

GENERAL

Supply voltage	220 or 110 V AC +/- 10% 50/60 Hz
Power consumption (monitor not included)	Approx. 25 W
Temperature range	- 10 to + 45°C amb. temp.

MEASURING CHARACTERISTICS

Input voltage (0 dB reading)	+6 dBu (1.55 V rms sine) 1)
Input overload level	+ 21 dBu (8.6 V rms sine)
Frequency range (0.5 dB points)	20 Hz to 20 kHz
High frequency roll-off	12 dB/oct above 20 kHz
Dynamic measuring range	55 dB
Input impedance (20 Hz - 20 kHz)	20 k ohm +/- 10 %
Input common mode rejection	better than 60 dB at 15 kHz

Measuring errors:

	<u>+5 to -10 dB</u>	<u>Below -10 dB</u>
1 kHz sine, 25 °C	+/- 0.3 dB	+/- 1 dB
20 Hz to 15 kHz, 25 °C	+ 0.5/-1 dB	+ 0.5/-2 dB
Within full temp. range, 1 kHz	+/- 1 dB	+/- 2 dB
Polarity error, max.	+/- 0.3 dB	+/- 1 dB
Tracking between channels	+/- 0.2 dB	+/- 0.5 dB

Integration time (IEC 268-10)	10 ms for - 1 dB +/- 0.5 dB 5 ms for -2 dB +/- 1 dB 3 ms for - 4 dB +/- 1 dB 0.4 ms for - 15 dB +/- 2 dB	
Integration time, "Fast"	0.1 ms for - 1 dB +/- 0.5 dB	
Fall-back time	1.5 s per 20 dB	1)

VIDEO

Video outputs into 75 ohm, (positive modulation)	Red: 0.7 Vpp	2)
All signals conform to CCIR 625 line system.	Green: 1 Vpp incl. sync.	2)
	Blue: 0.7 Vpp	2)
	Sync.: 4 Vpp negative	

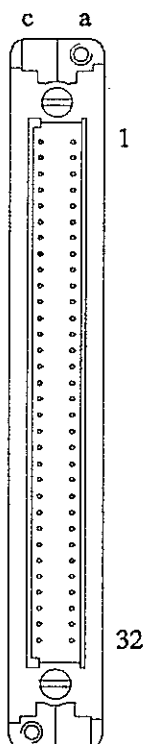
MATING CONNECTORS

Audio input, 8 inputs in each	DIN 41612 style C, 64 way, female
Remote control (colour selection)	"D" connector, 25 way, male
Remote control (scale selection)	DIN 41612 style C, 96 way, female
Video outputs	BNC coax, male
Power	IEC - 320/VI

<u>Mechanical size</u>	19 inch x 3 unit x 310 mm (483 mm x 133 mm x 310 mm)
------------------------	---

1) Standard scales are the DIN- and the Nordic scale. Other scales or reference levels are available on request.

2) The listed levels correspond to 100% modulation. Normally the green and blue outputs are modulated less than 100%.



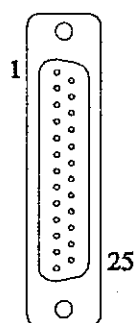
Seen from
rear side
of frame

Audio Inputs.

Audio inputs are DIN41612, 64 way male connectors with 8 inputs at each connector.

Conn.:	1-8	9-16	17-24	25-32	33-40			
Channel 1	1	9	17	25	33	180°	1c	1a 0°
Channel 2	2	10	18	26	34	180°	2c	2a 0°
Channel 3	3	11	19	27	35	180°	3c	3a 0°
Channel 4	4	12	20	28	36	180°	4c	4a 0°
Channel 5	5	13	21	29	37	180°	5c	5a 0°
Channel 6	6	14	22	30	38	180°	6c	6a 0°
Channel 7	7	15	23	31	39	180°	7c	7a 0°
Channel 8	8	16	24	32	40	180°	8c	8a 0°
Screen							17c	

Pin 9ac to 16ac are outputs to the backpanel from the 8 input channels.



Seen from
rear side
of frame

Colour Select.

Colour select inputs are available at two 25-pole female D-connectors. Each connector handles colour select of 20 channels (Pins 1-20).

By means of external three positions switches, it is possible to identify the channels by selecting on of three colours,

Colour select input connected to high (pin 25) gives a yellow bar.

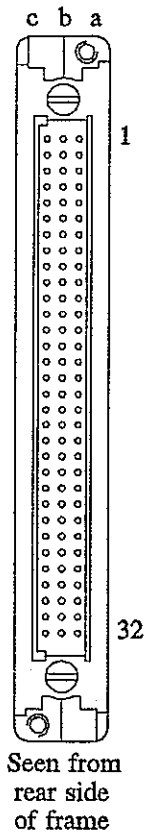
Colour select input left floating gives a green bar.

Colour select input connected to low (pin 24) gives a blue bar.

E.g. when pin 6 is connected to pin 25 bar 6 is yellow.

Video Outouts.

Video Signals are available at 4 BNC female connectors.



Remote Control.

Remote control of the multichannel is possible through a 96-pole, DIN41612 male connector.

The following functions are selected by connecting the control input to ground (pin 28abc);

15a	Analyze	: Puts the multichannel into analyze mode.
16a	Bars Colour Select	: Select blue/green/yellow or white/-pink/violet bars.
17a	Test Line	: Enables -9dB scaleline.
18a	Fast	: Select 0.1ms integration time.
19a	Gain	: Gives 20dB (40dB) gain at the input stage.
20a	Count Up	: Counts up the channel number which can be put to analyzation.
21a	Count Down	: Similar to count up.
7c-13c	Scale Select 1-7	: Select 1 of 8 scale layouts.
14c	Scale Select 8	: Select 1 of 2 sets of scale layouts.

Complete terminal survey on next page.

