

# Titan Modular Mainframe Amplifier Cards

## 2-Channel Commercial Power Amplifier Modules



### General Description

The IEDT6152, IEDT6302, and IEDT6602 are Class D dual channel power amplifier modules that are used in the Titan series power amplifier modular mainframes. Each card may be used in either the Titan IEDT9160 Nine-Card Capable Mainframe or IEDT6400 Two-Card Capable Mainframe. Any card may be dynamically placed in any slot in the mainframes without requiring configuration settings to be made on the amplifier cards.

Class D operation combined with an integral switch mode power supply offers many advantages and the unique AtlasIED design makes full use of these benefits including:

- Higher Efficiency
- Increased Reliability
- Improved Performance
- Lower Operating Cost

The card contains no onboard attenuation controls. Attenuation is handled by the modular mainframe processor. This ensures user error does not happen during system commissioning.

The power amplifier module has built-in voltage limiters to protect the loudspeakers from being over driven. In addition, a temperature sensor on the heatsink will automatically shut down a module that becomes too hot in order to protect the electronics. When used with the IEDT9160 mainframe, the amplifier module's status signals are monitored by the IEDT9160 central processor. Failures will be detected and reported to alert users that service is required. When used in an IEDT6400 mainframe, these status signals are presented at the back of the mainframe for monitoring by external devices such as the T9032MT or T9032LVIO collectors.

The amplifier module has LED indicators located on its front edge. A single green LED will illuminate to indicate that the amplifier is powered on. Each channel on the card also has a multi-color signal LED. It will illuminate green when input signal is present on the channel. This LED changes to yellow to indicate that the channel is clipping.

A power switch is provided on the front of each module. It is recessed and requires a tool to operate. The switch allows an individual card to be powered down, removed, and replaced without affecting any other cards installed in the same mainframe. Each card provides +24VDC through current limiting resistors to operate the fans in the rear of the mainframe to aid in system cooling.

Each model is available in either 120VAC or 240VAC power operation. 120VAC models contain an "L" suffix while 240VAC models contain an "H" suffix.

#### Available Amplifier Card Configurations:

IEDT6152H	300W Total, 2 CH x 150W, 100V
IEDT6152L	300W Total, 2 CH x 150W, 70V
IEDT6302H	600W Total, 2 CH x 300W, 100V
IEDT6302L	600W Total, 2 CH x 300W, 70V
IEDT6602H	1200W Total, 2 CH x 600W, 100V
IEDT6602L	1200W Total, 2 CH x 600W, 70V

