# TSO Order Recovery

## v1.0

### Quick Start Guide

# Contents

# About this Expert Advisor

Order Recovery is an expert advisor that provides a known and tested method of covering losses from open positions through hedging. It incorporates all the basic tools of the Signal Builder EA, adding the dimension of negative management.

The Signal Builder EA offers a large number of indicators as well as advanced position management, allowing to build an almost infinite amount of strategies. More information on the Signal Builder EA can be found in its page in the Metatrader market.

The Order Recovery system detects a losing trade (red arrow) and opens an opposite position of larger lot size (green arrow) at a fixed distance from the original trade creating a zone within which the loss is confined. This creates two scenarios:

1. If the price reaches the target, the second position will cover the losses of the initial trade and even profit. All positions are then closed with a net profit.
2. If the price reaches the level of the initial trade an additional position is opened so that the total lots will now be more in the original order's direction, so that the new position together with the initial one will cover the losses of the second trade and even profit if the price reaches the opposite target. All positions are then closed with a net profit.

This process continues and new positions are opened each time the price reverses direction and passes from the edges of the zone, until one of the targets is reached.



Order Recovery Target 90 pips

Order Recovery Zone 40 pips

Initial Sell Order

Order Recovery
Example : Order Recovery
- Initial Sell Order
- Order Recovery Zone = 40 pips
- Order recovery Targets = 90 pips

Order Recovery Target 90 pips

Detailed explanations for all the features of the expert advisor can be found in the input descriptions.

If for any reason the EA is shut down unexpectedly it can be restarted as long as the Expert Properties have not been changed. Then it will continue normally, taking into account the previous orders it created. This feature has been added only to cover for unexpected circumstances. This expert advisor can result in open trades that can last from hours to weeks and it requires to be open throughout that period. It is possible to run from a PC if it can be constantly open and online but using a VPS is highly recommended.

# Inputs

## Input Mode

- Custom: The EA runs based on the parameters input by the user.
- Default: The EA ignores all inputs and follows the default parameters that are recommended.

## Basic Order Management

The first section of the Expert Properties is Order Management. In this section, the order conditions can be selected, e.g. the lot size, stop loss and take profit.

*Table 1: Basic Order Management Inputs*

| BASIC ORDER MANAGEMENT | ///////////////////////////// | BASIC ORDER MANAGEMENT |
|---|---|---|
| Magic Number | 123456789 | |
| Static Balance | 0.0 | |
| ------------------------------ | ------------------------------ | |
| Stop Loss & Take Profit Units | Pips | |
| Stop Loss Value [0 = Disable] | 0.0 | |
| Take Profit Value [0 = Disable] | 0.0 | |
| ------------------------------ | ------------------------------ | |
| ENABLE Trailing Stop | Disable | |
| Trailing Stop Activation Level | 0.0 | |
| Trailing Stop Distance | 50.0 | |
| ------------------------------ | ------------------------------ | |
| ENABLE Parabolic Trailing Stop | false | |
| Acceleration Factor Step | 0.02 | |
| Acceleration Factor Maximum | 0.2 | |
| ------------------------------ | ------------------------------ | |
| Time Stop (Number Of Bars)  [0 = Disable] | 0 | |
| ------------------------------ | ------------------------------ | |
| Percentage Of Static Balance To Stop [0 = Disable] | 0.0 | |

## Static Balance

The initial balance available. It is recommended to always update this value in case the EA is stopped while trades are still active. It allows the EA's mechanisms that need an initial balance input to "remember" the original initial balance before the EA was stopped, instead of the balance available when restarted. Notice that the Magic Number of the EA when restarted should also be the same as the one it had before it was stopped for it to be able to manage positions that have been left open.

## Stop Loss & Take Profit Units

Sets the units for the following two inputs, i.e. *Stop Loss (SL)* and *Take Profit (TP)*.