Notes to Remote Control:

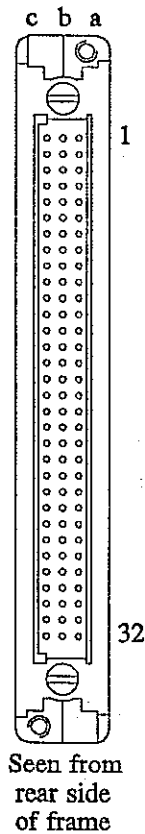
When selecting 'Analyzer' or 'Gain' mode via terminal 15a and 19a in the Remote Control Connector, it is also necessary to make a 'Scale Selection'. This is done by using terminals 7c-13c.

If the PPM is equipped with a standard scale - DIN, Nordic or BBC - the instrument will normally be programmed to work as follows:

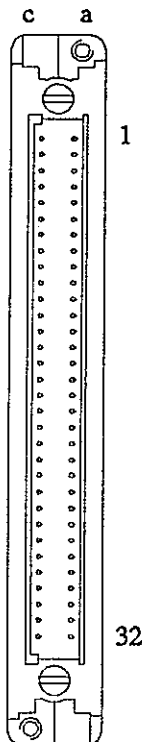
<u>Terminal 7c-13c:</u>	<u>Display wil show:</u>
No connection	Normal PPM Scale
7c grounded	Normal Scale +20dB (+40dB)
8c grounded	Analyzer Scale, Normal
9c grounded	Analyzer Scale +20dB (+40dB)

Terminal 10c-13c are only used in special cases.

THIS IS THE COMPLETE TERMINAL SURVEY FOR THE REMOTE CONTROL CONNECTOR



Pin no.	Row c	Row b	Row a
1	C0 Analyze Numbering	N.C.	V ramp
2	C1 Analyze Numbering	N.C.	Bar 1
3	C2 Analyze Numbering	N.C.	Bar 2
4	C3 Analyze Numbering	N.C.	N.C.
5	C4 Analyze Numbering	N.C.	N.C.
6	Scale Select 1	N.C.	Channel Gate
7	Scale Select 2	N.C.	Channel Select A0
8	Scale Select 3	N.C.	Channel Select A1
9	Scale Select 4	N.C.	Channel Select A2
10	Scale Select 5	N.C.	Card Select A3
11	Scale Select 6	N.C.	Card Select A4
12	Scale Select 7	N.C.	Card Select A5
13	Scale Select 8	N.C.	Card Select A6
14	Card Select A7	N.C.	Card Select A7
15	N.C.	N.C.	Analyze
16	N.C.	N.C.	Bars Comp. Select
17	N.C.	N.C.	Testline
18	N.C.	N.C.	Fast
19	N.C.	N.C.	Gain
20	V sync.	N.C.	Count-up
21	Comp. Blank	N.C.	Count-down
22	H. sync.	N.C.	N.C.
23	N.C.	N.C.	N.C.
24	N.C.	N.C.	N.C.
25	N.C.	N.C.	N.C.
26	N.C.	N.C.	N.C.
27	+5V Dig.	+5V Dig.	+5V Dig.
28	GND Dig.	GND Dig.	GND Dig.
29	+10V	+10V	+10V
30	+5V Ref.	+5V Ref.	+5V Ref.
31	GND	GND	GND
32	-10V	-10V	-10V



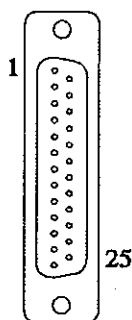
Seen from
rear side
of frame

Audio Inputs.

Audio inputs are DIN41612, 64 way male connectors with 8 inputs at each connector.

Conn.:	1-8	9-16	17-24	25-32	33-40			
Channel	1	9	17	25	33	180°	1c	1a 0°
Channel	2	10	18	26	34	180°	2c	2a 0°
Channel	3	11	19	27	35	180°	3c	3a 0°
Channel	4	12	20	28	36	180°	4c	4a 0°
Channel	5	13	21	29	37	180°	5c	5a 0°
Channel	6	14	22	30	38	180°	6c	6a 0°
Channel	7	15	23	31	39	180°	7c	7a 0°
Channel	8	16	24	32	40	180°	8c	8a 0°
Screen							17c	

Pin 9ac to 16ac are outputs to the backpanel from the 8 input channels.



Seen from
rear side
of frame

Colour Select.

Colour select inputs are available at two 25-pole female D-connectors. Each connector handles colour select of 20 channels (Pins 1-20).

By means of external three positions switches, it is possible to identify the channels by selecting on of three colours,

Colour select input connected to high (pin 25) gives a yellow bar.

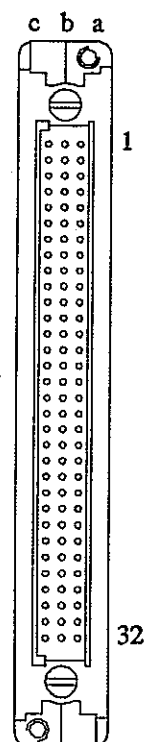
Colour select input left floating gives a green bar.

Colour select input connected to low (pin 24) gives a blue bar.

E.g. when pin 6 is connected to pin 25 bar 6 is yellow.

Video Outouts.

Video Signals are available at 4 BNC female connectors.



Seen from
rear side
of frame

Remote Control.

Remote control of the multichannel is possible through a 96-pole, DIN41612 male connector.

The following functions are selected by connecting the control input to ground (pin 28abc);

15a	Analyze	: Puts the multichannel into analyze mode.
16a	Bars Colour Select	: Select blue/green/yellow or white/-pink/violet bars.
17a	Test Line	: Enables -9dB scaleline.
18a	Fast	: Select 0.1ms integration time.
19a	Gain	: Gives 20dB (40dB) gain at the input stage.
20a	Count Up	: Counts up the channel number which can be put to analyzation.
21a	Count Down	: Similar to count up.
7c-13c	Scale Select 1-7	: Select 1 of 8 scale layouts.
14c	Scale Select 8	: Select 1 of 2 sets of scale layouts.

Complete terminal survey on next page.