Model Number	IEDT6152H	IEDT6152L	IEDT6302H	IEDT6302L	IEDT6602H	IEDT6602L
<b>Electrical</b>						
Power Supply Type	Switch Mode	Switch Mode	Switch Mode	Switch Mode	Switch Mode	Switch Mode
Amp Topology	Class D	Class D	Class D	Class D	Class D	Class D
Number of Fixed Inputs	2	2	2	2	2	2
<b>Output Power</b>						
100V x 2-CH (200Ω load-continuous) (Note 2)	50 Watt					
100V x 2-CH (64Ω load-pulse) (Note 1)	150 Watt					
70V x 2-CH (100Ω load-continuous) (Note 2)		50 Watt				
70V x 2-CH (32Ω load-pulse) (Note 1)		150 Watt				
100V x 2-CH (100Ω load-continuous) (Note 2)			100 Watt			
100V x 2-CH (32Ω load-pulse) (Note 1)			300 Watt			
70V x 2-CH (50Ω load-continuous) (Note 2)				100 Watt		
70V x 2-CH (16Ω load-pulse) (Note 1)				300 Watt		
100V X 2-CH (50Ω load-continuous) (Note 2)					200 Watt	
100V x 2-CH (16Ω load-pulse) (Note 1)					600 Watt	
70V x 2-CH (25Ω load-continuous) (Note 2)						200 Watt
70V x 2-CH (8Ω load-pulse) (Note 1)						600 Watt
<b>Factory Default Settings (as shipped)</b>						
Amplifier Configuration	2-CH 100V Mode (CH 1/2 = 100V)	2-CH 70V Mode (CH 1/2 = 70V)	2-CH 100V Mode (CH 1/2 = 100V)	2-CH 70V Mode (CH 1/2 = 70V)	2-CH 100V Mode (CH 1/2 = 100V)	2-CH 70V Mode (CH 1/2 = 70V)
Level Controls	N/A	N/A	N/A	N/A	N/A	N/A
GPIO Control Ports (Rear Panel)	N/A	N/A	N/A	N/A	N/A	N/A
<b>Inputs</b>						
Input Quantity	2 Balanced Inputs	2 Balanced Inputs	2 Balanced Inputs	2 Balanced Inputs	2 Balanced Inputs	2 Balanced Inputs
Input Type (Line Balanced or Unbalanced)	Balanced	Balanced	Balanced	Balanced	Balanced	Balanced
Input Impedance, Ω	20KΩ Balanced	20KΩ Balanced	20KΩ Balanced	20KΩ Balanced	20KΩ Balanced	20KΩ Balanced
Input Sensitivity	5dBu - 1.377V	5dBu - 1.377V	5dBu - 1.377V	5dBu - 1.377V	5dBu - 1.377V	5dBu - 1.377V
Maximum Input Level dBu & Vrms	14dBu - 3.82V	14dBu - 3.82V	14dBu - 3.82V	14dBu - 3.82V	14dBu - 3.82V	14dBu - 3.82V
<b>Status Indicators - Front Panel and GUI</b>						
Power	Green Indicator	Green Indicator	Green Indicator	Green Indicator	Green Indicator	Green Indicator
Standby (Remote turn ON)	N/A	N/A	N/A	N/A	N/A	N/A
Output Signal	Green, CH 1/2	Green, CH 1/2	Green, CH 1/2	Green, CH 1/2	Green, CH 1/2	Green, CH 1/2
LED Bar Meter	N/A	N/A	N/A	N/A	N/A	N/A
Output Limit/Protect	Yellow, CH 1/2	Yellow, CH 1/2	Yellow, CH 1/2	Yellow, CH 1/2	Yellow, CH 1/2	Yellow, CH 1/2