- Pips: the input values for SL and TP represent pips in the unfavourable or favourable direction respectively.
- Percentage: the input values for SL and TP represent a percentage of the opening price in the unfavourable or favourable direction respectively.

### *Stop Loss Value [0 = Disable]*

Stop-loss for the initial trade in pips or as a percentage. This value is not used if Order Recovery system has been activated. Set to 0 to disable stop-loss.

### *Take Profit Value [0 = Disable]*

Take-profit for the initial trade in pips or as a percentage. Set to 0 to disable take-profit.

## ENABLE Trailing Stop

- Disable: No trailing stop is used.
- Pips: Activate trailing stop for the initial trade. The Order Recovery system will not engage if the trailing stop is triggered, whether it results in profit or loss. The activation level and distance will be measured in pips in the following inputs.
- Percentage: Activate trailing stop for the initial trade. The Order Recovery system will not engage if the trailing stop is triggered, whether it results in profit or loss. The activation level and distance will be measured as a percentage of the opening price in the following inputs.

### Trailing Stop Activation Level

The amount of pips in the favourable direction to activate the trailing stop.

### Trailing Stop Distance

Distance of trailing stop from the Maximum Favourable Excursion (MFE) in pips. A smaller value creates a tighter stop while a larger value creates a wider stop.

## ENABLE Parabolic Trailing Stop

Trailing Stop based on the Parabolic SAR indicator. The trailing stop value is equal to that of the Parabolic SAR based on the acceleration factor step and maximum given in the following two inputs.

## ENABLE Time Stop (Number of Bars) [0 = Disable]

The number of bars at which the initial trade will be closed, irrespective of profit or loss. The bar within which the position is opened is also counted. The position will be closed at the start of the following bar after the set number of bars has been reached. For example, if this input is set to 5, the bar within which the position was opened will be counted as the first bar, another 4 complete bars will follow and the position will be closed at the start of the 6th bar. The Order Recovery system will not engage if the time stop is triggered, whether it results in profit or loss.

## Percentage Static Balance to Stop

The net profit at which the EA will stop working. It is measured as a percentage of initial balance. For example, if the initial balance is $10,000 and this parameter is set to 60, then all trades will be closed once their net profit together with the current balance equal $16,000. Set to 0 to disable.

## Lot Size Features

*Table 2: Lot Size Features Inputs*

| | |
|---|---|
| 🔢 Initial Lot Size | 0.01 |
| 🔢 ENABLE Dynamic Lot Size | Disable |
| 🔢 Percentage Of Risk [ONLY FOR RISK MANAGEMENT] | 5.0 |
| 🔢 Adjust Lot Size At Every Balance Change Of [ONLY FOR EQUATION] | 100.0 |
| 🔢 a [ONLY FOR EQUATION] | 1.0 |
| 🔢 b [ONLY FOR EQUATION] | 1.0 |
| 🔢 c [ONLY FOR EQUATION] | 0.0 |
| 🔤 ▮▮▮▮▮▮▮▮▮▮▮▮▮▮ | ▮▮▮▮▮▮▮▮▮▮▮▮▮ |

### Initial Lot Size

The starting lot size of the initial trade. It will apply to all initial trades if Dynamic lot size is disabled in the following input.

### ENABLE Dynamic Lot Size

- Equation: The lot size is adjusted based on the equation $X_n = a * X_{n-1}^b + c$, where $X_n$ is the lot size for the position to be opened and $X_{n-1}$ is the lot size of the last position opened. The lot size remains constant $(X_n = X_{n-1})$ for $a = 1, b = 1, c = 0$

- Risk Management: The lot size of the initial order is adjusted so that a pre-set percentage of the current balance is always risked based on the stop loss set for the order. A stop loss value must be set for this mechanism to work. For example, if the current balance is $10,000, the risk is set to 5% (i.e. $500) and the stop loss is set to 50 pips, the lots of the new order will be calculated so that they return a loss of $500 once the stop loss is reached. This allows for a more dynamic lot size adjustment that increases or decreases proportional to the current balance.