Notes to Remote Control:

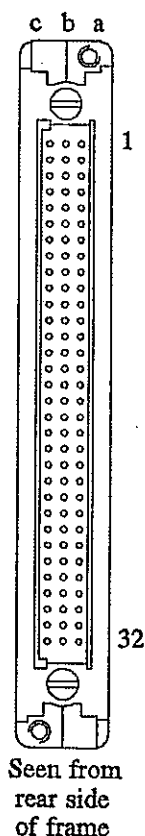
When selecting 'Analyzer' or 'Gain' mode via terminal 15a and 19a in the Remote Control Connector, it is also necessary to make a 'Scale Selection'. This is done by using terminals 7c-13c.

If the PPM is equipped with a standard scale - DIN, Nordic or BBC - the instrument will normally be programmed to work as follows:

<u>Terminal 7c-13c:</u>	<u>Display will show:</u>
No connection	Normal PPM Scale
7c grounded	Normal Scale +20dB (+40dB)
8c grounded	Analyzer Scale, Normal
9c grounded	Analyzer Scale +20dB (+40dB)

Terminal 10c-13c are only used in special cases.

The card is terminated with a 96-pole Euro connector DIN41612, male.



Pin no.	Row c	Row b	Row a
1	C0 Analyze Numbering	N.C.	V ramp
2	C1 Analyze Numbering	N.C.	Bar 1
3	C2 Analyze Numbering	N.C.	Bar 2
4	C3 Analyze Numbering	N.C.	N.C.
5	C4 Analyze Numbering	N.C.	N.C.
6	Scale Select 1	N.C.	Channel Gate
7	Scale Select 2	N.C.	Channel Select A0
8	Scale Select 3	N.C.	Channel Select A1
9	Scale Select 4	N.C.	Channel Select A2
10	Scale Select 5	N.C.	Card Select A3
11	Scale Select 6	N.C.	Card Select A4
12	Scale Select 7	N.C.	Card Select A5
13	Scale Select 8	N.C.	Card Select A6
14	Card Select A7	N.C.	Card Select A7
15	N.C.	N.C.	Analyze
16	N.C.	N.C.	Bars Comp. Select
17	N.C.	N.C.	Testline
18	N.C.	N.C.	Fast
19	N.C.	N.C.	Gain
20	V sync.	N.C.	Count-up
21	Comp. Blank	N.C.	Count-down
22	H. sync.	N.C.	N.C.
23	N.C.	N.C.	N.C.
24	N.C.	N.C.	N.C.
25	N.C.	N.C.	N.C.
26	N.C.	N.C.	N.C.
27	+5V Dig.	+5V Dig.	+5V Dig.
28	GND Dig.	GND Dig.	GND Dig.
29	+10V	+10V	+10V
30	+5V Ref.	+5V Ref.	+5V Ref.
31	GND	GND	GND
32	-10V	-10V	-10V



Audio Inputs

Audio inputs are DIN41612, 64 way male connectors with 8 inputs at each connector.

Conn:	1-8	9-16	17-24	25-32	33-40			
Channel 1	1	9	17	25	33	180°	1c	1a 0°
Channel 2	2	10	18	26	34	180°	2c	2a 0°
Channel 3	3	11	19	27	35	180°	3c	3a 0°
Channel 4	4	12	20	28	36	180°	4c	4a 0°
Channel 5	5	13	21	29	37	180°	5c	5a 0°
Channel 6	6	14	22	30	38	180°	6c	6a 0°
Channel 7	7	15	23	31	39	180°	7c	7a 0°
Channel 8	8	16	24	32	40	180°	8c	8a 0°
Screen							17c	

Pin 9ac to 16ac are outputs to the backpanel from the 8 input channel.

Colour Select

Colourselect inputs are available at two 25-pole female D-connectors. Each connector handles colour select of 20 channels (Pins 1-20). By means of external three positions switches, it is possible to identify the channels by selecting one of three colours.

Colourselect input connected to high (pin 25) gives a yellow bar.
Colourselect input left floating gives a green bar.
Colourselect input connected to low (pin 24) gives a blue bar.
E.g. when pin 6 is connected to pin 25 bar 6 is yellow.

Video Outputs

Video signals are available at 4 BNC female connectors.

Remote Control

Remote control of the multichannel is possible through a 96-pole, DIN41612 male connector.

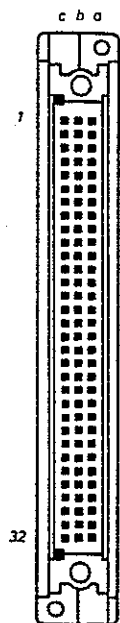
The following functions are selected by connecting the control input to ground (pin 28abc);

15a	Analyze	: Puts the multichannel into analyze mode.
16a	Bars colourselect:	Select blue/green/yellow or white/pink/-violet bars.
17a	Testline	: Enables -9dB scaleline.
18a	Fast	: Select 0.1ms integration time.
19a	Gain	: Gives 20dB (40dB) gain at the input stage.
20a	Count up	: Counts up the channel number which can be put to analyzation.
21a	Count down	: Similar to count up.
7c-13c	Scale select 1-7	: Select 1 of 8 scale layouts.
14c	Scale select 8	: Select 1 of 2 sets of scale layouts.

Complete terminal survey on next page.

The card is terminated with a 96-pole Euro connector DIN41612, male.

