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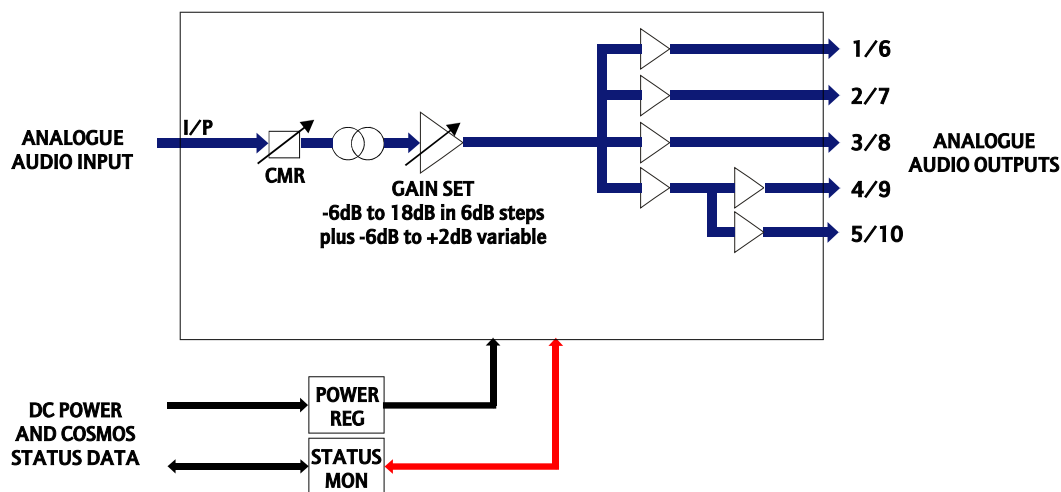
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1 Introduction

The 4431 is a monaural analogue audio distribution amplifier with up to 10 outputs. Gain adjustment, over the range -6dB to +20dB is controlled by a combination of jumpers and card edge potentiometers. Frequency response is contoured to provide a smooth roll-off below 20Hz and above 20kHz to exclude out-of-band artefacts, whilst zero field transformers maintain a constant high input impedance over the entire audio band.

4431 feature summary:

- single channel operation with up to 10 outputs
- transformer coupled input
- electronically balanced outputs
- adjustable gain
- 20mm module width
- COSMOS status monitoring equipped



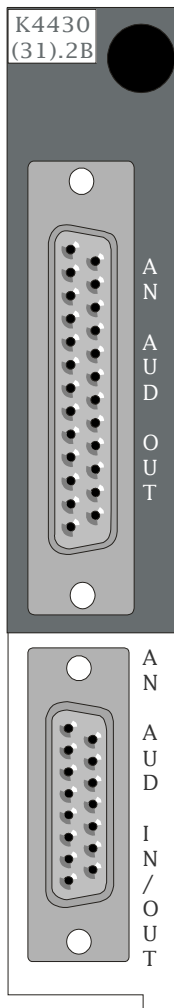
4431 mono analogue audio distribution amplifier

2 Installation

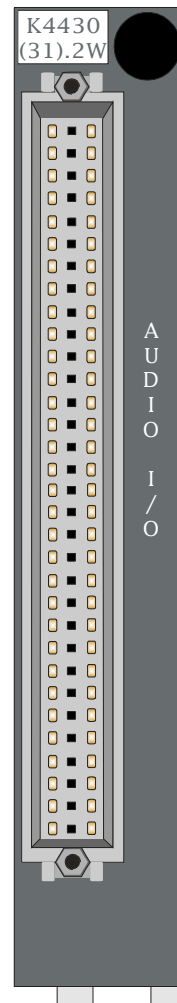
For module installation instructions please refer to the appropriate ICON rack frame section of the manual

2.1 Rear connector I/O

The 4431 is used with K4430-2B 20mm rear panel for a total of 5 outputs or with the K4430-2W rear panel for a total of 10 outputs.



K4430.2B rear panel

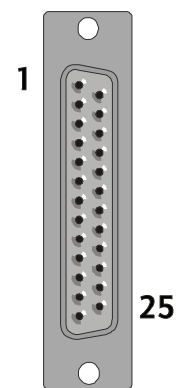


K4430.2W rear panel

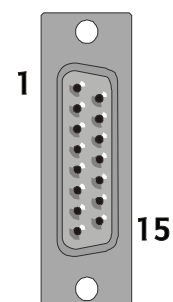
2.2 Audio pin-out

The K4430-2B rear panel analogue audio pin-outs are as follows:

