

```

'Set waveforms with two channels
var lastT, now;          'to record where we got to
var doneSetupFlag%:=0;
                        'Flag to set when setup performed
var doneMarkerFlag% := 0;
                        'Flag to set when target marker displayed
var doneSoundFlag% := 0;
                        'Flag when sound is output
var doneSoundFlag1% := 0;
                        'Flag when sound is output
var newChan%;
var sampleFlag% := 0;
var fTime;
var XPos :=0 ;
var YPos :=0 ;
var LXPos := 0;
var LYPos := 0;
var XInc := 0;
var YInc := 0;
var mChan%[1];
'Associated files      - Edit accordingly
'var seqFile$ := "c:\\Gopal\\script\\seq3.pls";           'Output sequencer
file
var seqFile$ := "C:\\Spike6\\scripts\\seq2.pls";
var time;
var time1 := 1;
var time2 := 6;
var time3 := 6;
var LTime := 1;
var targetMarker%;
var startTargetFlag% := 0;
var CursorFlag% := 1;
var target0%;
var grid1%, grid2%, grid3%, grid4%, grid5%, grid6%, grid7%, grid8%, grid9%;
var grid11%, grid12%, grid13%, grid14%, grid15%, grid16%, grid17%, grid18%,
grid19%, grid00%, grid01%;
var MoveFlag% := 1;

var vf%,vf1%,xy%,xy1%, x[100], y[100];
var ax[4], ay[4];          'start posn'
ax[0]:=-3; ax[1]:=-3; ax[2]:=3; ax[3]:=3;
ay[0]:=-3; ay[1]:=3; ay[2]:=3; ay[3]:=-3;
DoToolbar();
Proc DoToolbar()
ToolbarSet(1,"Quit");

```

```

ToolbarSet(3,"Setup",DoSetup%);
Toolbar("",1023);
end;
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
Func DoSetup%()
lastT:=0;
SampleSettings();          'set the channel specifications
if vf% then
    View(vf%);
    FileClose(0,-1);
    vf%:=0;
endif;
vf%:=FileNew(0,1);
if vf%<=0 then message("No data file"); halt endif;
Window(0,0,50,100);      'position it
WindowVisible(0);        'hides data window
DoXY();
DoTarget0();
SampleStart();
ToolbarSet(0,"Idle",Idle%);
ToolbarClear(3);
ToolbarSet(3,"Sample Data",DoSample%);

return 1;
end;
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
Func DoSample%()
ToolbarClear(0);
lastT:=0;
SampleSettings();          'set the channel specifications
if vf% then
    View(vf%);
    SampleStop();
    FileClose(0,-1);
    vf%:=0;
endif;
SampleSequencer("seqFile$");
vf%:=FileNew(0,1);
if vf%<=0 then message("No data file"); halt endif;
Window(0,0,50,100);      'position it
WindowVisible(0);        'hides data window
mChan%[0] := MemChan(9,0,BinSize(1));
ChanTitle$(mChan%[0],"Derived");
ChanUnits$(mChan%[0],ChanUnits$(1));

```

```

ChanShow(mChan%[0]);
MemSave(101,3,-0,0);           'Save derived channel
'ChanDelete(mChan%[0]);
ChanShow(3);
DoXY();
SampleStart();
sampleFlag% := 1;
ToolbarSet(0,"Idle",Idle%);
ToolbarClear(3);
ToolbarSet(3,"Restart",DoSample%);
ToolbarSet(5,"Finish",DoSampleStop%);
startTargetFlag% += 1;
CursorFlag% -= 1;
Seconds(0);
DrawGrid();
View(vf%).SampleKey("T");
return 1;
end;
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
Proc DoXY()
if xy% then
    View(xy%);
    FileClose(0,-1);
    xy%:=0;
endif;
xy% :=FileNew(12,1);
if xy%<=0 then message("No xy view"); halt endif;
Window(50,0,100,100);          'position it
XRange(-30,30);                'set
scales
YRange(-1,-30,30);
WindowVisible(3);              'maximises xy window
'DrawGrid();
XYSetChan(1, -100, 0, 0);      'chan 1, fixed 100 points, no sort
XYDrawMode(1, 2, 3);          'set size 1 dots
XYDrawMode(1,5,0);            'Stop XY view axes expanding if data
exceeds range
end;

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
Func Dosamplestop%()
View(xy%);FileClose(0,0);
View(vf%);
SampleStop();

