

Digitize in screen 5 and 7 on NMS8280

By Erik de Boer, programming Albert Beevendorp

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This modification makes it possible to use the digitize facilities of the NMS8280 in black and white/grey.

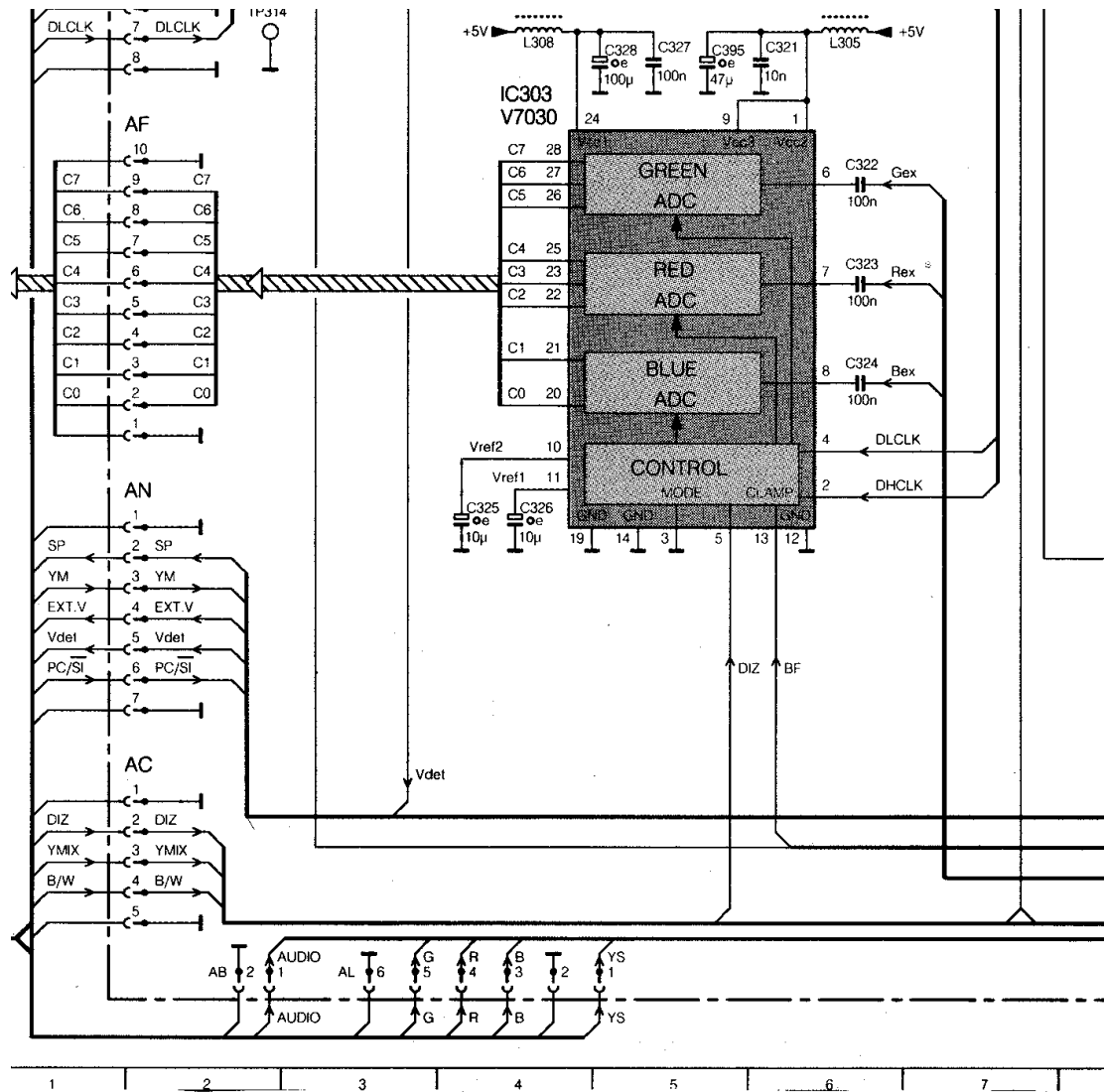
The modification is very simple and only requires the modification of one connection

