



### Hermes Traction Inverter Permanent Magnet / AC Induction

Liquid Cooled

300V, 700V and 1000V DC Input Versions

220V - 750V AC Output Voltage

Part #	A300829	A300832
CONT-RMS	500 A	450 A
PK-RMS	600 A	600 A
CONT-TYP	375 kW	490 kW



ATS Part # A300829 (800V 600A)  
A300832 (1100V 600A)

(See your Sales Rep for specific ordering information)

### Applications

- Heavy duty trucks
- City buses
- Mining Vehicles
- Marine Vessels
- Utility trucks
- All-terrain vehicles
- Motor test stands
- Motor sport

### Features

- Permanent Magnet or Induction motor control
- Adaptive Torque Control — No look-up tables required
- Torque and Speed Control Modes
- Generator Mode with programmable cranking and idle speeds
- Automated Resolver Offset Calibration Mode
- DC Capacitor Discharge Feature
- Up to 1,400 Hz output frequency
- Continuously Variable Switching Frequency—Increases with motor RPM and reduces losses (2 to 14 kHz — Double-edge PWM)
- Discontinuous Pulse Width Modulation (DPWM)
- Smart OV, UV, and Temperature Power Limiting
- Four-quadrant operation
- Validated on motors with up to 40 poles
- Up to 15 inverters on one CAN control bus
- IP67 aluminum enclosure
- Built-in DC bus voltage pre-charge circuitry (Optional)
- Embedded Y-Capacitor
- Motor Select parameter for easy setup
- 150+ programmable parameters via CAN for advanced users
- 10 slot fault log with time stamp information

### Specifications

		Minimum	Nominal	Maximum
DC Bus Voltage (V)	Part # A300829	-	700	800
	Part # A300832	-	1000	1100
Output Voltage ( $V_{RMS}$ )		0 - 0.7 x DC Bus Voltage		
Continuous Output Current ( $A_{RMS}$ )	Part # A300829	-	600 @ $f_{sw} = 2$ kHz 400 @ $f_{sw} = 14$ kHz	-
	Part # A300832	-	550 @ $f_{sw} = 2$ kHz 350 @ $f_{sw} = 14$ kHz	-
Peak Output Current ( $A_{RMS}$ )			600	
Continuous Output Power (kW)		-	350	-
Peak Output Power (kW)		-	-	440
DC Control Volts		22	24	28
Control Supply Current (A)		2	-	-
Logic Input Supply Voltage (V)		6	12	26
Ambient Operating Temperature (°C)		-20	-	60
Inlet Cooling Temperature (°C)		-40	-	50
Coolant Type		-	50/50 WEG	-
Coolant Flow (gal/min) [l/min]		3 [11.3]	-	-
Coolant Pressure Drop (psig @ 3 gal/min) [bar]		-	0.6 [0.04]	-
Weight		38.5kg (85 lbs)		
Dimensions (H x W x L)		586mm (23.1") x 571mm (22.5") x 207mm (8.1")		

The values above are typical and are dependent on the motor and application

## Hermes Traction Inverter

### Product Description

The Traction Inverter is designed to control permanent magnet or AC induction motors and is suitable for propulsion and auxiliary motor applications.

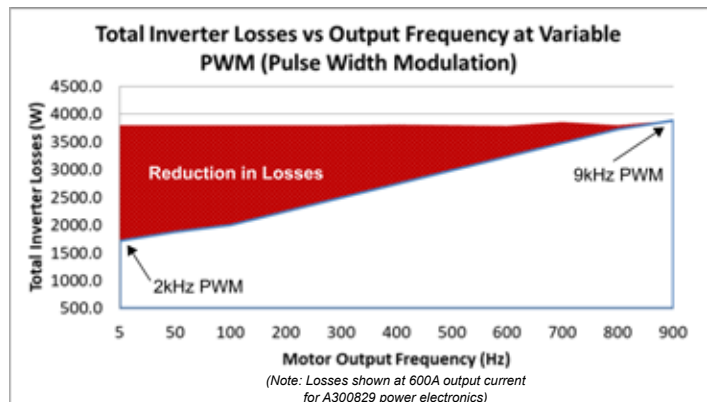
### Adaptive Torque Control

The motor control algorithm, Adaptive Torque Control (ATC) is a more accurate Field-Oriented Control (FOC) capable of operating in a wide range of power factors. ATC optimizes performance (torque and power) by accounting for a varying supply voltage, motor inductances, motor resistances, motor temperature, motor speed, and slip. In induction motors, this enables operation at or near the breakdown torque of the motor and in PM motors, it utilizes the synchronous reluctance effect to maximize torque.

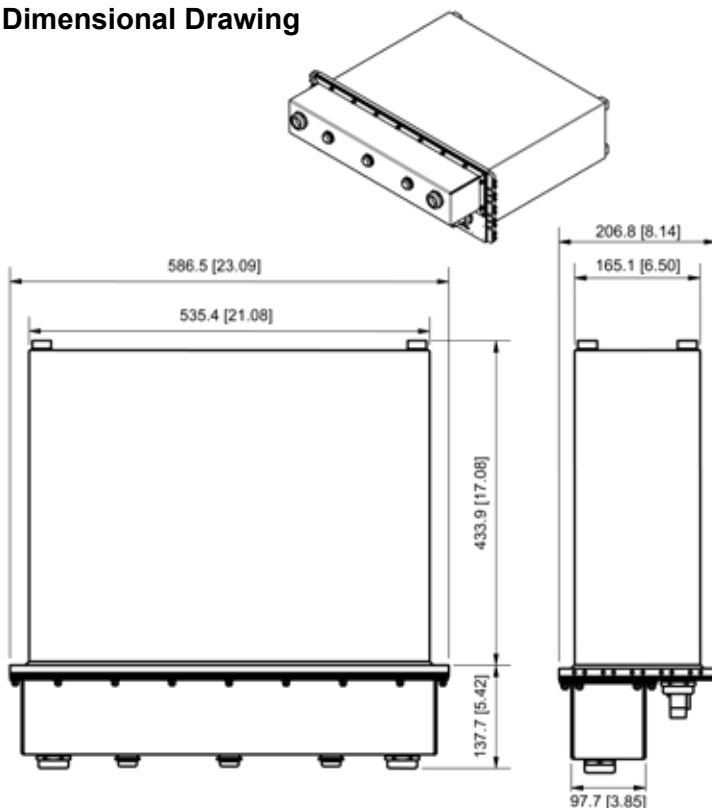
ATC uses models based on the physics of the motor — not lookup tables. With 150+ programmable parameters for setup and tuning, the inverter can operate many different motors.

### Variable Switching Frequency

By continuously varying the switching frequency proportional to speed, the inverter achieves an optimal balance of switching losses in the inverter and current ripples in the motor. Particularly at lower speeds, the reduced PWM frequency yields improved efficiency as shown in the red area of the following chart.



### Dimensional Drawing



### Hardware Description

- Double isolation between power components and control interface
- 12V emergency stop input
- 1 NTC input
- 2 RTD inputs
- 2 12V analog inputs
- 8 logic inputs
- Normally open/closed fault outputs
- RS-232 serial interface for programming and debugging
- Resolver and 5/15V encoder feedback
- CAN-bus control and diagnostics