```

```

ChanProcessAdd(4,2); 'Add Rectify to channel 3
ChanProcessAdd(5,2); 'Add Rectify to channel 4
XRange(0,MaxTime());
FrontView(vf%);
FileClose(0,0);
return 0;
return;
end;
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
func Idle%()
var n1%,n2%;
time := Seconds();                                'Get current time
DrawTarget();
if startTargetFlag% then                          'If started recording (not calibration)
docase
    case time >= time1 and time < time2 then        'between t1
and t2
        if MoveFlag% then
            MovePos();
        endif
        case time >= time2 and time < time3 then
            time := Seconds();
            DrawTarget();
        case time >= time3 then
'3 seconds later
            Seconds(0);
            'Reset timer
            MoveFlag% := 1;
            LTime := 6;
            time2 := 6;
            time3 := 6;
            LXPos := XPos;
            LYPos := YPos;
            XInc := 0;
            YInc := 0;
        endcase;
    endif;
View(vf%);
now := maxTime();                                'find where we are
if (now - lastT > 1.0) then lastT := now-1.0 endif;
n1% := ChanData(1, x[], lastT, now,fTime);
n2% := ChanData(2, y[], lastT, now);
n1% := Min(n1%, n2%);                             'get minimum points
if n1% > 0 then
    if CursorFlag% then

```

```

        view(xy%).XYAddData(1,x[:n1%], y[:n1%]);
    endif;
    if sampleFlag% then
        ArrMul(x[:n1%],x[:n1%]);           'Square x
array
        ArrMul(y[:n1%],y[:n1%]);           'Square y
array
        ArrAdd(x[:n1%],y[:n1%]);           'Add arrays
        Sqrt(x[:n1%]);                     'Get
square root of array
        MemSetItem(mChan%[0],0,ftime,x[:n1%]);
        MemSave(101,3,0,1);
        ChanShow(3);
    endif;
    'lastT := now;           'update start point
endif;
return 1;
end;
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
Proc DoTarget0()
XYSetChan(0,-4, 0, 2);
XYDrawMode(2,2,0);           'no marker points
XYDrawMode(2,4,2);
XYAddData(2, ax[], ay[]);
DrawGrid();
return;
end;
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
'set config for sampling; 2 channels at 100 Hz
Proc SampleSettings()
SampleClear();
'SampleSequencer("c:\\Gopal\\script\\seq3.pls");
SampleSequencer("C:\\Spike6\\scripts\\seq2.pls");
SampleUsPerTime(5);
SampleTimePerAdc(5);
SampleMode(1);
SampleLimitTime(-600);
SampleLimitSize(-1024);
SampleWaveform(1,0,100);
SampleCalibrate(1," degrees",66.67,0);
SampleTitle$(1,"X");
SampleComment$(1,"No comment");
SampleWaveform(2,1,100);
SampleCalibrate(2," degrees",66.67,0);

```

```

SampleTitle$(2,"Y");
SampleComment$(2,"No comment");
SampleWaveform(4,2,2000);
SampleTitle$(4,"EMG 1");
SampleWaveform(5,3,2000);
SampleTitle$(5,"EMG 2");
SampleEvent(6,0,0,1);
SampleTitle$(6,"Bit 0");
SampleEvent(7,1,0,1);
SampleTitle$(7,"Bit 2");
SampleEvent(8,2,0,1);
SampleTitle$(8,"Bit 4");
SampleEvent(9,3,0,1);
SampleTitle$(9,"Bit 8");
SampleEvent(10,4,0,1);
SampleTitle$(10,"Bit 16");
SampleEvent(11,5,0,1);
SampleTitle$(11,"Bit 32");
SampleEvent(12,6,0,1);
SampleTitle$(12,"Bit 64");
SampleEvent(13,7,0,1);
SampleTitle$(13,"Bit 128");
SampleTitle$(31,"Keyboard");
SampleComment$(31,"No comment");
SampleDigMark(2);
SampleTitle$(32,"Digital marker");
SampleComment$(32,"No comment");
end;
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
Proc ClearTarget()
View(xy%);
if targetMarker% > 0 then
    ChanDelete(targetMarker%);
    targetMarker% := 0;
endif;
doneMarkerFlag% := 0;
doneSoundFlag% := 0;
doneSoundFlag1% := 0;
end;
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
Proc DrawTarget()
View(xy%);
if targetMarker% > 0 then
    'Clear target if
not done so

```

```

        ChanDelete(targetMarker%);
        targetMarker% := 0;
    endif;
    if time > Ltime then
        if LXPos <> XPos then
            LXPos := LXPos + XInc;
            Ltime += 1;
        endif
    endif;
    if time > Ltime then
        if LYPos <> YPos then
            LYPos := LYPos + YInc;
            Ltime += 1;
        endif
    endif;
    if LXPos = XPos and LYPos = YPos then
        XInc := 0;
        YInc := 0;
    endif

    targetMarker% := XYSetChan(0, -4, 0,1);           'Set new XY channel
    XYDrawMode(targetMarker%,1,3);
    XYDrawMode(targetMarker%,2,20);
    XYAddData(targetMarker%,LXPos,LYPos);
end;
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
Proc MovePos()
View(vf%);
var tempX := 0;
var tempY := 0;
var DataF% := 0;
tempX := ChanValue(1,maxTime(1),DataF%,3);
tempY := ChanValue(2,maxTime(2),DataF%,3);
if tempX > 15 then
    if MoveFlag% then
        XPos += 6;
        MoveFlag% := 0;
        XInc := 1;
    endif
endif
if tempX < -15 then
    if MoveFlag% then
        XPos -= 6;
        MoveFlag% := 0;
        XInc := -1;

