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#include <Trade/Trade.mqh>

input double Lots = 0.1;
input double RiskPercent = 2.0;

input int OrderDisPoints = 200;
input int TpPoints = 200;
input int SlPoints = 200;
input int TslPoints = 5;
input int TslTriggerPoints = 10;

input ENUM_TIMEFRAMES Timeframe = PERIOD_H1;
input int BarsN = 5;
input int ExpirationHours = 50;
input int Magic = 111;

CTrade trade;

ulong buyPos, sellPos;
int totalBars;
double sl;
double tp;
double lots;

int OnInit()
{
    trade.SetExpertMagicNumber(Magic);
    return(INIT_SUCCEEDED);
}

void OnDeinit(const int reason)
{
}

void OnTick(){

    processPos(buyPos);
    processPos(sellPos);

    int bars = iBars(_Symbol, Timeframe);
    if(totalBars != bars){
        totalBars = bars;

        if(buyPos <= 0){
            double high = findHigh();
            if(high > 0){
                executeBuy(high);
            }
        }
        if(sellPos <= 0){
            double low = findLow();
            if(low > 0){
                executeBuy(low);
            }
        }
    }
}

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    }
  }
}

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void OnTradeTransaction(
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    const MqlTradeTransaction&    trans,
    const MqlTradeRequest&    request,
    const MqlTradeResult&    result
){
    if(trans.type == TRADE_TRANSACTION_ORDER_ADD){
        COrderInfo order;

        if(order.Select(trans.order)){
            if(order.Magic() == Magic){
                if(order.OrderType() == ORDER_TYPE_BUY_STOP){
                    buyPos = order.Ticket();

                }else if(order.OrderType() == ORDER_TYPE_SELL_STOP){
                    sellPos = order.Ticket();
                }
            }
        }
    }
}

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void processPos(ulong &posTicket){
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    if(posTicket <= 0) return;
    if(OrderSelect(posTicket)) return;

    CPositionInfo pos;
    if(!pos.SelectByTicket(posTicket)){
        posTicket = 0;
        return;
    }else{
        if(pos.PositionType() == POSITION_TYPE_BUY){
            double bid = SymbolInfoDouble(_Symbol,SYMBOL_BID);

            if(bid > pos.PriceOpen() + TslTriggerPoints * _Point){
                double sl = bid - TslPoints * _Point;
                sl = NormalizeDouble(sl,_Digits);

                if(sl > pos.StopLoss()){
                    trade.PositionModify(pos.Ticket(),sl,pos.TakeProfit());
                }
            }
        }else if(pos.PositionType() == POSITION_TYPE_SELL){
            double ask = SymbolInfoDouble(_Symbol,SYMBOL_ASK);

            if(ask < pos.PriceOpen() - TslTriggerPoints * _Point){

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        double sl = ask +TslPoints * _Point;
        sl = NormalizeDouble(sl,_Digits);

        if(sl < pos.StopLoss() || pos.StopLoss() == 0){
            trade.PositionModify(pos.Ticket(),sl,pos.TakeProfit());
        }
    }
}

void executeBuy(double entry){
    entry = NormalizeDouble(entry,_Digits);

    double ask = SymbolInfoDouble(_Symbol,SYMBOL_ASK);
    if(ask > entry - OrderDisPoints * _Point) return;

    tp = entry + TpPoints * _Point;
    tp = NormalizeDouble(tp,_Digits);

    sl = entry - SlPoints * _Point;
    sl = NormalizeDouble(sl,_Digits);

    lots = Lots;
    if(RiskPercent > 0) lots = calcLots(entry - sl);

    datetime expiration = iTime(_Symbol,Timeframe,0) + ExpirationHours *
PeriodSeconds(PERIOD_H1);

    trade.BuyStop(lots,entry,_Symbol,sl,tp,ORDER_TIME_SPECIFIED,expiration);

    buyPos = trade.ResultOrder();
}

void executeSell(double entry){
    entry = NormalizeDouble(entry,_Digits);

    double ask = SymbolInfoDouble(_Symbol,SYMBOL_ASK);
    if(ask > entry - OrderDisPoints * _Point) return;

    tp = entry - TpPoints * _Point;
    tp = NormalizeDouble(tp,_Digits);

    sl = entry + SlPoints * _Point;
    sl = NormalizeDouble(sl,_Digits);

    lots = Lots;
    if(RiskPercent > 0) lots = calcLots(sl - entry);

    datetime expiration = iTime(_Symbol,Timeframe,0) + ExpirationHours *
PeriodSeconds(PERIOD_H1);

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trade.SellStop(lots,entry,_Symbol,sl,tp,ORDER_TIME_SPECIFIED,expiration);

sellPos = trade.ResultOrder();
}

double calcLots(double SlPoints){

    double risk = AccountInfoDouble(ACCOUNT_BALANCE) * RiskPercent / 100;

    double ticksize = SymbolInfoDouble(_Symbol,SYMBOL_TRADE_TICK_SIZE);
    double tickvalue = SymbolInfoDouble(_Symbol,SYMBOL_TRADE_TICK_VALUE);
    double lotstep = SymbolInfoDouble(_Symbol,SYMBOL_VOLUME_STEP);

    double moneyPerlotstep = SlPoints / ticksize + tickvalue * lotstep;
    double lots = MathFloor(risk / moneyPerlotstep) * lotstep;

    lots = MathMin(lots,SymbolInfoDouble(_Symbol,SYMBOL_VOLUME_MAX));
    lots = MathMax(lots,SymbolInfoDouble(_Symbol,SYMBOL_VOLUME_MIN));

    return lots;
}

double findHigh(){
    double highestHigh = 0;
    for(int i = 0; i <200; i++){
        double high = iHigh(_Symbol,Timeframe,i);
        if(i > BarsN && iHighest(_Symbol,Timeframe,MODE_HIGH,BarsN*2+1,i-5) == i){
            if(high > highestHigh){
                return high;
            }
        }
        highestHigh = MathMax(high,highestHigh);
    }
    return -1;
}

double findLow(){
    double lowestLow = 0;
    for(int i = 0; i <200; i++){
        double low = iLow(_Symbol,Timeframe,i);
        if(i > BarsN && iLowest(_Symbol,Timeframe,MODE_HIGH,BarsN*2+1,i-5) == i){
            if(low > lowestLow){
                return low;
            }
        }
        lowestLow = MathMax(low,lowestLow);
    }
    return -1;
}

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