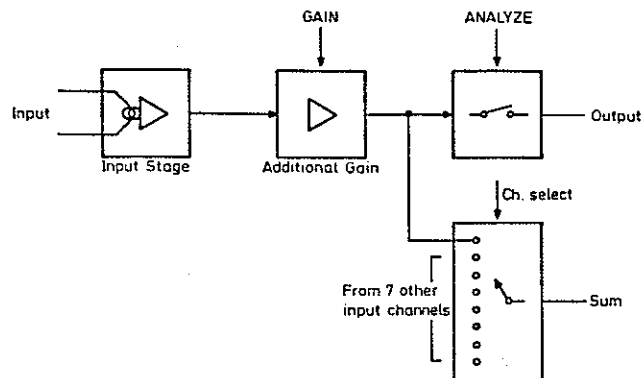
pin no.	row a	row b	row c
1	V ramp	N.C.	C0
2	Bar 1	N.C.	C1
3	Bar 2	N.C.	C2
4	N.C.	N.C.	C3
5	N.C.	N.C.	C4
6	Ch. Gate	N.C.	C5
7	Ch. Sel. A0	N.C.	Scale Sel. 1
8	Ch. Sel. A1	N.C.	Scale Sel. 2
9	Ch. Sel. A2	N.C.	Scale Sel. 3
10	Card Sel. A3	N.C.	Scale Sel. 4
11	Card Sel. A4	N.C.	Scale Sel. 5
12	Card Sel. A5	N.C.	Scale Sel. 6
13	Card Sel. A6	N.C.	Scale Sel. 7
14	Card Sel. A7	N.C.	Scale Sel. 8
15	Analyze	N.C.	N.C.
16	Bars. Comp. Sel.	N.C.	N.C.
17	Testline	N.C.	N.C.
18	Fast	N.C.	N.C.
19	Gain	N.C.	N.C.
20	Count-up	N.C.	V sync.
21	Count-down	N.C.	Comp. Blank
22	N.C.	N.C.	H sync.
23	N.C.	N.C.	N.C.
24	N.C.	N.C.	N.C.
25	N.C.	N.C.	N.C.
26	N.C.	N.C.	N.C.
27	+5V Dig	+5V Dig	+5V Dig
28	GND Dig	GND Dig	GND Dig
29	+10V	+10V	+10V
30	+5V Ref.	+5V Ref.	+5V Ref.
31	GND	GND	GND
32	-10V	-10V	-10V



Seen from
the
connection
side

The Input Module 377-210 contains eight identical equal input stages, and a switching circuit to be used in conjunction with the optional 1/3 octave analyzer.

Block Diagram



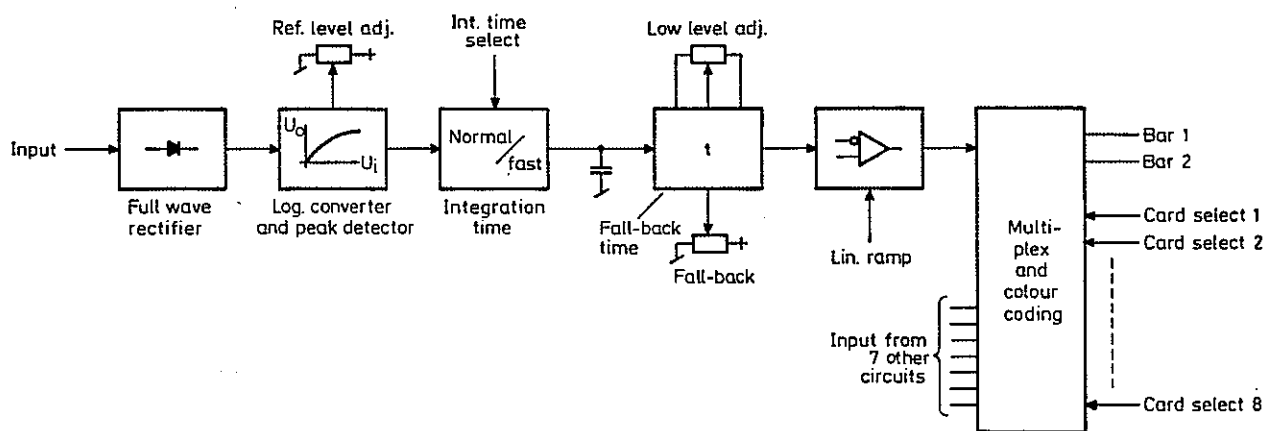
Each input channel has a balanced, transformer coupled input stage.

The input stage is designed as a 2nd order low-pass filter giving a 12dB/oct roll-off above 20kHz. The input stage is followed by an amplifier which is able to add 20dB (40dB) gain to the input signal by connecting the input GAIN to ground.

The eight signals are finally led to the switching circuit. The switching circuit is capable of selecting one of the eight input signals and leading it to a common sum bus on the backpanel. At the same time the eight are disabled from the backpanel.

The logarithmic converting module contains eight identical equal processing stages and a multiplexing circuit. The task of the log. converter is to convert the linear input signal into a logarithmic signal and add the necessary time constants to fit the various scale standards. The result, a DC voltage corresponding to the level of the input signal, is then compared with a linear ramp-voltage in order to obtain a measure result of the input signal. This information is multiplexed into a two bit signal also containing information of the colour of the specific channel.