- Disable: Lot size remains constant for the initial trades.

### *Percentage of Risk [ONLY FOR RISK MANAGEMENT]*

The percentage of current balance that will be risked if the *Risk Management* mechanism has been selected in the *ENABLE Dynamic Lot Size* input. For example, a value of 5 would mean that 5% of the current balance will be risked. Used only if *Risk Management* has been selected from the *ENABLE Dynamic Size* drop-down list.

### *Adjust Lot Size At Every Balance Change of [ONLY FOR EQUATION]*

The amount by which the balance has to increase or decrease for the lot size to be increased or decreased respectively. Used only if *Equation* has been selected from the *ENABLE Dynamic Size* drop-down list.

### *a [ONLY FOR EQUATION]*

The amount by which the new lot size $(X_n)$ is a multiple of the previous lot size $(X_{n-1})$. It cannot be a negative number because this would result in a negative lot size.

> For $a > 1$: the lot size is increased for each balance increment
>
> For $a = 1$: $X_n = a * X_{n-1}^b + c$, i.e. the multiplication factor is neutralised and $X_n$ is affected only from b and c.
>
> For $0 < a < 1$: the lot size is decreased for each balance increment
>
> For $a = 0$: $X_n = c$, therefore the lot size will get a fixed value c once the balance changes by the amount specified in the previous cell.

$a < 0$ is not accepted as a value because it would result in a negative number for the lot size, which is impossible.

### b [ONLY FOR EQUATION]

The factor by which $X_n$ increases exponentially relative to $X_{n-1}$.

For $b > 1$: the lot size is increased exponentially for each balance increment.

For $0 < b < 1$: the lot size is increased exponentially for each balance increment.

For $b = 1$: $X_n = a * X_{n-1} + c$, the exponential multiplication factor is neutralised and $X_n$ is affected only from $a$ and c.

For $b = 0$: $X_{n-1} = 1$, therefore the lot size becomes constant $(X_n = a + c)$ after the first lot adjustment.

### c [ONLY FOR EQUATION]

The amount added each time to the lot size.

For $c > 0$: the lot size is increased for each balance increment.

For $c < 0$: the lot size is decreased for each balance increment.

For $c = 0$: the lot size is not affected by c, $X_n = a * X_{n-1}^b$

## Order Recovery

*Table 3: Order Recovery Inputs*

| | |
|---|---|
| ab ▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯ | ▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯ |
| ab ORDER RECOVERY | ////////////////////////////// ORDER RECOVERY ////. |
| ENABLE Order Recovery | false |
| 123 Order Recovery Zone Distance | 40 |
| 123 Order Recovery Target Distance | 90 |
| ab ----------------------------------- | ----------------------------------- |
| ENABLE Custom Lots [X(n)=a*X(n-1)^b+c] | false |
| ½ a | 1.0 |
| ½ b | 1.0 |
| ½ c | 0.0 |
| ab ----------------------------------- | ----------------------------------- |
| 123 ENABLE Safety | Disable |
| 123 Open Loss Units | Percentage |
| ½ Open Loss To Enable Safety | 10.0 |
| ab ----------------------------------- | ----------------------------------- |
| 123 ENABLE Combined Order Recovery | Disable |
| ½ (Open Loss) %_of_Balance for Order Recovery Activation | 10.0 |
| ab ▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯ | ▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯ |

