

Hedged Grid Trading EA				
General		This is a grid trading Expert Advisor. When entry conditions are met, the EA will place pending orders at grid levels, which are calculated automatically or input manually.		
PLEASE USE THE SAME NAMES FOR THE VARIABLES AS DESCRIBED BELOW				
In the upper right corner of the chart please print the status of the EA: <ul style="list-style-type: none">- Current Trend (UP, DOWN or NULL)- OpenPositionsLong (provide the total number of Long open positions here), OpenLotsLong (provide the total lots of Long Open Positions here)- OpenPositionsShort (provide the total number of Short Open Positions here), OpenLotsShort(provide the total lots of Short Open Positions here)- Profit Goal\$– (provide the profit goal in dollars here), ProfitGoal% (provide the profit goal in % here)- Current Open Positions Profit \$(this is the profit from all open positions – it does not include already closed positions in this cycle)- Current Total Profit\$ –this is the current profit from all OPEN AND CLOSED positions in the current cycle (see detailed explanation below – Item 17)				
DETAILS: (Fig. 1 – General)		<div><div>1. The EA will have two types of grid – Continues and CandleClose Grid – see details below and Fig.2 and 3</div><div>2. If OrderTypes = Stop or OrderTypes = Limit there will be always a pending order as long as the trend is UP or DOWN.</div><div>3. If OrderTypes = Stop and Limit there will always be 2 pending orders (Stop and limit) as long as the trend is UP or DOWN.</div><div>4. If trend = NULL - delete all pending orders and do not place new orders. Continue managing existing open positions</div><div>5. Orders DO NOT have Stop Loss – only trailing stop when certain conditions occur</div><div>6. DO NOT ALLOW MORE THAN ONE POSITION ON A GRID LEVEL OR POSITIONS SPACED LESS THAN THE INCREMENT SPECIFIED IN ITEM 5 BELOW</div></div>		
INDICATORS USED				
Indicator Name		Time Frame	Indicator abbreviation in the code (please use the same abbreviations in your code)	
Fast Moving average		Main	fma, fma1, fma2	
Slow Moving Average		Main	sma, sma1, sma2	
Double Smoothed Stochastic(DSS Bressert) – code attached		Main	stoc, stoc1, stoc2	
Double Smoothed Stochastic (DSS Bressert)		Slow Time Frame	sstoc, sstoc1, sstoc2	
BBMACD (code attached)		Main	bbmacd, bbmacd1, bbmacd2, upBand, upBand1, dnBand, dnBand1	
ATR		Main	atr, atr1, atr2	
atrMA		Main	atrMA, atrMA1, atrMA2	
VARIABLES				
#	VARIABLE NAME	OPTIONS	DEFAULT	DETAILS
1	MainTimeFrame	All time Frames	1HR	I need the Time Frame to be selectable so I can test and optimize the EA on 1 min open chart prices
2	SlowTimeFrame	All Time Frames	1Day	This Time Frame will be a confirmation of the trend direction
3	Order Types	Stop/ Limit/ Stop and Limit	Stop and Limit	If Stop - the EA will place only stop orders in direction of the trend If Limit – the EA will place only limit orders in direction of the trend If Stop and Limit – the EA will place both Stop and Limit orders in direction of the trend
4	GridType (Fig. 2)	Continues/Candle Close	Continues	If Continues – the Grid Levels are spaced at GridSpacingStepPrevious + GridSpacingStep If CandleClose – The EA will place pending orders only at candle close of the main time frame and the space between grid levels (increment) will be in accordance with Item 5 (Increment)
5	Increment	Pips/ATR	13	If Pips – this is the distance in pips between Grid Levels at the start of the cycle. Each consecutive grid level will be spaced at GridSpacingStepPrevious + GridSpacingStep If ATR – the distance in pips between orders = ATR*i_atrX but not less than the distance in pips specified here, i.e if ATR*i_atrX < increment pips, place the order at the increment distance. If ATR*i_atrX > increment pips – place the order at distance = ATR*i_atrX