Block Diagram



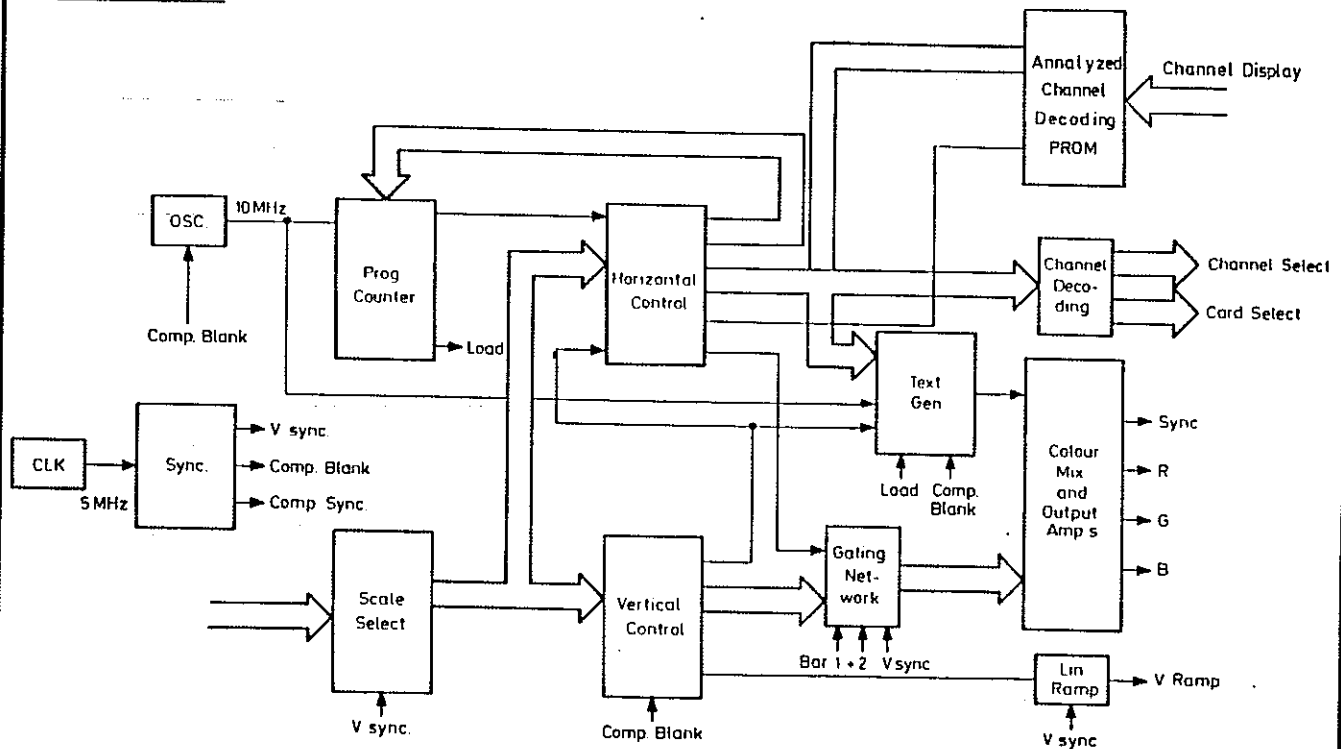
The first stage of the log-card is a precision full-wave rectifier supplying current for the log. converter. The log. converter/peak detector circuits generates a DC voltage corresponding to the logarithm of the input signal. This DC voltage is input to the timing circuit which controls the attack time (integration time) and decay time (fall-back time). The final processed signal is compared with a linear ramp voltage, giving a time dependent digital signal. The digital signal is multiplexed by a scanning procedure. Finally the colour information of the channels are gated into the signals bar 1 and bar 2.

Theory of Operation

When the beam starts drawing at the upper leftmost position of the screen, the ramp voltage is at its maximum. At that point of the screen where the scale equals 'below -50dB', the ramp voltage has decreased to zero. All channels are scanned once at each picture line. So, if the output DC voltage of a given picture line is equal to or bigger than the corresponding ramp voltage, the digital output of that channel is high. This means that the segment of the segment of the bar at this line has to be lit.

The video controller is the 'heart' of the 377-200 multichannel. It generates the sync, all the timing needed, the linear ramp and the analog video outputs. The information about how many channels the instrument is equipped with, and how the different scale/channel layouts are defined, are programmed in a set of three PROM's.

Block Diagram



The clock circuit delivers the 10 MHz clock and the 5 MHz clock for the single chip sync generator. This chip makes the composite sync, the vertical sync and the composite blanking signals which are used as timing signals throughout the rest of the video controller.

The Comp. Blank triggered oscillator-circuit delivers the horizontal dot frequency to the programmable counter.

The programmable counter determines the width of the bars and the spacing between them. The counter loads a four bit word from the horizontal control PROM and starts counting down. Upon reaching zero it generates a load pulse, and the process starts over again.

The horizontal control circuit generates a new 16 bit word for each load pulse. Four bit are feedback to the programmable counter, seven bits contains information about either a channel number or an ASCII character. The remaining vacant five bits are used as control for other parts of the video controller.

The channel decoding circuit receives the six bits from the horizontal PROM, and decodes them into five card selects and a three bit channel select bus. These signals controls the multiplexing circuit of the log-cards.

The text generator contains a character PROM, a dot counter, a line counter and a shift register. The text generator converts the seven bit ASCII code into the necessary dot informations, and shifts out this information at the positions determined by the vertical control PROM and the horizontal control PROM.

The scale select circuit picks out 1 of 16 possible scale layouts by selecting different address areas in the three PROMs.

The vertical control circuit contains a counter which is incremented one for each line. This counter addresses the PROM, which therefore gives a new eight bit word for each line. One bit is used for controlling the horizontal control PROM, and selects a new text to start or a new horizontal division. Three bits controls the colour and position of the scale lines. One bit is used for stopping the ramp voltage, another bit control bar colour.

The gating network converts the signals BAR-1 and BAR-2 into the desired coloured bar, turns the bar red above 0dB, and makes the visual appearance of scale lines blanking background, and bars blanking scale lines and background.

The ramp generator is a self adjusting circuit which makes a precise linear ramp voltage according to the information from the vertical control PROM.

The power supply is build around four integrated adjustable regulators.
These regulators deliever +/-9V for the analog circuits, +5V as reference voltage for the log. converters and +5V for all the digital circuits.
The power supply incorporates a surveillance circuit, which only turns on the green indicator if all four voltages are present.

GENERAL

The 1/3 Octave Analyzer is intended for use in connection with the NTP Multichannel PPM, type 377-200 equipped with at least four Log. Convertercards 377-220. Then matching a complete 1/3 Octave, 29 band realtime, Analyzer.

A complete Analyzer Option consists of two cards 377-240/250 and four PROMs containing a set of scale-layouts (custom-made and/or standard) which should be installed/mounted as follows:

Card 377-240 : Connector 6 in the rackmount cabinet
Card 377-250 : Connector 7 in the rackmount cabinet
PROM HOR. -1 : IC07 on the Video Controller 377-230
PROM HOR. -2 : IC06 on the Video Controller 377-230
PROM VER. : IC09 on the Video Controller 377-230
PROM ANL. : IC27 on the Video Controller 377-230

The different scales are selected by pin 7c-14c at the remote control connector on the rear of the PPM. (See Terminal Survey for PPM 377-200/Test Report 377-2023-A-4).