## ENABLE Order Recovery

Order Recovery is a negative management system that creates a position of larger lot size opposite to the initial one if a pre-set loss is reached – the *zone*, as shown in figure 8. This makes it possible to exit both positions with a net profit if the price continues moving opposite to the initial position for a pre-set number of pips -the *target*. If the price moves back, favouring the initial position, then an additional position will be opened at the same level as the initial one. This in turn will allow to exit all positions in profit if the target is reached in the opposite direction. The system could face substantial losses only if the price swings between the zone boundaries without reaching the targets.
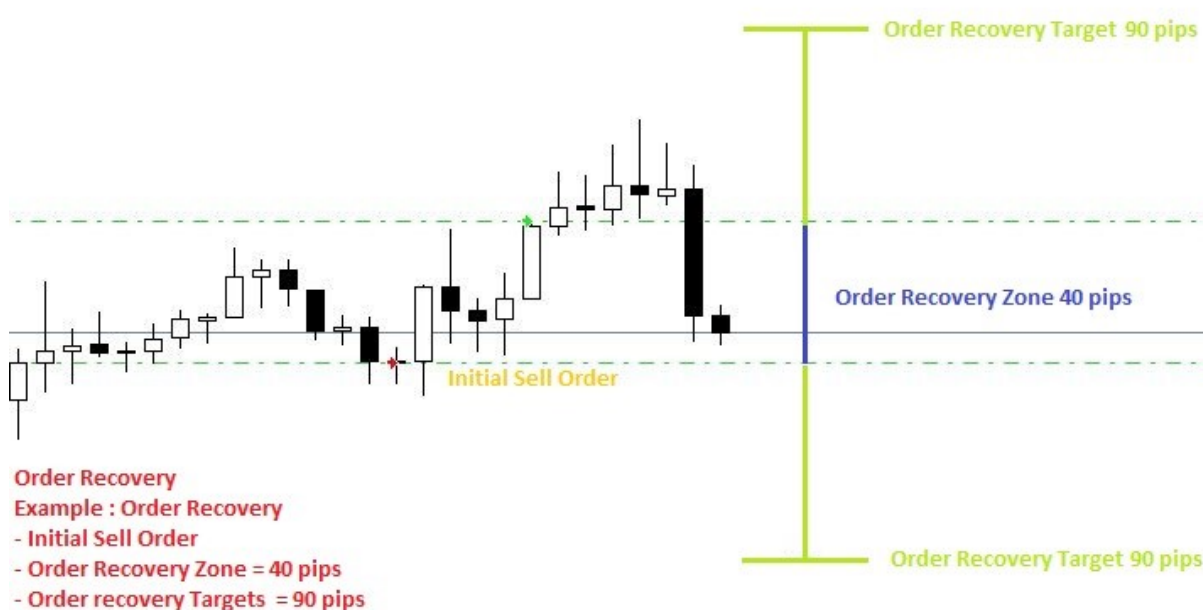


*Figure 1: Order Recovery System*

### Order Recovery Zone Distance

Distance in pips between the initial and reverse order in pips. It applies for all subsequent orders.

### Order Recovery Target Distance

The target pips from the edge of the zone at which the net loss of all open positions is 0. A smaller distance implies a faster exit but is more aggressive as it requires a larger lot size and vice versa.

## ENABLE Custom Lots $X_n = a * X_{n-1}^b + c$

If this option is disabled, the lot size of the orders opened from the Order Recovery system is based on the selected zone and target distances. If this option is enabled the lots will be determined through the equation $X_n = a * X_{n-1}^b + c$, similar to the dynamic lot size for the initial orders. As a result, the recovery target distance will not be based on the above input, but on the set lots. A fast lot size increase for each position creates a closer target but can quickly create considerable losses if the targets are not reached.

### $a$

Affects the lot size similar to the dynamic lot size for the initial orders. Used only if *Custom Lots* are enabled.

### $b$

Affects the lot size similar to the dynamic lot size for the initial orders. Used only if *Custom Lots* are enabled.

### $c$

Affects the lot size similar to the dynamic lot size for the initial orders. Used only if *Custom Lots* are enabled.

## ENABLE Safety

If the market does not make a relatively strong price movement, the order recovery mechanism could create multiple open positions, potentially leading to loss of the whole account balance available. This mechanism targets at reducing potential losses.

