



The 5000 Series Concept

The IED 5000 Series is a unique audio signal processing system. It is extremely versatile and flexible. The modular structure easily allows changes to the system by merely adding or exchanging one or more of a series of plug-in cards. Over 60 different types of cards are available.

Utilizing the many available IED 5000 Series cards as building blocks, a system can be designed to suit any specific application.

All plug-in cards provide balanced floating outputs and balanced differential inputs by using IED Models 200L, 208S, output modules, and 150M and 100L active input modules.

Trimpots are provided for gain adjustments of the inputs and outputs. These trimpots are located on the mother board of the Model 5032 mainframe, allowing replacement of cards without re-adjustment of gain settings.

The mainframe and all cards provide expansion capability in certain configurations up to 48 outputs or 48 inputs. Additional features are available such as Programmable Gain Controls, Compressors and Voltage Control Amplifiers (VCA).

The available higher power options can drive speakers at either an 8 W (-8 option) using the 208S output module, or at a 32 W level (5232Q).

The IED 5000 Series consists of a 3 ½" x 19" rack-mount mainframe which holds up to 12 modular plug-in cards plus one power supply card, or a 10 modular card mainframe with 2 power supply slots for applications requiring up to 8 watt outputs. There is also a mainframe which is designed for external power supplies. It holds up to 12 processing cards and an external power supply interface card. All necessary connections between the plug-in cards and external input and output connections are made through lugless screw-terminal connectors. This provides for a fast, neat and reliable installation.

Active Modules

The many options available in the 5000 Series are based on IED's unique active functional modules. All are printed circuit mountable and are 1" x 1" x 2" in size.

INPUT MODULES

There are two input modules, the 100L, a line level input module and the 150M, a microphone level input module. Both are designed to replace the input transformer and all associated active circuitry in any high quality audio system. Both incorporate a special balanced RF filter to eliminate input overload and interference from high level common mode RF signals.

The 100L includes circuitry to isolate any DC voltage on the input. The 150M contains the necessary circuitry to allow phantom powering to be applied to condenser microphones.

PROCESSING MODULES

There are three basic processing modules, the 110C Compressor, the 110V Voltage Controlled Amplifier, and the 120P Programmable Gain Control.

IED Model 110C Compressor

IED Model 110C compressor module is a highly reliable, smooth and natural sounding compressor. It has a fixed 6:1 compression ratio and flat frequency response with extremely low levels of noise and distortion of less than .02% under any conditions.

IED Model 110V Voltage Controlled Amplifier

The 110V is an accurate voltage controlled amplifier of advanced design. In addition to the conventional VCA functions the 110V has another unique feature. By applying voltage to control pin 1, the 110V can be used as a duck-down amplifier with a range of 0 to 70 dB gain reduction.

IED Model 120P Programmable Gain Control

The Automatic Gain Control function of the model 120P module operates quite differently from commonly known AGC devices and compressors presently in use because it does not have a release time.

The signal from the program source is used to program the PGC. As the signal level changes, the PGC will automatically adjust the output level and maintain a constant output signal.

This is done slowly and smoothly. The annoying "pumping", so often heard with other devices, is not present with IED's PGC.

The attack time is such that dynamic variances in normal syllabic speech are not affected, rather that audio from a person whose normal average speech is loud will be attenuated quickly by several decibels in the first few seconds, and then attenuated additionally over a longer period of time up to a maximum gain reduction of approximately 40 dB. The model 120P has 20 dB gain.

Conversely, gain will be increased for a speaker with a soft voice.

Gain changes are accomplished smoothly and quickly, but at a rate which is not intrusive.

OUTPUT MODULES

IED Model 200L Active Output Module

The IED Model 200L is an Active Output Module designed to replace the output transformer and all associated active circuitry in any high quality audio system. The IED Model 200L performs the same function as the output transformer while eliminating the disadvantages. Two major improvements are low output impedance (less than 0.5 ohm) and ground isolation. The low output impedance allows the unit to be loaded with a VU Meter without adding distortion, and the performance is independent of the terminating load. Ground isolation provides a balanced FLOATING output plus the performance of an active output amplifier without the disadvantages of an output transformer.

IED Model 208S Active Output Module

The IED Model 208S is similar in function and design to the 200L. Through the use of higher power devices and effective heat sinking, the 208S produces 8 Watts of audio, sufficient to drive a loudspeaker in many applications. It delivers up to 8 W into an 8 Ω load, and can be used on the output of any 5201, 5202, or 5401 series card.

SPECIAL CARDS

IED Model 5401NQ Series

The IED 5401NQ series is specifically designed to perform the nulling and EQ functions in a mix minus system. It consists of three cards. The 5401NQ has a balanced, floating output. The 5401NQ-8 has a Model 208S power amplifier in the output which is capable of driving 8 Watts into an 8 Ω load. The 5400NE is for input expansion only. It has no normal output.

IED Model 5232Q Series

The 5232Q is a dual amplifier card which delivers 32 W per channel into an 8 Ω load. It has onboard EQ, VCA and filtering. The inputs are balanced with gain adjustable from 0 dB to 15 dB by pots located on the mother board.