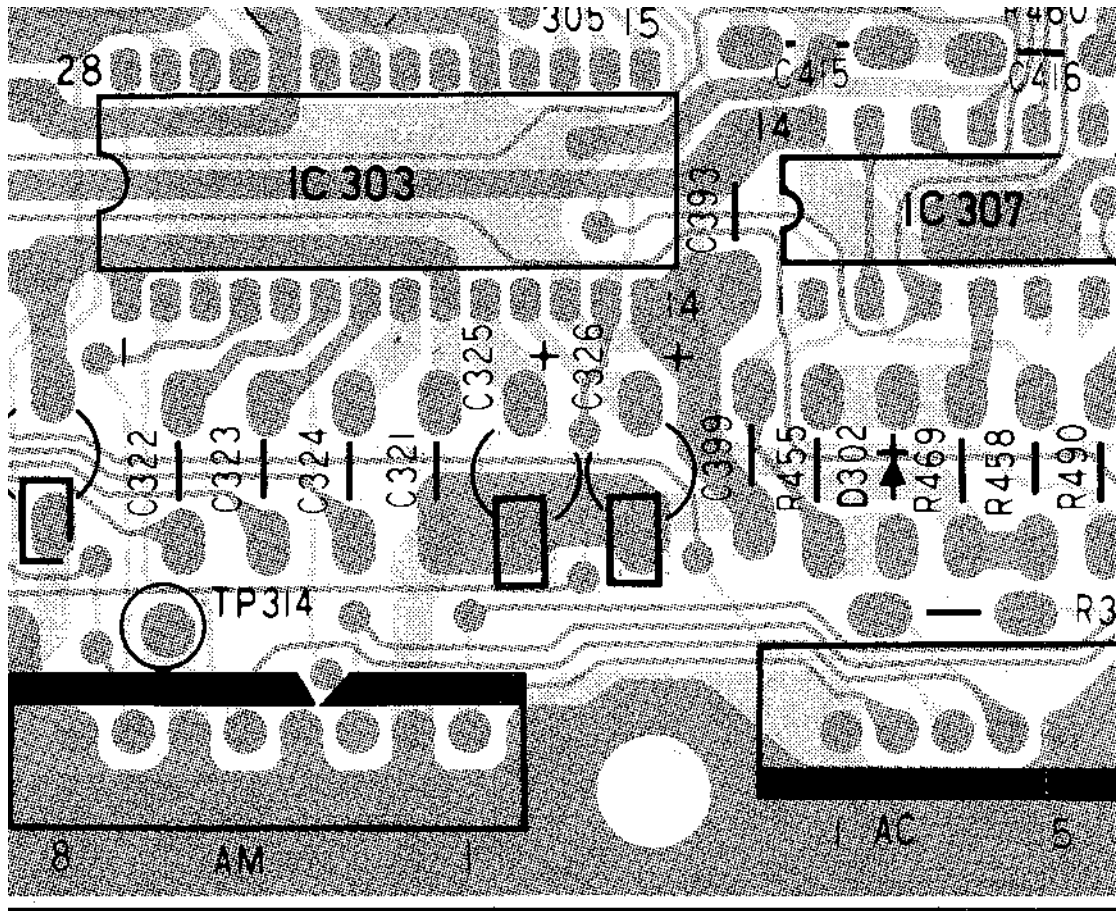
How to modify

Remove the connection between pin 3 of IC303 (a V7030) and ground and connect this pin to pin 4 of connector AC (B/W).

On the older version of the NMS8280 this requires the removal of a wire, on the newer cutting the printconnection at pin 3.

The pictures on the next pages show extracts of the relevant circuit diagram and the component side of the analog board. Read the NMS8280 service manual for more information.





How to use

When the computer is switched to black and white the ADC (Analog to Digital Converter) is switched to a 3x4 bit mode, 2x4 bits are connected.

In black and white mode the values of the colors are equal: $R=G=B$.

If the drawing program is set to grey then in screen 5 while digitizing 4 bits per pixel are used. In screen 7 there will be 2 pixels digitized (clocked) at the same time, total 2x4 bits. Because this happens simultaneously this means in screen 7 every two adjacent pixels are equal.


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480 LINE(60,40)-(188,50),8,B
490 PSET(64,42)
500 COLOR4
510 PRINT#1,"ORIGINAL PALLET"
520 LINE(60,70)-(188,80),8,B
530 PSET(64,72)
540 COLOR5
550 PRINT#1,"REAL B&W"
560 LINE(60,100)-(188,110),8,B
570 PSET(64,102)
580 COLOR6
590 PRINT#1,"REAL COLOR"
600 LINE(60,130)-(188,140),8,B
610 PSET(64,132)
620 COLOR7
630 PRINT#1,"REAL B&W&R"
640 LINE(60,160)-(188,170),8,B
650 PSET(64,162)
660 COLOR3
670 PRINT#1,"SUPER DIGITISER"
680 GOSUB710
690 PA=SC-4
700 GOTO 2000
701 '*****
710 SC=4:XC=0
720 ONSTRIGGOSUB990,990,990
730 FORN=0TO2:STRIG(N)ON:NEXT
740 N1=1:N2=7:ST=1
750 FORCO=N1TON2STEPST
760 COLOR=(3,0,0,CO)
770 IFSTICK(0)<>0THEN 880
780 A=PAD(12)
790 B=PAD(14):IFB=1THENB=0
800 XC=XC+ABS(B):IFXC<50THEN820
810 GOTO 860
820 FORN=1TO50:NEXT
830 NEXT CO
840 IFCO<5THEN740
850 N1=7:N2=1:ST=-1:GOTO 750