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Model Number	IEDT6152H	IEDT6152L	IEDT6302H	IEDT6302L	IEDT6602H	IEDT6602L
<b>Electrical Specifications (General)</b>						
Total Harmonic Distortion 1 kHz and 1 dB below rated power	< 0.01%	< 0.01%	< 0.01%	< 0.01%	< 0.01%	< 0.01%
Signal to Noise Ratio	> 85dB Below Rated Output 20Hz - 20kHz	> 85dB Below Rated Output 20Hz - 20kHz	> 85dB Below Rated Output 20Hz - 20kHz	> 85dB Below Rated Output 20Hz - 20kHz	> 85dB Below Rated Output 20Hz - 20kHz	> 85dB Below Rated Output 20Hz - 20kHz
Frequency Response	20Hz - 20kHz (6.25-watt into 200Ω)	20Hz - 20kHz (6.25-watt into 100Ω)	20 Hz - 20kHz (12.5-watt into 100Ω)	20Hz - 20kHz (12.5-watt into 50Ω)	20Hz - 20kHz (25-watt into 50Ω)	20Hz - 20kHz (25-watt into 25Ω)
Damping Factor (20Hz to 400Hz)	Aprox 300	Aprox 150	Aprox 150	Aprox 80	Aprox 50	Aprox 50
Crosstalk CH1-2 & CH 2-1	73dB	73dB	73dB	73dB	73dB	73dB
Protection	Power Limit 150%. Fused	Power Limit 150%. Fused	Power Limit 150%. Fused	Power Limit 150%. Fused	Power Limit 150%. Fused	Power Limit 150%. Fused
<b>AC Power Requirements</b>						
Operating Voltage (VAC)	210V-260V 50/60Hz (Factory set)	105V-130V 50/60Hz (Factory set)	210V-260V 50/60Hz (Factory set)	105V-130V 50/60Hz (Factory set)	210V-260V 50/60Hz (Factory set)	105V-130V 50/60Hz (Factory Set)
Minimum Power-Up Voltage	180V	90V	180V	90V	180V	90V
Maximum Operating Voltage	260V	130V	260V	130V	260V	130V
<b>Power Consumption, Current Draw</b>						
<b>Amps</b>						
Active Mode - No Signal	234mA	468mA	234mA	468mA	234mA	468mA
RMS Power 70V, Both Channels @ 1/8 Power	0.322A	0.645A	0.41A	0.817A	0.58A	1.16A
RMS Power 70V, Both Channels @ Clipping Output	0.86A	1.73A	1.48A	2.95A	2.79A	5.58A
<b>Watts</b>						
Active Mode - No Signal	39W(56VA-0VA)	39W(56VA-0VA)	39W(56VA-0VA)	39W(56VA-0VA)	39W(56VA-0VA)	39W(56VA-0VA)
RMS Power 70V, Both Channels @ 1/8 Power	53.2W(77.5VA- 12.5VA)=65VA	53.2W(77.5VA- 12.5VA)=65VA	66.2W(98.54VA- 25VA)=73.5VA	66.2W(98VA- 25VA)=73VA	100W(139VA- 50VA)=89VA	100W(139VA- 50VA)=89VA
RMS Power 70V, Both Channels @ Clipping Output	149W(208VA- 100VA)=108VA	149W(208VA- 100VA)=108VA	266W(354VA- 200VA)=154VA	266W(354VA- 200VA)=154VA	517W(670VA- 400VA)=270VA	517W(670VA- 400VA)=270VA
<b>BTU/hr (Note3)</b>						
Active Mode - No Signal	192BTU	192BTU	192BTU	192BTU	192BTU	192BTU
RMS Power 70V, Both Channels @ 1/8 Power	222BTU	222BTU	249BTU	249BTU	304BTU	304BTU
RMS Power 70V, Both Channels @ Clipping Output	369BTU	369BTU	525BTU	525BTU	920BTU	920BTU
<b>Environmental</b>						
Operating Temperature Range (Applicable for typical voice paging and background music applications)	+32 °F - +104 °F (0 °C - 40 °C)	+32 °F - +104 °F (0 °C - 40 °C)	+32 °F - +104 °F (0 °C - 40 °C)	+32 °F - +104 °F (0 °C - 40 °C)	+32 °F - +104 °F (0 °C - 40 °C)	+32 °F - +104 °F (0 °C - 40 °C)
Storage Temperature Range	-40 °F - +158 °F (-40 °C - +70 °C)	-40 °F - +158 °F (-40 °C - +70 °C)	-40 °F - +158 °F (-40 °C - +70 °C)	-40 °F - +158 °F (-40 °C - +70 °C)	-40 °F - +158 °F (-40 °C - +70 °C)	-40 °F - +158 °F (-40 °C - +70 °C)
<b>Cooling</b>						
Cooling System	Part of Required Amplifier Mainframe	Part of Required Amplifier Mainframe	Part of Required Amplifier Mainframe	Part of Required Amplifier Mainframe	Part of Required Amplifier Mainframe	Part of Required Amplifier Mainframe
Cooling Air Flow Direction	Front to Back	Front to Back	Front to Back	Front to Back	Front to Back	Front to Back

