



# AC-DC / DC-AC BIDIRECTIONAL **POWER CONVERTER**

FORMIDABLE POWER CAPABILITY AND LEADING-EDGE EFFICIENCY





# BIDIRECTIONAL POWER CONVERTER



More Efficient



High Power Density



Configurable



## KEY FEATURES

Universal Usage & Configurable

Power to 150kW

Efficiency: >96%

Designed to: RTCA-DO-160. MIL-STD-704. MIL-STD-461



Leading the way in the future of sustainable power conversion for aerospace and defence platforms, TT Electronics introduces a state-of-the-art Bidirectional Power Converter. Designed to military standards, this cutting-edge solution offers formidable power capability and leading-edge efficiency while being compact and lightweight.

Perfect for enabling electrification and next-generation technologies, the Bidirectional power converter to 150kW delivers up to 5 times more system power of traditional converters while enabling increased electrification with unmatched efficiency >96%.

Its universal design ensures seamless integration with existing systems through a modular architecture that supports a range of voltages and power levels that meets diverse mission requirements.

## At the Forefront of Power Conversion Technology

At TT Electronics, we have decades of experience in power conversion engineering, delivering the highest quality and reliability. From electrical system platform upgrades to more-electric aircraft and tactical microgrids, TT Electronics is at the forefront of next-generation designs in a rapidly evolving landscape, where power, precision, and sustainability converge.



Typical applications include Electrification and electrical system upgrades on Aircraft, Land and Naval Platforms. More Electric Aircraft (MEA) & EVTOL and tactical microgrids.



## CONFIGURATIONS



### BIDIRECTIONAL



MODEL	POWER	CONFIGURATION
05		U - Universal (real time configurable to any model)
10		B - Bi-Directional / bus converter / bridge converter
15		C - Unidirectional bus converter
30		M - Motor control
50		S - Servo control / position control
75		I - Current source inverter
125		
150		

#### QUALIFICATION

M - MIL-Aero  
A - Commercial-Aero  
N - Naval Application  
T - Ground / Tactical Vehicle



**AX-FORCE™**

## KEY CHARACTERISTICS OF MODEL 015BM

### AC Input/Output

AC Voltage	105-240VLN 3-Phase at 360-800Hz
Max Current	60Arms (per phase)
Power Factor	>.99
Total Harmonic Distortion (THD)	< 3%

### DC Input/Output

DC Voltage*	300 – 1000V
Max Current	50Adc
Over Voltage & Current Protection*	Set at 110%-120% of Max
Rise Time*	66ms
Load Transient (10-90%)	<4% of VDC Nominal

### Power

Total Power at Nominal 550Vdc	15kW
Efficiency	> 96%

\* Parameter can be configurable on request

In development. Specifications subject to change.

[www.ttelectronics.com](http://www.ttelectronics.com)

## CONTROLLABLE FEATURES

DC Output Voltage 300 – 1000Vdc  
Input Current can be limited  
Input Under Voltage Protection  
Input/Output Over Voltage Protection  
Input/Output Over Current Protection  
Recovery Time  
Load Transient  
DC Voltage Rise Time  
Inrush Control  
Output Faults / Loads Protection  
Input / Out Power Control

## INPUT CHARACTERISTICS

105-240VLN 3-Phase at 400-800Hz  
4 Pin MIL-STD Connector (3-Phases & GND)  
EMI Filter in accordance with MIL-STD-461

## OUTPUT CHARACTERISTICS

DC Output Voltage 300 – 1000Vdc  
Input Current can be limited  
Input Under Voltage Protection  
Input/Output Over Voltage Protection  
Input/Output Over Current Protection

## POWER

Complete Bidirectional Power Flow  
Efficiency > 96%  
Rated Nominal Power 15kW  
60KW units can be paralleled to reach 150kW

## PROTECTIONS

Inrush Current Protections/Control  
Input Under Voltage Protection  
Input/Output Over Voltage Protection  
Input/Output Over Current Protection  
Thermal Soft Shutdown  
Short Circuit Protection

## COOLING

Air cooled

## MECHANICAL CHARACTERISTICS

Density > 700W/lbs (1.6kW/kg)

## OPERATING TEMPERATURE

40 to 70°C Storage

## TEMPERATURE

-55 to 105°C

## OPTIONS

Can be added upon request

## INDICATORS

Power Good  
Internal / External Fault  
DC Power Good

## COMMUNICATIONS

CAN2.0A, ISO 11898-2  
RS232 & RS485

## EXTERNAL DISCRETE

Enable/Disable DC Output Voltage  
EMERGENCY Shutdown

## PROTECTIONS (OPTIONAL)

Reverse Polarity DC Input Protections  
Current Protection Via Fuse  
Overload Protections

### GET IN TOUCH

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