MODEL	NUMBER OF INPUTS	INPUT LEVEL	NUMBER OF OUTPUTS	OUTPUT LEVEL	PROCESSING MODULE	SWITCH	MODEL	NUMBER OF INPUTS	INPUT LEVEL	NUMBER OF OUTPUTS	OUTPUT LEVEL	PROCESSING MODULE	SWITCH
5104	1	L	4	L	-	-	5201S	2	L	1	L	-	Y
5004E	0	-	4	L	-	-	5201S-8	2	L	1	8 W	-	Y
5154	1	M	4	L	-	-	5251S	2	M	1	L	-	Y
5201	2	L	1	L	-	-	5101S	1	L	1	L	-	Y
5201-8	2	L	1	8 W	-	-	5101S-8	1	L	1	8 W	-	Y
5251	2	M	1	L	-	-	5151S	1	M	1	L	-	Y
5101	1	L	1	L	-	-	5201V	2	L	1	L	110V	-
5101-8	1	L	1	8 W	-	-	5201V-8	2	L	1	8 W	110V	-
5151	1	M	1	L	-	-	5251V	2	M	1	L	110V	-
5201C	2	L	1	L	110C	-	5101V	1	L	1	L	110V	-
5201C-8	2	L	1	8 W	110C	-	5101V-8	1	L	1	8 W	110V	-
5251C	2	M	1	L	110C	-	5151V	1	M	1	L	110V	-
5101C	1	L	1	L	110C	-	5201VS	2	L	1	L	110V	Y
5101C-8	1	L	1	8 W	110C	-	5201VS-8	2	L	1	8 W	110V	Y
5151C	2	M	1	L	110C	-	5251VS	2	M	1	L	110V	Y
5201CS	2	L	1	L	110C	Y	5101VS	1	L	1	L	110V	Y
5201CS-8	2	L	1	8 W	110C	Y	5101VS-8	1	L	1	8 W	110V	Y
5251CS	2	M	1	L	110C	Y	5151VS	1	M	1	L	110V	Y
5101CS	1	L	1	L	110C	Y	5202	2	L	2	L	-	-
5101CS-8	1	L	1	8 W	110C	Y	5202-8	2	L	2	8 W	-	-
5151CS	1	M	1	L	110C	Y	5252	2	M	2	L	-	-
5201P	2	L	1	L	120P	-	5202M	2	L	3	L	-	-
5201P-8	2	L	1	8 W	120P	-	5202S	2	L	2	L	-	Y
5251P	2	M	1	L	120P	-	5252S	2	M	2	L	-	Y
5101P	1	L	1	L	120P	-	5401	4	L	1	L	-	-
5101P-8	1	L	1	8 W	120P	-	5401-8	4	L	1	8 W	-	-
5151P	1	M	1	L	120P	-	5200E	4	L	0	-	-	-
5201PS	2	L	1	L	120P	Y	5451	4	M	1	L	-	-
5201PS-8	2	L	1	8 W	120P	Y	5450E	4	M	0	-	-	-
5251PS	2	M	1	L	120P	Y	5401NQ	4	L	1	L	Null/EQ	-
5101PS	1	L	1	L	120P	Y	5401NQ-8	4	L	1	8 W	Null/EQ	-
5101PS-8	1	L	1	8 W	120P	Y	5400NE	4	L	0	L	Null/EQ	-
5151PS	1	M	1	L	120P	Y	5232Q	2	L	2	32 W	-EQ	-

MAINFRAMES	
5032-12	Holds 12 5000 Series cards and 1 5030L/H power supply
5032EP-12	Holds 12 5000 Series cards and 1 Model 5002 external power supply interface card
5032-10	Holds 10 5000 Series cards and 2 5030L/H power supplies for high current applications
POWER SUPPLIES	
5030L/H	200 W (7A) switching power supply card for one 5032 mainframe

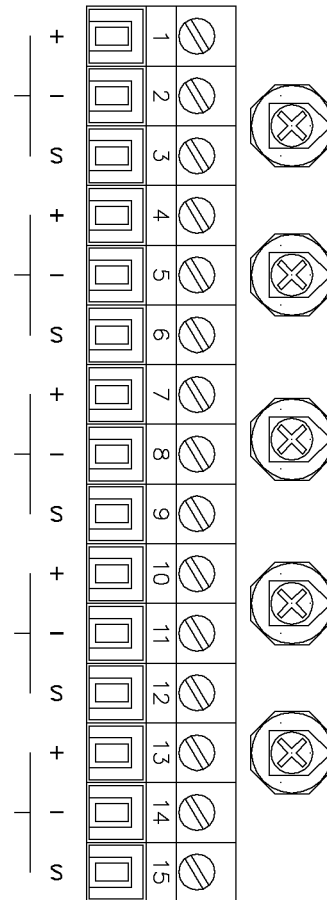
415L/H	±15 VDC, 6A power supply module for external power supply system
408ML/H	Mainframes for up to 8 400 Series power supply modules for external power supply system
5002	External power supply interface card for one 5032 Mainframe
Notes: "L" suffix denotes nominal 120 VAC, 50/60 Hz operation. "H" suffix denotes nominal 240 VAC, 50/60 Hz operation. See product descriptions for exact specifications.	

MODEL 5032 MAINFRAME

BACKPLANE TERMINAL CONNECTIONS AND TRIMPOTS

NOTES

1. Gain set trimpots are located on the mother board only, and are installed only as needed. Values are 200 Ω for the 150M, and 10 k Ω for all other modules.
2. High sides of inputs or outputs are marked '+' (screw terminals 1, 4, 7, 10, and 13). Low sides are marked '-' (screw terminals 2, 5, 8, 11, and 14). All shields are grounded (screw terminals 3, 6, 9, 12, and 15, marked 'S' on the mother board).
3. For input and output screw terminal assignments, refer to specifications for individual card types.
4. When connecting to the compression type screw terminal connectors, use tinned stranded wire between 14 and 22 AWG. Be sure that all strands enter the terminal, so that there is no possibility of their shorting to an adjacent terminal. **DO NOT APPLY EXTRA TINNING!** Extra tinning can result in long term loosening of the connections, resulting in erratic operation and failure.



Rear view of one audio processing card position
of the IED 5032 Mainframe

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