6	IncrementATRmultiplier (i_atrX)	Double	1	This is a multiplier of the ATR used in calculation of the grid spacing
7	GridSpacingStep (pips)	Double	0.5	Every next grid level for LIMIT orders should be spaced at GridSpacingStepPrevious + GridSpacingStep This Variable Applies ONLY if Increment = Pips and GridType = continues This variable does not apply for STOP orders
8	MaxOpenPositions (MOP)	Integer	100	If MaxOpenPositions is reached – delete all pending orders and do not place new orders. Continue to manage open positions
9	IncludeHedgedPositions in MOP	True/False	True	If = True – include the hedged positions in the count of the Total positions If = False – DO NOT include the hedged Position in the count of the total positions
10	LotSize	Double	0.01	This is the initial Lot Size
11	LotSizeIncrease%	Double	13	This increase applies only to Limit Orders. The size of every new limit order at the next level should be increased with this percent
12	TakeProfit	Pips/ATR/GridLevel	Pips	If Pips – take profit is in pips If ATR – take profit = ATR*atrXtp If GridLevel = takeProfit is at the next Grid Level
13	atrXtp	Double	2	Take Profit multiplier for ATR
14	TrailingStop	NONE/Pips/ATR	Pips	If = NONE – NO Trailing stop, else TrailingStop will be activated ONLY if <ul style="list-style-type: none"> - stoc > (100-stocLevel) for long positions - stoc < stocLevel for short positions !!!TRAILING STOP WILL NOT APPLY TO HEDGED POSITIONS!!! TrailingStop will apply to each individual open position Trailing will start only if the open position is in profit
15	TrailingPips	Double	10	Trailing will start after the positions is in profit at least the trailing pips
16	atrXts	Double	1.0	Multiplier for ATR when TrailingStop = ATR atrTrailingStop will be calculated from the Low and High on the main time frame candle, not at the close and open
17	ClosedCycleProfit%	Double	1%	All open positions (including the hedged positions) will be closed and all pending orders will be deleted when the entire profit of the cycle, (including already closed positions) reaches the profit specified here. A new cycle will start. The profit goal is calculated as a percentage of the available margin and is expressed in dollars.
17a	ReduceHedgeProfit	True/False	True	If = True – reduce the ClosedCycleProfit% to 0 (zero), i.e. apply all the rules of Item 17 If = False – DO NOTHING
18	HedgingFactor (hedgeX)	Double	1.0	If trend changes direction and there are still open positions in the opposite direction of the current trend the open positions will be hedged with a pending order at the High or Low of the first candle after the trend change. The hedging lots will be calculated as the total of all open positions in the opposite direction of the current trend multiplied by the HedgingFactor – see Fig. 4
19	fastMAperiod	Integer	144	Used for Fast Moving Average and BBMACD
20	slowMAperiod	Integer	233	Used for Slow Moving Average and BBMACD
21	macdSignalPeriod	Integer	13	Used for BBMACD
22	macdBBdev	Double	1	Used for BBMACD
23	stocPeriod	Integer	13	Used for DSS Bressert
24	stocSlowing	Integer	8	Used for DSS Bressert
25	stocLevel	Integer	20	Used for DSS Bressert
26	atrPeriod	Integer	13	Used for ATR
27	atrMAperiod	Integer	5	Please calculate the atrMA for me. Not used at this time but I may need to use it in the future as I tweak the code

28	Criteria	Trend direction	NOTES:
29	fma > fma1 && sma > sma1 && bbMACD > upBand && slowstoc > slowstoc1 && (stoc < stocLevel (stoc > stoc1 && stoc < (100-stocLevel))	UP	If any of the conditions in the Criteria Column is not fulfilled Trend Direction = NULL
30	fma < fma1 && sma < sma1 && bbMACD < dnBand && slowstoc < slowstoc1 && (stoc > (100-stocLevel) (stoc < stoc1 && stoc > stocLevel))	DN	If any of the conditions in the Criteria Column is not fulfilled Trend Direction = NULL

MAIN CONCEPT – you can have ONLY ONE order or open position per grid level. You can Place a Pending order on any position level that is VACANT – i.e – there is NO open position or Pending order on that level. You CAN NOT have orders or open positions spaced less than Increment.