860 XC=0:IFB=ABS(B)THEN910
870 GOTO 950
880 IFSTICK(0)=5THEN910:'^
890 IFSTICK(0)=1THEN950:'V
900 GOTO 820
910 COLOR=(SC,1,6,1)
920 SC=SC+1:IFSC=8THENSC=4
930 COLOR=(SC,7,7,7)
940 GOTO 820
950 COLOR=(SC,1,6,1)
960 SC=SC-1:IFSC=3THENSC=7
970 COLOR=(SC,7,7,7)
980 GOTO 820
990 RETURN 995
995 FORN=0TO2:STRIG(N)OFF:NEXT
1000 RETURN
1999 '*****
2000 IF PA=0THEN2050:'ORIGINAL PALLET
2010 IF PA=1THEN2500:'REAL B/W
2020 IF PA=2THEN2100:'REAL COLOR 2100
2030 IF PA=3THEN2200:'real b/w 2200

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2040 '*****
2050 SCREENSR,1:COLOR=NEW:GOTO 3000
2100 SCREEN SR,1
2101 OUT&HF6,&B11101111
2105 IFSR=6THEN2160
2120 COLOR=NEW
2150 GOTO 3000
2160 COLOR=(0,0,0,0)
2161 COLOR=(1,7,0,0)
2162 COLOR=(2,0,7,0)
2163 COLOR=(3,0,0,7)
2165 GOTO 3000
2200 SCREENSR,1:OUT&HF6,&B11101111
2209 FORN=0TO15
2210 COLOR=(N,N/2,N/2,N/2)
2220 NEXT
2221 FORN=1TO14STEP2
2222 COLOR=(N,N/2+1,N/2,N/2)
2223 NEXT
2230 GOTO 3000
2300 SCREEN SR:GOTO 3000
2500 'real b/w
2510 SCREENSR,1
2520 OUT&HF6,&B11101111
2525 IFSR=6THEN2580
2530 FORN=0TO15
2540 COLOR=(N,N/2,N/2,N/2)
2560 NEXT
2570 GOTO 3000
2580 COLOR=(0,0,0,0)
2590 COLOR=(1,2,2,2)
2600 COLOR=(2,4,4,4)
2610 COLOR=(3,7,7,7)
2620 GOTO 3000
3000 ONKEYGOSUB3150,3210,3270:'** save ** load ** edit
3010 FORN=1TO3:KEY(N)OFF:NEXT
3020 SETVIDEO3
3030 CLS
3031 A=1
3035 FORN=1TO100:NEXT
3040 IFNOT(STRIG(0)ORSTRIG(1))THEN3040
3050 IFSR<>8THENCOLOR,,15ELSECOLOR,,255
3060 COPY SCREEN
3070 FORN=1TO5:NEXT
3080 SETVIDEO 1
3090 COLOR,,0
3095 IFA=0THEN3100
3096 FORN=1TO100:NEXT:A=0
3100 IFSTRIG(0)ORSTRIG(1)THEN3050
3110 FORN=1TO2:KEY(N)ON:NEXT
3115 IFSR<>8THENKEY(3)ON
3120 IFSTRIG(0)ORSTRIG(1)THEN3010
3130 GOTO 3120
3140 '*****
3150 FORN=1TO3:KEY(N)OFF:NEXT
3155 MO$="SAVE"
3160 GOSUB 5910:'>>>>>> naam
3175 IFNA$=""THEN3190
3180 IFSR=8THENBSAVE NA$+".pic",0,&HD3FF,S:GOTO 3190
3181 IFSR=7THENBSAVE NA$+".tm7",0,&HD3FF,S:BSAVE
NA$+".pm7",&HFA80,&HFA9F,S:GOTO 3190