TECHNICAL SPECIFICATIONS

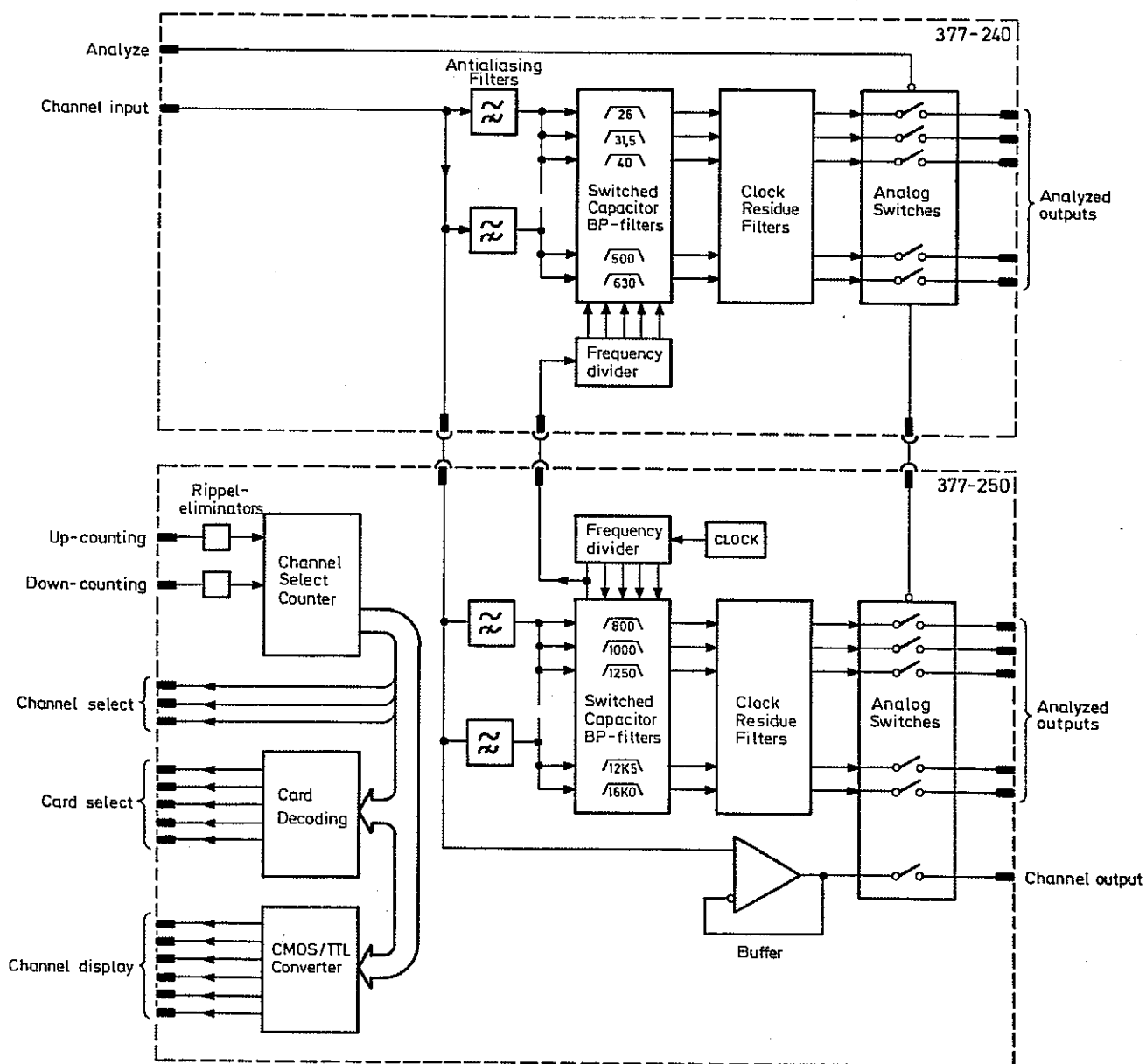
Bands: 29 1/3-octaves complying with ISO recommendation from 25Hz to 16kHz +/-5%
Filters: 29 six-pole, Chebyshev, switched capacitor bandpass filters. The filter response meets IEC recommendation 225.
Accuracy: See Technical Specification for PPM 377-200.

THEORY OF OPERATION

Since the block diagram to a large extent is self-explanatory, the following remarks are intended as a guidance. The Analyzer is controlled from the remote control connector on the rear of the PPM. (See Terminal Survey for PPM 377-200). The Up/Down inputs select input channel which is to be analyzed. The Channel-Display outputs addressing the channel decoding PROM located on the video controller card. When the PPM is put in analyze mode, the Card/Channel-Select outputs control a switching circuit located on the inputcard(s). (See Input Card Description), selecting the channel which is to be analyzed and leads it to Channel-Input. At the same time the outputs on the input card(s) are disabled from the backpanel and the Analyzed-Outputs/Channel-Output are connected to the log.converter cards via the backpanel.

The Clock/Frequency-Dividing circuits supply the Switched Capacitor Filters with clocksignals, whose frequencies determine the center frequencies of the SCF's. As in all sampled systems, signals above half the sampling frequency will be aliased, therefore the signal is fed through Antialias-Filters. Signal outputs from the SCF's contain a triggerclock residue which is suppressed by the Gaintuneable Clock-Residue-Filters.