```

```

endif
endif
if tempy > 15 then
if MoveFlag% then
YPos += 6;
MoveFlag% := 0;
YInc := 1;
endif
endif
if tempy < -15 then
if MoveFlag% then
YPos -= 6;
MoveFlag% := 0;
YInc := -1;
endif
endif
if MoveFlag% = 0 then
time2 := Seconds();
Ltime := time2;
time3 := time2 + 6;
endif
end;
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
Proc DrawGrid()
View(xy%);
var grx1[2], gry1[2];
var grx2[2], gry2[2];
var grx3[2], gry3[2];
var grx4[2], gry4[2];
var grx5[2], gry5[2];
var grx6[2], gry6[2];
var grx7[2], gry7[2];
var grx8[2], gry8[2];
var grx9[2], gry9[2];
grid1% := XYSetChan(0,-2, 0, 1);
grid2% := XYSetChan(0,-2, 0, 1);
grid3% := XYSetChan(0,-2, 0, 1);
grid4% := XYSetChan(0,-2, 0, 1);
grid5% := XYSetChan(0,-2, 0, 1);
grid6% := XYSetChan(0,-2, 0, 1);
grid7% := XYSetChan(0,-2, 0, 1);
grid8% := XYSetChan(0,-2, 0, 1);
grid9% := XYSetChan(0,-2, 0, 1);
grx1[0] := -24; grx1[1] := -24;
grx2[0] := -18; grx2[1] := -18;

```



```

grx3[0] := -12; grx3[1] := -12;
grx4[0] := -6; grx4[1] := -6;
grx5[0] := 0; grx5[1] := 0;
grx6[0] := 6; grx6[1] := 6;
grx7[0] := 12; grx7[1] := 12;
grx8[0] := 18; grx8[1] := 18;
grx9[0] := 24; grx9[1] := 24;
gry1[0] := -30; gry1[1] := 30;
XYDrawMode(grid1%,4,2);
XYAddData(grid1%, grx1, gry1);
XYDrawMode(grid2%,4,2);
XYAddData(grid2%, grx2, gry1);
XYDrawMode(grid3%,4,2);
XYAddData(grid3%, grx3, gry1);
XYDrawMode(grid4%,4,2);
XYAddData(grid4%, grx4, gry1);
XYDrawMode(grid5%,4,2);
XYAddData(grid5%, grx5, gry1);
XYDrawMode(grid6%,4,2);
XYAddData(grid6%, grx6, gry1);
XYDrawMode(grid7%,4,2);
XYAddData(grid7%, grx7, gry1);
XYDrawMode(grid8%,4,2);
XYAddData(grid8%, grx8, gry1);
XYDrawMode(grid9%,4,2);
XYAddData(grid9%, grx9, gry1);

```

```

grid11% := XYSetChan(0,-2, 0, 1);
grid12% := XYSetChan(0,-2, 0, 1);
grid13% := XYSetChan(0,-2, 0, 1);
grid14% := XYSetChan(0,-2, 0, 1);
grid15% := XYSetChan(0,-2, 0, 1);
grid16% := XYSetChan(0,-2, 0, 1);
grid17% := XYSetChan(0,-2, 0, 1);
grid18% := XYSetChan(0,-2, 0, 1);
grid19% := XYSetChan(0,-2, 0, 1);
grid00% := XYSetChan(0,-2, 0, 1);
grid01% := XYSetChan(0,-2, 0, 1);
gry1[0] := -24; gry1[1] := -24;
gry2[0] := -18; gry2[1] := -18;
gry3[0] := -12; gry3[1] := -12;
gry4[0] := -6; gry4[1] := -6;
gry5[0] := 0; gry5[1] := 0;
gry6[0] := 6; gry6[1] := 6;
gry7[0] := 12; gry7[1] := 12;
gry8[0] := 18; gry8[1] := 18;

```

```
gry9[0] := 24; gry9[1] := 24;  
grx1[0] := -30; grx1[1] := 30;  
XYDrawMode(grid11%,4,2);  
XYAddData(grid11%, grx1, gry1);  
XYDrawMode(grid12%,4,2);  
XYAddData(grid12%, grx1, gry2);  
XYDrawMode(grid13%,4,2);  
XYAddData(grid13%, grx1, gry3);  
XYDrawMode(grid14%,4,2);  
XYAddData(grid14%, grx1, gry4);  
XYDrawMode(grid15%,4,2);  
XYAddData(grid15%, grx1, gry5);  
XYDrawMode(grid16%,4,2);  
XYAddData(grid16%, grx1, gry6);  
XYDrawMode(grid17%,4,2);  
XYAddData(grid17%, grx1, gry7);  
XYDrawMode(grid18%,4,2);  
XYAddData(grid18%, grx1, gry8);  
XYDrawMode(grid19%,4,2);  
XYAddData(grid19%, grx1, gry9);  
end;
```