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3182 IFSR=6THENBSAVE NA$+".tm6",0,&H69FF,S:BSAVE
NA$+".pm6",&H7680,&H769F,S:GOTO 3190
3183 BSAVE NA$+".tm5",0,&H69FF,S:BSAVE NA$+".pm5",&H7680,&H769F,S
3190 FORN=1TO2:KEY(N)ON:NEXT
3195 IFSR<>8THENKEY(3)ON
3200 RETURN
3210 FORN=1TO3:KEY(N)OFF:NEXT
3211 MO$="LOAD"
3220 GOSUB 5910:'>>>>>> naam
3225 IFNA$=""THEN3250
3230 IFSR=8THENBLOAD NA$+".pic",S:GOTO 3250
3231 IFSR=7THENBLOAD NA$+".tm7",S:BLOAD NA$+".pm7",S:GOTO 3240
3232 IFSR=6THENBLOAD NA$+".tm6",S:BLOAD NA$+".pm6",S:GOTO 3240
3233 BLOAD NA$+".tm5",S:BLOAD NA$+".pm5",S
3240 COLOR=RESTORE
3250 FORN=1TO2:KEY(N)ON:NEXT
3251 IFSR<>8THENKEY(3)ON
3260 RETURN
3270 FORN=1TO3:KEY(N)OFF:NEXT
3280 GOSUB5000
3290 ONKEYGOSUB3150,3210,3270
3300 FORN=1TO3:KEY(N)ON:NEXT
3310 RETURN
5000 NR=15:KA=15:XC=0
5010 IFSR=6THENNR=3:KA=3
5020 SP$=STRING$(6,CHR$(&HFF))
5030 FORN=0TONR
5040 SPRITE$(N)=SP$
5050 PUTSPRITEN,(10,N*13),N,N
5060 COLORSPRITE$(N)=CHR$(KA)+STRING$(4,CHR$(N))+CHR$(KA)
5070 NEXT
5080 GOSUB5750
5090 ONKEYGOSUB5570,5630,5700
5100 FORN=1TO3:KEY(N)ON:NEXT
5110 PUTSPRITESP,(0,220),,SP
5120 FORN=1TO50:NEXT
5130 PUTSPRITESP,(10,SP*13),,SP
5140 A=STICK(0):GOSUB 5220
5150 A=PAD(12)
5160 B=PAD(14):IFB=1THENB=0
5170 XC=XC+ABS(B):IFXC<25THEN5190
5180 GOSUB5250
5190 A$=INKEY$:IFA$<>" "THENGOSUB5310
5200 FORN=1TO50:NEXT
5210 GOTO 5110
5220 IF A=5THEN5270
5230 IF A=1THEN5290
5240 RETURN
5250 IFB=ABS(B)THENXC=0:GOTO 5270
5260 XC=0:GOTO 5290
5270 SP=SP+1:IFSP>NRTHENSP=0
5280 RETURN
5290 SP=SP-1:IFSP<0THENSP=NR
5300 RETURN
5310 IFA$="r"THENGOSUB5380
5320 IFA$="R"THENGOSUB5410
5330 IFA$="g"THENGOSUB5440
5340 IFA$="G"THENGOSUB5470
5350 IFA$="b"THENGOSUB5500
5360 IFA$="B"THENGOSUB5530
5370 RETURN