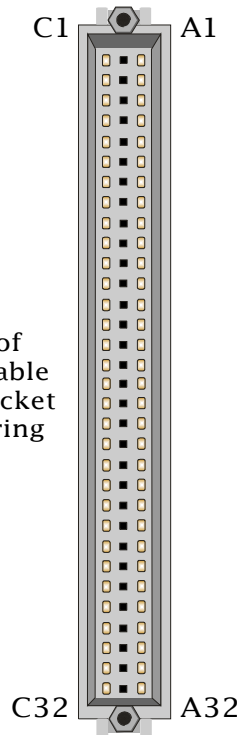
Analogue audio output connector			
25 way 'D' female socket			
Pin	Function		Function
1	O/P 1-	14	O/P 2-
2	O/P 1+	15	O/P 2+
3	COM	16	COM
4	N/C	17	O/P 3-
5	N/C	18	O/P 3+
6	O/P 4-	19	O/P 5-
7	O/P 4+	20	O/P 5+
8	COM	21	N/C
9	N/C	22	N/C
10	N/C	23	COM
11	COM	24	N/C-
12	N/C	25	N/C
13	N/C		



Analogue audio input/output connector			
15 way 'D' female socket			
Pin	Function		Function
1	N/C	9	N/C
2	COM	10	N/C
3	N/C	11	COM
4	N/C	12	N/C
5	COM	13	I/P +
6	I/P -	14	COM
7	N/C	15	N/C
8	COM		



The K4430-2W rear panel audio pin-outs are as follows



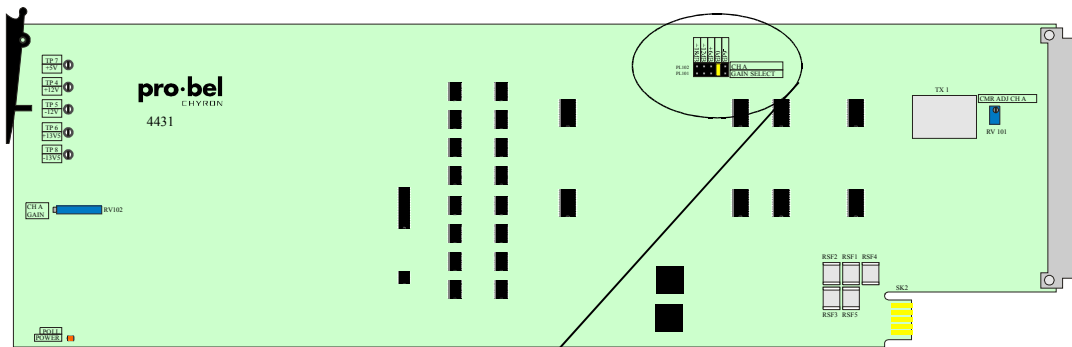
Note: Pin location of mating cable ended socket (from wiring side)

Row C	Pin Number	Row A
	1	0V
O/P 1+	2	O/P 1-
O/P 6+	3	O/P 6-
O/P 2+	4	O/P 2-
0V	5	0V
O/P 7+	6	O/P 7-
O/P 8+	7	O/P 8-
O/P 3+	8	O/P 3-
O/P 9+	9	O/P 9-
O/P 4+	10	O/P 4-
0V	11	0V
O/P 5+	12	O/P 5-
O/P 10+	13	O/P 10-
	14	
N/C	15	N/C
N/C	16	N/C
0V	17	0V
N/C	18	N/C
N/C	19	N/C
N/C	20	N/C
N/C	21	N/C
N/C	22	N/C
0V	23	0V
N/C	24	N/C
N/C	25	N/C
N/C	26	N/C
0V	27	0V
I/P +	28	I/P -
0V	29	0V
N/C	30	N/C
	31	
	32	0V

Note: Pin numbers of the panel mounted plug are reversed (1-32 etc) due to an inconsistency of the DIN 41612 range.

3 Configuration

The 4431 provides simple input gain adjustment:

