3 green z scores are not flashing green i.e. inside the z boundary during the next period. This means that even if 2/3 are flashing green the trade should still be exited. Scenario – say a signal is generated at 12:15pm on a 15 minute period analysis, the trade will be entered as soon as possible at 12:15pm. At 12:30pm the z scores again are checked and if they are still all outside the z boundary the trade is held, if one or more is inside the z boundary then the trade is exited. The trade is held until the exit rules occur, i.e. a trade can be held over multiple time periods if the z scores are outside the z boundaries.

The strategy should be implemented using several currency pairs i.e. allocate 100% capital, gross margin across trading signals. For example, if there are 7 different currency signals in a 15 minute time period then the gross margin will be apportioned across 7 trading signals i.e. 14.29% gross

margin per trade. If there is only 1 signals then 100% gross margin. If there are no signals then the robot does not trade.

Stop loss - A stop loss should be placed which should be the ATR of the same period based i.e. if trade is using 30 mins period then use 30 mins ATR. This again should be dynamic i.e. can adjust the stop loss to 2\*ATR or 3\*ATR etc.

### Graphical Representation of Robot

**Time T** = Period e.g. 1M, 5M, 15M etc.

**Time T0** - Z Score calculation and trading robot decision as to whether all 3 periods are outside of z region and potential TRADE ENTRY.

**Time T+1** – Robot asks question – are all 3 z scores outside z boundary? If so, NO ACTION, if any of them are inside boundary then CLOSE POSITION.