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5380 R(SP)=R(SP)+1:IFR(SP)>7THENR(SP)=7
5390 COLOR=(SP,R(SP),G(SP),B(SP))
5400 RETURN
5410 R(SP)=R(SP)-1:IFR(SP)<0THENR(SP)=0
5420 COLOR=(SP,R(SP),G(SP),B(SP))
5430 RETURN
5440 G(SP)=G(SP)+1:IFG(SP)>7THENG(SP)=7
5450 COLOR=(SP,R(SP),G(SP),B(SP))
5460 RETURN
5470 G(SP)=G(SP)-1:IFG(SP)<0THENG(SP)=0
5480 COLOR=(SP,R(SP),G(SP),B(SP))
5490 RETURN
5500 B(SP)=B(SP)+1:IFB(SP)>7THENB(SP)=7
5510 COLOR=(SP,R(SP),G(SP),B(SP))
5520 RETURN
5530 B(SP)=B(SP)-1:IFB(SP)<0THENB(SP)=0
5540 COLOR=(SP,R(SP),G(SP),B(SP))
5550 RETURN
5560 '*****
5570 '***** save pallet
5580 FORN=1TO3:KEY(N)OFF:NEXT
5585 MO$="SAVE"
5590 GOSUB 5910:'>>>>>>>naam
5600 IFNA$=" "THEN5620
5610 IFSR=7THENBSAVE NA$+".pm7",&HFA80,&HFA9F,S:GOTO 5620
5611 IFSR=6THENBSAVE NA$+".pm6",&H7680,&H769F,S:GOTO 5620
5612 BSAVE NA$+".pm5",&H7680,&H769F,S
5620 RETURN 5080
5630 '***** load pallet
5640 FORN=1TO3:KEY(N)OFF:NEXT
5645 MO$="LOAD"
5650 GOSUB 5910:'>>>>>>>naam
5660 IFNA$=" "THEN5690
5670 IFSR=7THENBLOAD NA$+".pm7",S:GOTO 5680
5671 IFSR=6THENBLOAD NA$+".pm6",S:GOTO 5680
5672 BLOAD NA$+".pm5",S
5680 COLOR=RESTORE
5690 RETURN 5030
5700 '***** exit
5710 FORN=1TO3:KEY(N)OFF:NEXT
5714 DEFUSR=&H69:A=USR(0)
5720 RETURN5730
5730 RETURN
5740 '*****
5750 '
5760 IFSR=5THENVA=&H7680
5770 IFSR=6THENVA=&H7680
5780 IFSR=7THENVA=&HFA80
5790 M=VA
5800 FORN=0TO15
5810 A$="000000"+BIN$(VPEEK(M))
5820 A$=RIGHT$(A$,8)
5830 B(N)=VAL("&b"+RIGHT$(A$,4))
5840 R(N)=VAL("&b"+LEFT$(A$,4))
5850 M=M+1
5860 G(N)=VPEEK(M)
5870 M=M+1
5880 NEXT
5890 RETURN
5900 '*****
5910 N=15:IFSR=8THENN=255

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5915 COLORN,1
5920 COPY(80,100)-(220,140),0TO(80,100),1
5930 LINE(80,130)-(220,140),1,BF
5931 LINE(80,100)-(120,110),1,BF
5940 LINE(80,130)-(220,140),N,B
5941 LINE(80,100)-(120,110),N,B
5945 PSET(82,102)
5949 PRINT#1,MO$
5950 PSET(82,132)
5960 PRINT#1,"FILENAME:";
5970 NA$=""
5980 FORX=154TO154+8*8 STEP8
5990 PRESET(X,132)
6000 A$=INPUT$(1)
6010 IFA$=CHR$(&H1B)THENCOPY(80,100)-
(220,140),1TO(80,100),0:NA$="" :RETURN
6020 IFA$=CHR$(&HD)THEN6140
6030 IFA$=CHR$(&H8)THEN 6100
6040 IFA$=CHR$(&H1D)THEN 6100
6050 IF ASC(A$)<=&H20THEN5990
6060 IF ASC(A$)>=&H7BTHEN5990
6070 IFX>154+7*8THEN6140
6080 NA$=NA$+A$:PRINT#1,A$:NEXTX
6090 GOTO 6140
6100 A$=""
6110 X=X-8:IFX<=154THENX=154:NA$=""
6120 PRESET(X,132):PRINT#1,A$
6130 NA$=LEFT$(NA$,LEN(NA$)-1):GOTO 5990
6140 COPY(80,100)-(220,140),1TO(80,100),0
6145 FORN=1TO20:NEXT
6150 RETURN
7000 '*****
7001 N=15:IFSR=8THENN=255
7002 COLORN,1
7003 STOP OFF
7010 COPY(80,130)-(220,140),0TO(80,130),1
7020 LINE(80,130)-(220,140),1,BF
7030 LINE(80,130)-(220,140),N,B
7035 ER$=""
7040 IF ERR=66THENER$=" DISK FULL"
7050 IF ERR=69THENER$="DISK I/O ERROR"
7060 IF ERR=70THENER$=" DISK OFFLINE"
7070 IF ERR=68THENER$="WRITE PROTECTED"
7080 IF ERR=53THENER$="FILE NOT FOUND"
7090 IF ERR=67THENER$=" TO MANY FILES"
7100 IF ERR=61THENER$=" BAD FILE MODE"
7110 IF ERR=56THENER$=" BAD FILE NAME"
7120 IF ERR=60THENER$=" BAT FAT"
7130 IFER$=""THENER$=" PROGRAM ERROR"
7140 PSET (82,132):PRINT#1,ER$
7150 IFINKEY$<>" THEN7150
7160 IFINKEY$="" THEN7160
7170 COPY(80,130)-(220,140),1TO(80,130),0
7171 FORN=1TO100:NEXT
7175 DEFUSR=&H156:A=USR(0)
7180 STOP ON
7190 IFERL>3160ANDERL<3250THENRESUME3250
7200 RESUME NEXT

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