If Trend = UP:

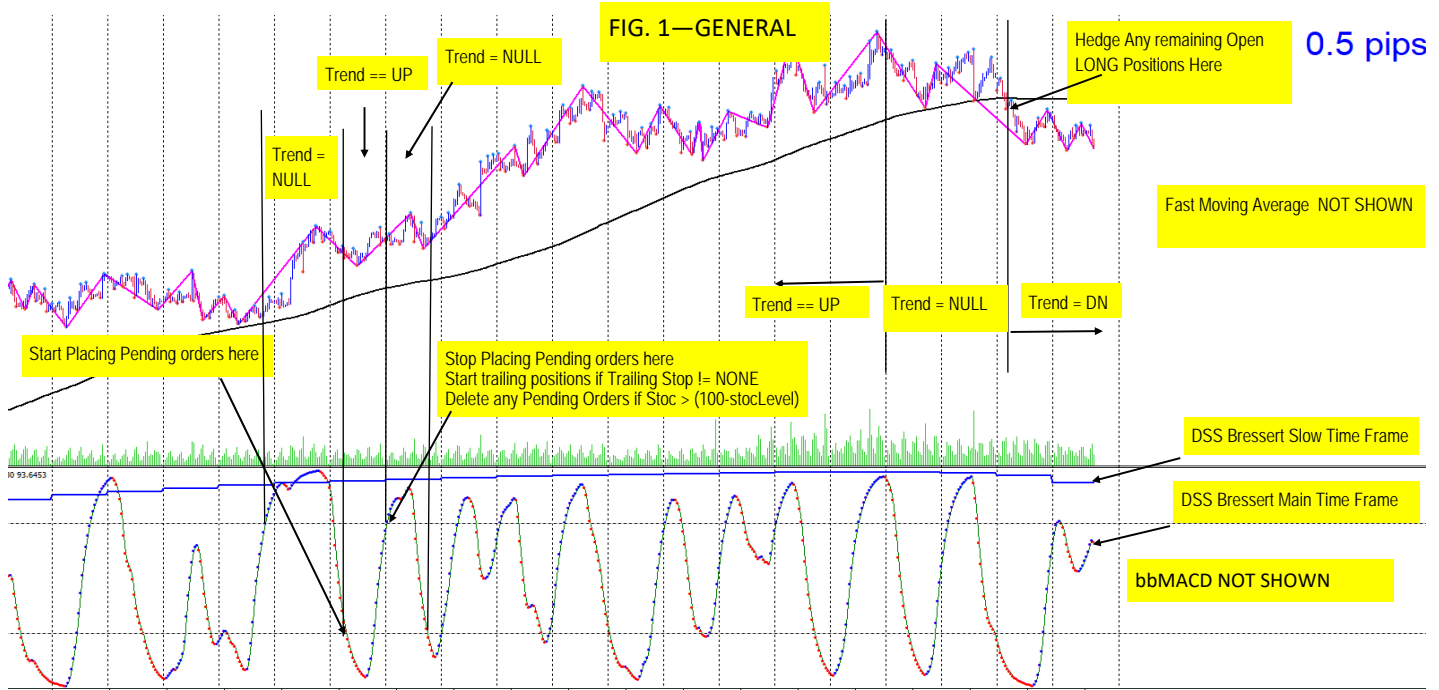
The EA will place a BuyStop and BuyLimit orders at a distance of Increment from the Zero Line – the starting price

- If BuyLimit Order is filled, another BuyLimit Order is Placed at a distance specified in Increment below the filled order – Limit Grid Level 2 with a lot size bigger with LotSizeIncrease% than the lot size of the first order. The buy stop order is moved to a distance of Increment from the already filled position on Limit Grid Level 1, i.e the Buy Stop is moved to the Zero Line
- If Limit Grid Level 2 is filled, another Buy Limit Order is placed at a distance of Increment below Limit Grid Level2 with a Lot Size bigger with LotSizeIncrease% than the lot size on the Limit Grid Level 2. The Buy Stop Order stays at the same level since the level below it (Limit Grid Level 1) already has a position in it which at this time is negative
- When price turns around and starts going up any of the open positions hits the TakeProfit level the level vacated by that position could be filled with a Pending Buy Limit Order if is at the correct distance from the current price, i.e. if price retraces to a distance of Increment from that vacated level a buy Limit order can be placed there
- If Price keeps going UP and the open positions hit TP level Buy Limit orders can be placed in the Grid Levels Bellow and BuyStop Orders above.

If the trend changes directions, Hedge the remaining open positions and start placing pending orders in direction of the new trend.

If the trend changes again when we have a hedging position close ONLY the hedging position that is against the current trend ONLY if the hedging position is in profit. If the hedging position is negative hedge the open positions against the current trend and continue placing orders in direction of the new trend.