- Close All Positions: All open positions will be closed and the current order recovery cycle will end once a pre-set open loss has been reached.
- Reduce Positions: Once a pre-set open loss has been reached, the system will stop opening new positions at the zone edges but the last position will be closed once the opposite edge is reached. As shown in the example of figure 9, this will result in a new target in the opposite direction, i.e. if position 4 is closed the total lots of positions 1 and 3 will be more than those of position 2. This happens at the expense of the losses created in the zone for the position closed which is smaller than closing all positions.
- Disable: Disable the Safety mechanism.

### Open Loss Units

- Percentage: Measure the open loss in the following input as a percentage of the current balance.
- Money: Measure the open loss in the following input as money.

## *Open Loss to Enable Safety*

The open loss in percentage of current balance or money (based on above input) at which the Safety mechanism is enabled.
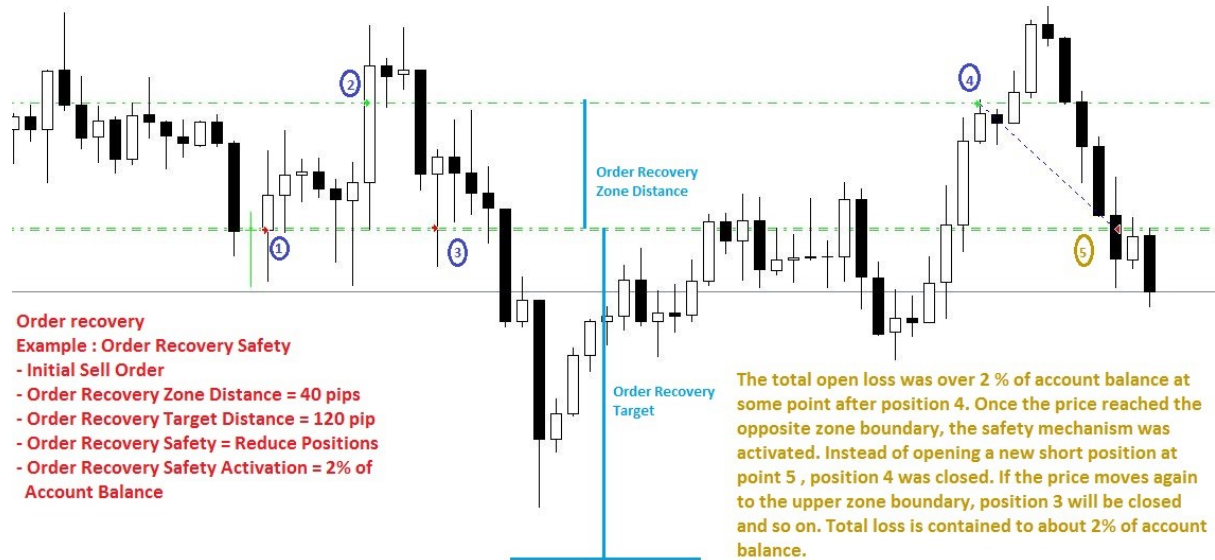


*Figure 2: Order Recovery - Safety*

**Order recovery**
**Example : Order Recovery Safety**
- Initial Sell Order
- Order Recovery Zone Distance = 40 pips
- Order Recovery Target Distance = 120 pip
- Order Recovery Safety = Reduce Positions
- Order Recovery Safety Activation = 2% of Account Balance

The total open loss was over 2 % of account balance at some point after position 4. Once the price reached the opposite zone boundary, the safety mechanism was activated. Instead of opening a new short position at point 5 , position 4 was closed. If the price moves again to the upper zone boundary, position 3 will be closed and so on. Total loss is contained to about 2% of account balance.

## Entry Signal Settings

A total of 28 indicators are offered, based on MetaTrader's default indicators. Information for all of them can be found on MT5's Help page (metatrader5.com/en/terminal/help/indicators).