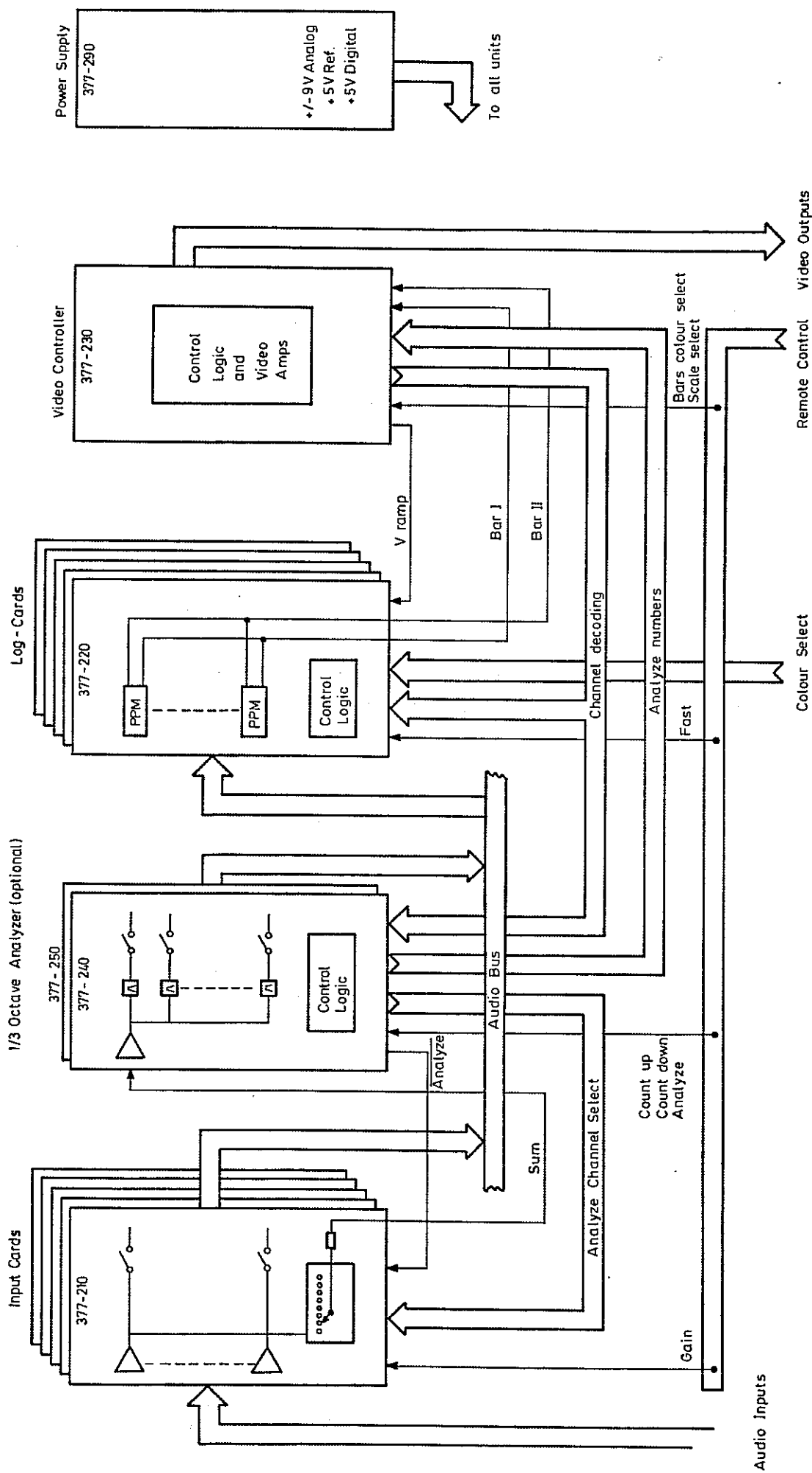
Block Diagram



Konstruktør: MB

tegnet: 8.7.87. tl

Revideret:



Pos.:	Antel:	Materiale:	Behandl.:	Del. al:
Milestok:	Tolerance: ± mm	Tegnet: 17/2.87, CN/bh	Godkendt:	Revideret:
NTP NTP ELEKTRONIK A/S				
Multichannel PPM 377-200 System Diagram				
377-2019 - A - 3				

NTP 377-200 MULTI CH. PPM. BASIC VERSION PARTS LIST

REF.NO	NTP-ID.	DESCRIPTION	QTY	MANUFACT/DRW.NO	PART NO.
10	MEP-1010	PROFILE LENGTH FRONT 431.8MM	2.	ELMA	66-111-23
20	MEP-1113	LENGT SECTION 66-138-23	2.	ELMA	66-138-23
30	377-2060	PROFILE	2.	377-2060-A-4	377-2060
40	530-9060	PROFILE,	2.	530-9060-A-4	530-9060
50	MEP-1022	PROFILE DEPTH 292.8MM	4.	ELMA	66-177-22
60	MEP-1016	PROFILE HEIGHT 3HE 132.5MM	2.	ELMA	66-172-22
70	377-2066	PROFILE	2.	377-2066-A-4	377-2066
80	MEU-0003	BASES	8.	ELMA	63-027
90	MES-0011	SCREW 4 X 10	32.	ELMA	5343-10
100	MEG-1003	TAPPED STRIPS 8ST 42.5MM	6.	ELMA	63-068
110	MED-0021	SET OF COVERPLATES	1.	ELMA	142133-03
120	MEZ-0099	RUBBER PIECE	1.	ELMA	63-099
130	MEF-0009	CARD GUIDE	30.	ELMA	63-104
135	MEF-0021	CARD GUIDE	2.	ELMA	MEF-0021
136	MEN-0001	MOUTH PIECE	2.	ELMA	63-030
140	377-2054	ACRYLE FRONTPLATE, ENGRAVED	1.	377-2054-A-4	377-2054
150	377-2064	BLOCK A	1.	377-2064-A-4	377-2064
160	377-2065	BLOCK B	1.	377-2065-A-4	377-2065
170	MSC-3008	SCREW 3 X 8 CHJZ	2.	HFC 9033	3 X 8 CHJZ
180	377-2053	REARLATE	1.	377-2053-A-4	377-2053
190	MES-0005	SCREW MUSHROOM HEAD 3 X 8	6.	ELMA	1910-13
200	KUM-0305	MAINS CONN. MALE WITH FUSE	1.	RP 383201	383201
210	DFT-0004	SLOWBLOW FUSE 0.315A 250V	2.	WICKMANN 19202	RP 480411
220	KUB-0002	CRIMP FOR MAINS CONN. FEMALE	1.	RP 383200	383200
230	MHL-0006	SOLDERING LUG 3.2MM HOLE	1.	RP 305017	3.2MM 3 FLIGE
240	MFD-0003	WASHER THREADED 3 MM	1.	HFC 1226	3MM INDV.FORT.
250	KXM-0001	SHORTING STRAP	1.	ROKA 900 432	900 432
260	KWF-0007	PHONE SOCKET ISOLATED BLACK	2.	RP 388740	388740
270	KDF-2503	D-CONN 25P FEM FLAT. AWG 28	2.	ANSLEY 609	609-25S
280	KRA-0003	NIPPLE FOR FLAT CABLE CONN.	4.	ANSLEY 609	609-003
290	KRF-2601	FLAT CABLE CONN. 26P FEM	2.	ANSLEY 609	609-2630
300	WFC-2826	FLATCABLE 26 X AWG 28	0.	WFC-2826	WFC-2826
310	MHK-0004	SPADE EYE 4.8 X 0.8 ISOLATED	2.	RP 304811	4.8 X 0.8 BLA
320	MHK-0005	CABLE EYE 6.3 X 0.8 ISOLATED	3.	260584	6,3 X 0.8 RØD
330	MHK-0006	SPADE EYE ANGLE 6.3. X 0.8	3.	180-434-2	6.3 X 0.8
340	HLT-0012	CABLE COVER	3.	RP 304968	BE-6
350	377-2031	BACK PANEL	1.	377-2041-A-	377-2031
360	MSC-3008	SCREW 3 X 8 CHJZ	18.	HFC 9033	3 X 8 CHJZ
370	377-230	VIDEO CONTROL BOARD	1.	377-2341-A-	377-230
380	377-290	POWER SUPPLY	1.	377-2941-A-	377-290