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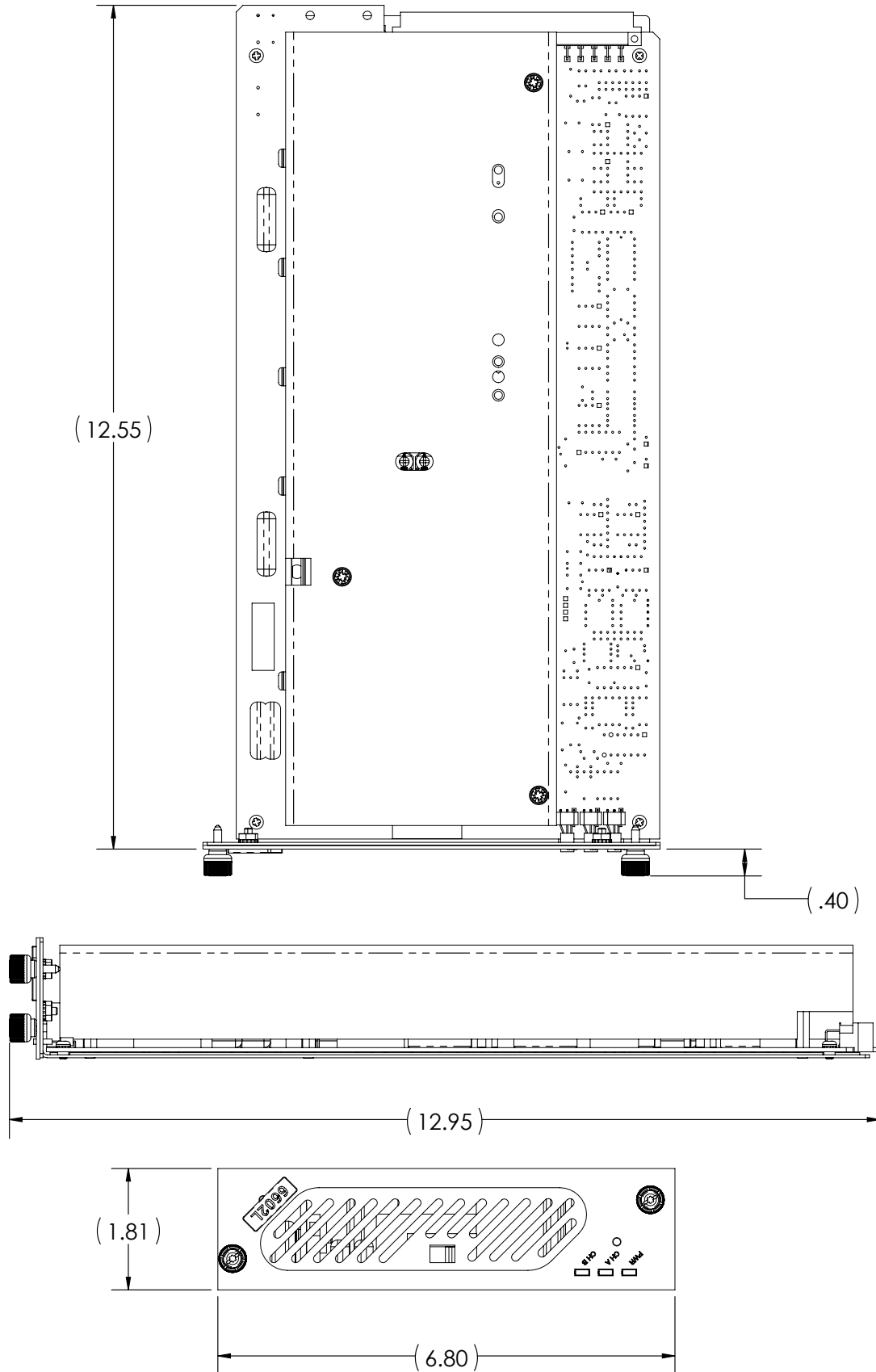
Model Number	IEDT6152H	IEDT6152L	IEDT6302H	IEDT6302L	IEDT6602H	IEDT6602L
<b>Dimensions and Weight</b>						
Rack Mount Requirements	Required Amplifier Mainframe, IEDT6400 or IEDT9160H	Required Amplifier Mainframe, IEDT6400 or IEDT9160L	Required Amplifier Mainframe, IEDT6400 or IEDT9160H	Required Amplifier Mainframe, IEDT6400 or IEDT9160L	Required Amplifier Mainframe, IEDT6400 or IEDT9160H	Required Amplifier Mainframe, IEDT6400 or IEDT9160L
Dimensions - Unit	W 1.8" x H 6.8" x D 12.5" (4.6mm x 173mm x 31.75mm)	W 1.8" x H 6.8" x D 12.5" (4.6mm x 173mm x 31.75mm)	W 1.8" x H 6.8" x D 12.5" (4.6mm x 173mm x 31.75mm)	W 1.8" x H 6.8" x D 12.5" (4.6mm x 173mm x 31.75mm)	W 1.8" x H 6.8" x D 12.5" (4.6mm x 173mm x 31.75mm)	W 1.8" x H 6.8" x D 12.5" (4.6mm x 173mm x 31.75mm)
Dimensions - Shipping	N/A	N/A	N/A	N/A	N/A	N/A
Weight - Unit	4 Lbs. (1.8 Kg)	4 Lbs. (1.8 Kg)	4 Lbs. (1.8 Kg)	4 Lbs. (1.8 Kg)	4 Lbs. (1.8 Kg)	4 Lbs. (1.8 Kg)
Weight - Shipping	N/A	N/A	N/A	N/A	N/A	N/A
<b>Agency Approvals</b>						
North America Agency	None	None	None	None	None	None
Testing Standard North America	None	None	None	None	None	None
FCC Class A (Conducted & Radiated Emissions)	Part 15 of the FCC rules	Part 15 of the FCC rules	Part 15 of the FCC rules	Part 15 of the FCC rules	Part 15 of the FCC rules	Part 15 of the FCC rules
RoHS / WEE Compliant	No	No	No	No	No	No
CE	No	No	No	No	No	No