FIG. 1—GENERAL



0.5 pips

Continues Grid Example—FIG. 2



Assumptions:

- Increment = 10 pip

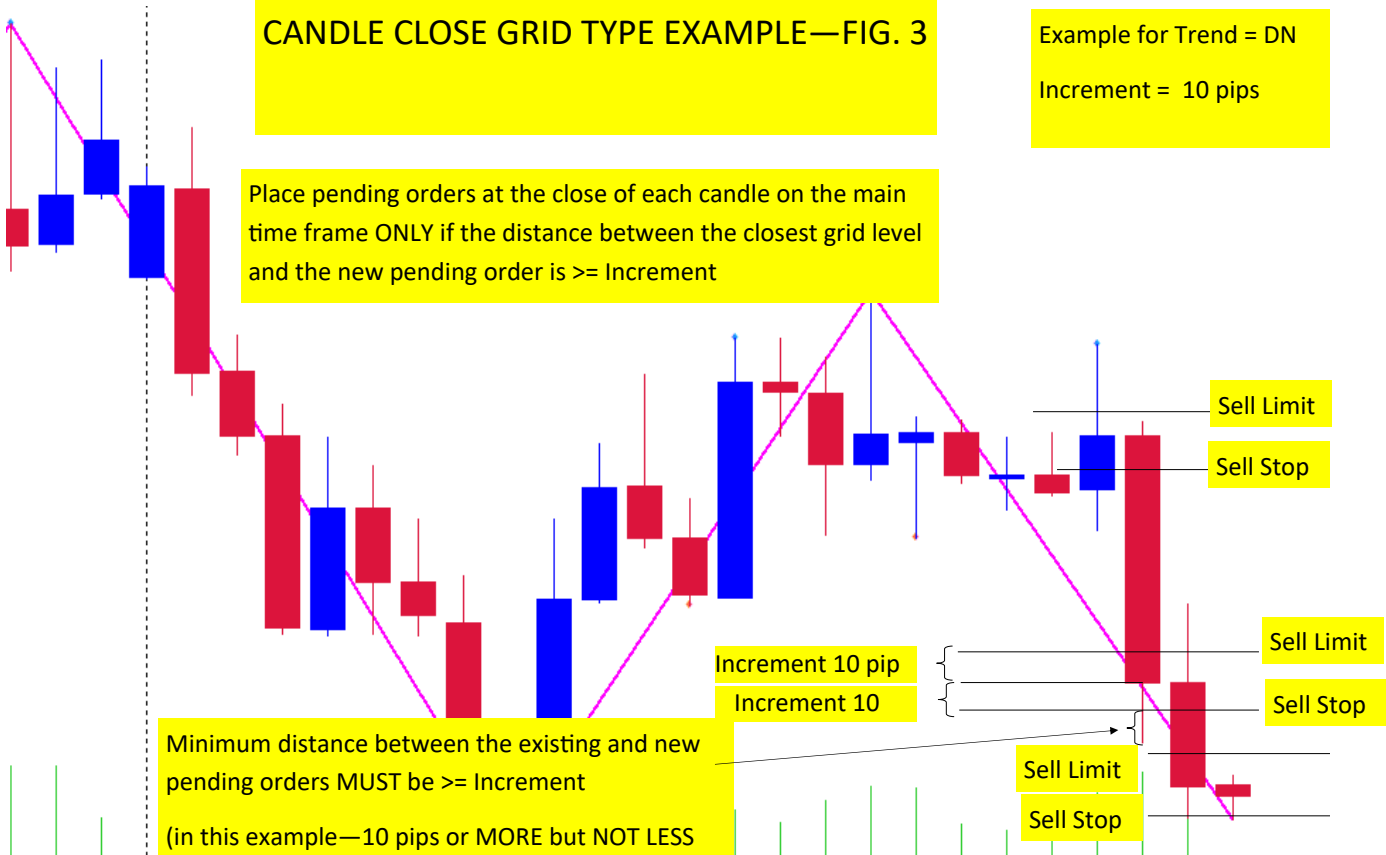
- GridSpacingStep = 0.5 Pip
- Trend = DN

CANDLE CLOSE GRID TYPE EXAMPLE—FIG. 3

Example for Trend = DN

Increment = 10 pips

Place pending orders at the close of each candle on the main time frame ONLY if the distance between the closest grid level and the new pending order is \geq Increment



HEDGING EXAMPLE—FIG. 4

Assumptions:

Currently open LONG positions—10 positions 0.1 lot = 1 lot

Hedging Factor = 1.5

At the close of the candle place a pending Sell Stop Order with 1.5 lots at the low of the candle