NTP

Date: 8.5.87.

Page / of 2

No. :377-2004-A4

NTP 377-200		MULTI CH. PPM. BASIC VERSION		PARTS LIST	
REF.NO	NTP-ID.	DESCRIPTION	QTY	MANUFACT/DRW.NO	PART NO.
390	100-110	64P FEMALE CONNECTOR W SHELL	1.	100-110	100-110
395	100-210	25P MALE CONNECTOR W SHELL	2.	100-210	100-210
400	WPM-7501	MAINS CABLE WITH 2 POLE	1.	2X0.75 +JORD	PMH 322/4030

NTP

Date : 8.5.87.

Page 2 of 2

No. :377-2004A-y

NTP 377-290		POWER SUPPLY		PARTS LIST	
REF.NO	NTP-ID.	DESCRIPTION	QTY	MANUFACT/DRW.NO	PART NO.
10	377-2950	COVER	1.	377-2950-A-3	377-2950
20	377-2951	INSULATION PLATE	1.	377-2951-A-4	377-2951
30	LTU-9645B	TRANSFORMER	1.	ULVECO	DK 9645B
40	MSC-4040	SCREW 4 X 40 CHJZ	1.	CHJ 9033	4 X 40 CHJZ
50	MFD-0004	WASHER THREADED 4.3 MM	1.	HFC 1226	4.3MM DIN 1226
60	MMA-0040	NUT STEEL 4 MM	1.	HFC 9832	DIN 934 4MM
70	STF-0202	TOGGLE SWITCH DPDT	1.	MARQUARDT 1852	1102
80	510-2070	LAMP MODIFIED	1.	510-2070	510-2070
90	MQD-0051	LOCKING DEVICE	1.	DZUS	DP-109-SA
100	MHL-0001	SOLDERING LUG 3.2MM Ø HOLE	1.	RP 305005	3.2MM Ø HUL
110	MSC-3005	SCREW 3 X 5 CHJZ	1.	HFC 9033	3X 5 CHJZ
120	MFD-0003	WASHER THREADED 3 MM	1.	HFC 1226	3MM INDV.FORT.
130	MMA-0030	NUT STEEL 3 MM	1.	HFC 9832	DIN 934 3MG
140	MAA-0008	STAY 5 MM	2.	RP 307788	GEV7TOP 5MM
150	MSC-3012	SCREW 3 X 12 CHJZ	2.	MSC-3012	MSC-3012
160	MFA-0001	WASHER SPRING 3 MM	2.	HFC 1261	3MM DIN 127B
170	MMA-0030	NUT STEEL 3 MM	2.	HFC 9832	DIN 934 3MG
180	MAA-0015	STAY 15 MM	2.	RP 307751	TYPE 00L051
190	MSC-2516	SCREW 2,5 X 16 CHJZ	2.	HFC 9033	2.5 X 16
200	MFD-0002	WASHER THREADED 2.5 MM	2.	HFC 1226	2.5 MM
210	MMA-0025	NUT STEEL 2.5 MM	2.	HFC-9032	6 KT
220	QBA-0018	ISOLATION BUSH	4.	DENKA	BFG-2001
230	QBA-0021	ISOLATION BUSHING	4.	KUNZE	KU 6-651
240	MSC-3008	SCREW 3 X 8 CHJZ	4.	HFC 9033	3 X 8 CHJZ
250	MFA-0001	WASHER SPRING 3 MM	4.	HFC 1261	3MM DIN 127B
260	MMA-0030	NUT STEEL 3 MM	4.	HFC 9832	DIN 934 3MG
270	MHK-0004	SPADE EYE 4.8 X 0.8 ISOLATED	4.	RP 304811	4.8 X 0.8 BLÅ
280	MHK-0005	CABLE EYE 6.3 X 0.8 ISOLATED	3.	260584	6,3 X 0.8 RØD
290	HKB-0001	CABLE TIE	4.	HFC 2501	2,2X75 SORT
300	377-2931	REGULATOR BOARD	1.	377-2941-A-3	377-2931

NTP

Date : 25.5.87.

Page / of /

No. : 377-2933-A-Y

To extract general information about the signal flow in the multichannel 377-200 a study of the System Diagram - drawing no. 377-2019-A-3 - is recommended.
If more detailed information is needed, the schematic diagrams should be used in conjunction with the "Pin Use" list and the "Wirelist" as described below:

Example

How to determine connections to Channel A0 pin 7a on the Video Controller (cf. drawing 377-2330-B-1):

As may be seen from the drawing 377-2041, the video controller connects to the backpanel through CON 13. Consult the Pin List from which it appears that CON 13 pin 7a belongs to a group named CON15-7a.

Use this as an entry for the Wirelist from which it may be seen that the group consists of CON8 18a, CON9 18a; CON10 18a; CON1 18a, CON13 7a; CON14 7a; CON15 7a.