- Trend Indicators
    - Average Directional Index (ADX)
    - Standard Deviation
    - Simple Moving Average (SMA)
    - Double Crossover Moving Averages
    - Bollinger Bands (Breakout – Re-entry)
    - Envelopes (Breakout – Re-entry)
    - Parabolic SAR
    - Ichimoku Kinko Hyo
- Oscillators
    - Average True Range (ATR)
    - Stochastic Oscillator
    - Relative Strength Index (RSI)
    - Moving Average Convergence / Divergence (MACD)
    - Bulls And Bears Power
    - Commodity Channel Index (CCI)
    - DeMarker
    - Force Index
    - Momentum
    - Moving Average Of Oscillator (OSMA)
    - Relative Vigor Index (RVI)
    - Williams' Percent Range (%R)
- Volume Indicators
    - Accumulation / Distribution
    - Money Flow Index (MFI)
    - On Balance Volume (OBV)
    - Volumes
    - Accelerator Oscillator (AC)
- Bill Williams Indicators
    - Alligator
    - Awesome Oscillator
    - Fractals
    - Gator Oscillator

The indicator(s) selected will determine the entry strategy followed. It is possible to enable more than one indicators for entry. Once all enabled indicators return the same signal within the same bar, then the EA will open a long or short position accordingly.

## Exit Signal Settings

### ENABLE Exit Signals

- Disable: No indicator will be used for exit. Exit will be based on Basic Order Management (i.e. Take Profit, Stop Loss, Trailing Stop etc.)
- Auto: The exit will be based on the indicators and the parameters set in the Entry Signal Settings. Once all indicators return a signal opposite to the currently open position within the same bar, the EA will close that position and wait for the next entry signal.
- Reverse: The exit will be based on the indicators and the parameters set in the Entry Signal Settings. Once all indicators return a signal opposite to the currently open position within the same bar, the EA will close that position and at the same time open a new opposite position.
- Custom: The exit will be based on the indicators and the parameters set in the Exit Signal Settings. If more than one indicators are enabled, then all indicators must return a signal within the same bar for the EA to close that position.

## Stop Button Properties

The Order Recovery system can sometimes produce many open positions with a considerable amount of open losses. This way the user has to keep an eye for the EA to have exited a cycle and not have opened a new position in order to close the EA without losses. If pressed, the stop button will stop the EA after the Order Recovery system has completed its cycle and before any new positions are opened. The stop button is disengaged if pressed once again.

| STOP BUTTON PROPERTIES | //////////////////////////// STOP BUTTON PROPERTIES |
|---|---|
| ENABLE Button Exit | false |
| Chart corner for anchoring | Right upper chart corner |
| Font | Arial |
| Font size | 14 |
| Text color | ■ Black |
| Background color | ■ Lime |
| Border color | ■ Black |
| Background object | false |
| Hidden in the object list | true |
| Priority for mouse click | 0 |
| |||||||||||||||||||||| | |||||||||||||||||||||| |
| ENABLE Comments | false |
| |||||||||||||||||||||| | |

- ENABLE Button Exit: If enabled (set to *true*) the stop button will appear on the chart.
- Chart corner for anchoring: Select on which corner of the chart the button will appear.
- Font: The fonts used for the button text.
- Font size: The font size used for the button text.
- Text colour: The font colour used for the button text.
- Background colour: The button's colour.
- Border colour: The colour at the button's borders.
- Background object: Select if the button will appear behind the chart (*true*) or in front for the chart (*false*).
- Hidden in the object list: Select if the button will appear in the object list (*false*) or not (*true*).
- Priority for mouse click: A lower value allows for the button to have priority over other clickable objects placed in front of it.

## ENABLE Comments

If enabled (*true*), useful information appears at the top left of the chart relating only to the specific chart.

1. Account balance: The current balance of the account.
2. Current profit: The profit or loss from the currently opened positions.
3. Current lots: The total amount of lots in all currently open positions.
4. Max lots: The maximum amount of lots that has ever been open at the same time.
5. Max drawdown %: The maximum drawdown as a percentage of the balance.
6. Spread: The current spread.