**NOTES:**

1. Power level is define as: 1 kHz Sine wave signal burst of 20 cycles (20mS) at 1% THD+N, followed by 480 cycles of a 1kHz sine wave at 10% of the max.
2. Max Power is defined as 1 kHz input signal applied to achieve the maximum power output before clipping into lead appropriate to each amplifier's rating/size.
3. BTU is calculated by the AC Mains Volt-Amperes minus the RMS power output measured at the specified load and condition, multiplied by 3.412.

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Dimensional Drawings



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## Architect and Engineer Specifications

The Modular Amplifier cards for use with the Digital Network Modular Amplifier Frame (DNMAF) are 2 channel Class D Switching Mode Commercial Amplifier Modules capable of delivering 150W (70.7V/100V), 300W (70.7V/100V) or 600W (70.7V/100V) per channel. Any Card can be used in either the AtlasIED Titan T9160 Digital Network Modular Amplifier Frame or Titan T6400 Modular Amplifier Frame in any slot without need to configure any settings on the card. The Amplifier Module shall be under software control. No on-board manual controls for attenuation of the Modular Amplifier Card will be permitted.

Modular Amplifier Cards shall utilize voltage limiting to protect the loudspeakers and a temperature sensor to monitor the status of the amplifier channel(s). Status Signals shall be alert the AtlasIED Supervision System that service is required.

The Modular Amplifier Cards shall include LED indicators for signal presence (Green) and for Clipping of the Output (Yellow).

Available Amplifier Configurations shall include models for 70.7V and 100V loads:

IEDT6152H	300W Total, 2 CH x 150W, 100V
IEDT6152L	300W Total, 2 CH x 150W, 70V
IEDT6302H	600W Total, 2 CH x 300W, 100V
IEDT6302L	600W Total, 2 CH x 300W, 70V
IEDT6602H	1200W Total, 2 CH x 600W, 100V
IEDT6602L	1200W Total, 2 CH x 600W, 70V

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