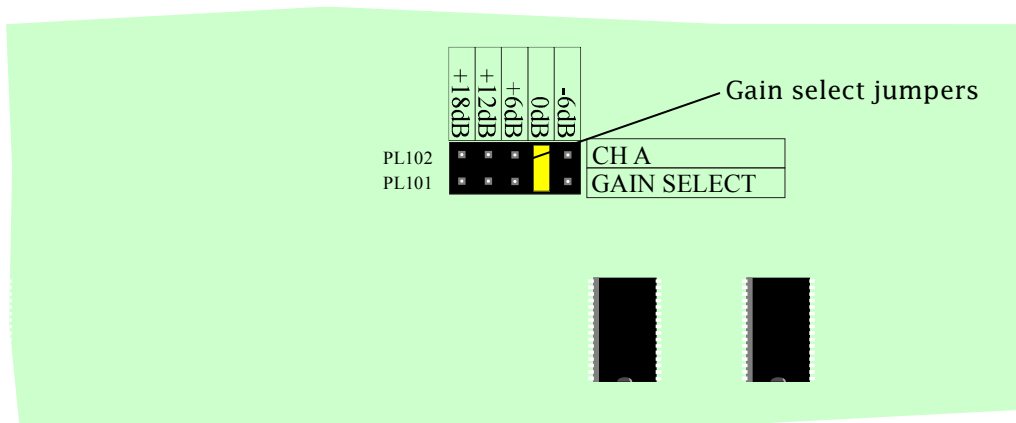


4431 configuration jumpers

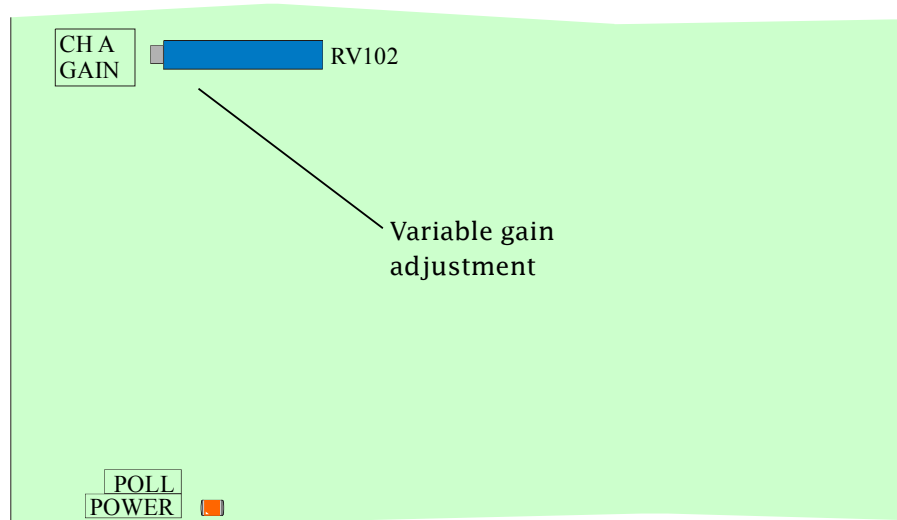
3.1 Adjusting output levels

Channel gain is independently adjustable in steps of 6dB from -6dB to +18dB and continuously variable to provide a total gain range of -12dB to +20dB.

Select channel gain with the jumpers provided closest to the desired value as follows:



Adjust the variable gain for the desired value using a small flat bladed screwdriver:



Note: The factory set adjustment for Common Mode Rejection (CMR) should never need to be re-set.

4 Trouble shooting

Output level is incorrect

- check gain select jumpers and adjust card edge input gain if necessary

The POWER LED is not illuminated

- check mains power to the frame is turned on
- if necessary check the PSU as explained in the power supply section
- check the card is plugged in securely
- check to see if one of the re-settable fuses have operated. To do this turn the power off, wait for thirty seconds and then restore the power.

5 COSMOS status monitoring

If the frame is equipped with a COSMOS controller card the following parameters will be reported back to the COSMOS status monitoring system.

- power status

In addition, the module is programmed with the following information, which can be read by the status monitoring controller:

- module present
- module type
- module bar code
- module issue no

For further details of the Pro-Bel status monitoring system please refer to the COSMOS status monitoring manual.

6 Specification

Inputs

Number and type:	One transformer coupled analogue audio, earth free
Max input level:	+21dBu
Impedance:	>20k Ω

Outputs

Number and type:	One x 10 electronically balanced about 0v
Impedance:	< 40 Ω , 20Hz to 20kHz

Performance

Max output level:	+24dBu into one 600 Ω load
Gain:	Adjustable -6dB to +18dB in 6dB steps, jumper selected, variable -6dB to +2dB
Frequency response:	\pm 0.1dB 40Hz to 15kHz \pm 0.25dB 20Hz to 20kHz Smooth roll-off below 20Hz and above 20kHz
Distortion:	(-10dBu to +20dBu) <0.05% 80Hz to 10kHz <0.1% 30Hz to 80Hz
Noise:	(Unity gain, input terminated) < -90dBu RMS, DIN audio band < -80dBu ITU-R 468-4 weighted

Indicator

Power status	Green LED
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On-card gain controls

Jumper settings -6dB, 0dB, +6dB, +12dB, +18dB
Continuously variable -6dB to +2dB

7 **Ordering information**

ICO-4431-2BF0

5 output Audio Distribution Amplifier with 20mm rear panel (K4430-2B)

ICO-4431-2BT0

10 output Audio Distribution Amplifier with 20mm rear panel (K4430-2W)