Controller CN30 (Firmware Version 1.1)

RS232-Interface:

Baudrate: 19200
Parity: none
Databits: 8
Stopbits: 1

RS232 Command-byte:

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Axis		Speed Delay		Dir <->	Number of Steps		
00=X		00=0.8 msec		0=pos	000= 0		
01=Y		01=1.6 msec		1=neg	001= 1		
10=Z		10=3.2 msec			010= 2		
		11=6.4 msec			011= 5		
					100= 10		
					101= 20		
					110= 50		
					111=100		

Additional commands:

One-Byte Command:

Commandbyte	**Function**	**Echo**
$F0	NOP	$34
$F1	NOP no echo	---
$F2	Loading of the in advance set timing-parameter	$34
$F3	--	$34
$F4	--	$34
$F5	--	$34
$F6	--	$34
$F7	--	$34
$F8	--	$34
$F9	Delay 20 msec	$34
$FA	Delay 100 msec	$34
$FB	Piezopower off	$34
$FC	Piezopower on, Delay 100 msec, Reset Timer	$34
$FD	Piezopower on	$34
$FE	Info (ASCII-Code with info + $FF)	$34
$FF	Quit RS232-Mode	$34

Two Byte Commands (Composed of command byte and data byte):

Command byte: $C0 to $EF (echo $33)

Commandbyte	Databyte	Function	Echo Databyte
$C0	$00..$82	posxt1	$34
$C1	$00..$82	posxt2	$34
$C2	$00..$82	negxt1	$34
$C3	$00..$82	negxt2	$34
$C4	$00..$82	posyt1	$34
$C5	$00..$82	posyt2	$34
$C6	$00..$82	negyt1	$34
$C7	$00..$82	negyt2	$34
$C8	$00..$82	poszt1	$34
$C9	$00..$82	poszt2	$34
$CA	$00..$82	negzt1	$34
$CB	$00..$82	negzt2	$34
$CC	$00,$01	Triggerflag	$34
$CD	$01, $02, $03	Speed on Exit RS232	$34
$CE			$34
$CF			$34
$D0			$34
$D1			$34
$D2			$34
$D3			$34
$D4			$34
$D5			$34
$D6			$34
$D7			$34
$D8			$34
$D9			$34
$DA			$34
$DB			$34
$DC			$34
$DD			$34
$DE			$34
$DF			$34
$E0			$34
$E1			$34
$E2			$34
$E3			$34
$E4			$34
$E5			$34
$E6			$34
$E7			$34
$E8			$34
$E9			$34
$EA			$34
$EB			$34
$EC			$34
$ED			$34
$EE			$34
$EF			$34

Note:

Piezovoltage will be shut off in the RS232-Mode after 500ms.
It is switched on automatically when receiving a byte.

Using BXXXXX000 (Number of Steps=0) the selectes axis is switched to the continous mode.
Stop (1) when receiving any following bytes,
(2) nach etwa 26 sec by timeout .
Here the piezopower is switched on an the driving action is started immediately.

In opposite to this by actions with number of steps <>0 a start delay of 100 msec is inserted in case the power is switched off.

In case of Exit RS232 the original timing is recovered.

Als Beispiel der Quelltext der Unit PT30_TP7 für Borland Pascal 7.0:

```
unit PT30_TP7;

INTERFACE

uses v24az,crt;

procedure PT30InitCom(Adr:word;Int:byte);
{Init COM-Port with given adress and interrupt}
procedure PT30InitCom1;
{Init COM1 with predefined Adr=$3F8 and Int=$04}
procedure PT30InitCom2;
{Init COM1 with predefined Adr=$2F8 and Int=$03}
procedure PT30CloseCom;
procedure PT30Move(Axis,Steps,Speed: integer);
{Axis:=1,2,3 (= x,y,z)}
{Steps:=-10000...10000}
{Speed:=1..4 (=slow..fast)}
procedure PT30Local;
{Switches PT30 Controller to LOCAL}

IMPLEMENTATION

procedure PT30InitCom(Adr:word;Int:byte);
begin
   InitCom (Adr,Int,B19200,none,d8,s1);
end;

procedure PT30InitCom1;
begin
   InitCom ($3F8,$4,B19200,none,d8,s1);
end;

procedure PT30InitCom2;
begin
   InitCom ($2F8,$3,B19200,none,d8,s1);
end;

procedure PT30CloseCom;
begin
   DisableCom;
end;

procedure PT30Move(Axis,Steps,Speed: integer);
(*****************************************)
var b,Command,Direction: byte;
    StepsToGo: integer;
const XDir=$00;
      YDir=$40;
      ZDir=$80;
      Pos =$00;
      Neg =$08;
      StepNumber: array[1..7] of byte = (1,2,5,10,20,50,100);

begin
   if Steps>10000 then Steps:=10000;
   if Steps<-10000 then Steps:=-10000;
   StepsToGo:=Steps;
```

```
   if StepsToGo>=0 then Direction:=pos else Direction:=neg;
   StepsToGo:=abs(StepsToGo);

   if Axis>3 then Axis:=3;
   if Axis<1 then Axis:=1;
   if Axis=1 then Axis:=XDir;
   if Axis=2 then Axis:=YDir;
   if Axis=3 then Axis:=ZDir;

   if Speed>4 then Speed:=4;
   if Speed<1 then Speed:=1;
   case Speed of
   1: Speed:=$30;
   2: Speed:=$20;
   3: Speed:=$10;
   4: Speed:=$00;
   end;

   repeat
      if StepsToGo<>0 then
      begin
         Steps:=0;
         if StepsToGo>=1   then Steps:=1;
         if StepsToGo>=2   then Steps:=2;
         if StepsToGo>=5   then Steps:=3;
         if StepsToGo>=10  then Steps:=4;
         if StepsToGo>=20  then Steps:=5;
         if StepsToGo>=50  then Steps:=6;
         if StepsToGo>=100 then Steps:=7;

         if Steps<>0 then
         begin
            Command:=Axis+Speed+Direction+Steps;
            SendByte(Command);
            delay(1);
            repeat until V24dataAvail;
            b:=V24GetByte;
            StepsToGo:=StepsToGo-StepNumber[Steps];
            if (StepsToGo=0) then Steps:=0;
         end;
      end;
   until StepsToGo=0;
end;

procedure PT30Local;
var Command: byte;
begin
   Command:=$FF;
   SendByte(Command);
end;
end.
```