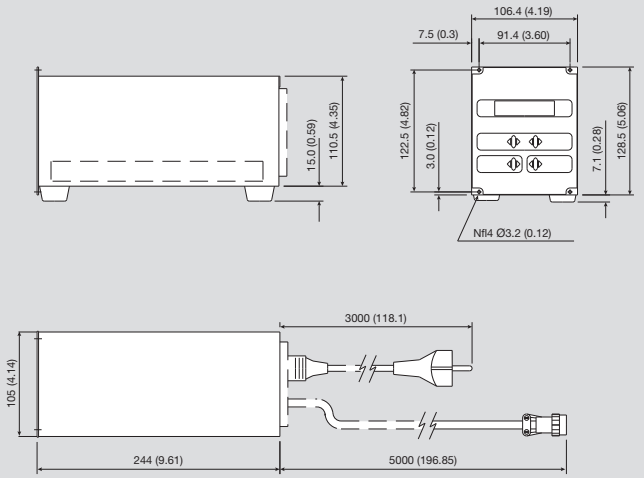
Turbo-V 70 Rack Controller

Outline Drawings



Dimensions: millimeters (inches)

The Turbo-V 70 controller is a microprocessor-controlled frequency converter with self-diagnostic and protection features that ensure the highest degree of reliability.
The compact, 1/4 rack unit has a multifunction alphanumeric display for pump status and error code diagnostics. The front panel has a two-line dot matrix LCD display with back lighting. It displays rotational speed as the pump starts up and indicates when full speed is reached. At any time during the operation of the pump, the speed, current, power, and bearing temperature can be displayed. Additionally, the microprocessor acts as a pump cycle log, and can display the number of vacuum cycles, the cycle time for the current cycle, and the total operating hours on the pump. Remote operation can be accomplished with logic level contact closures or an optional RS 232 line.
Brick and PCB controllers are available.
Please contact Varian for details.

Technical Specifications

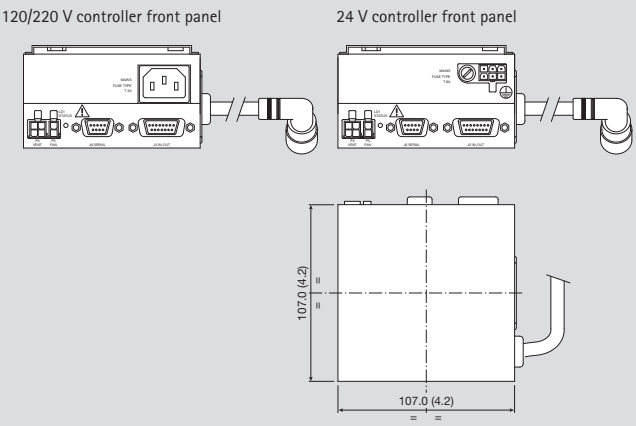
Input	100/120/220/240 V 1 ph, 50/60 Hz
Maximum input power	350 VA
Output voltage	54 VAC, 3 ph
Output frequency	1,250 Hz
Maximum output power	70 W (Data valid for Nitrogen)
Startup power	100 W max
Operating temperature	0 °C to 40 °C
Storage temperature	–20 °C to +70 °C

Ordering Informations

Description	Weight kg (lbs)	Part Number
Controllers		
Controller for Turbo-V 70 pump series, 220 V	3.8 (8.4)	9699405
Controller for Turbo-V 70 pump series, 120 V	3.8 (8.4)	9699505
Accessories and Spare Parts		
J1 input mating connector	0.5 (1.0)	9699853
P7 mating plug	0.5 (1.0)	9699854
Mains cable (European plug, 3 m long)	1.0 (2.0)	03.660441-03
Mains cable (American plug, 120 V, 3 m long)	1.0 (2.0)	03.660441-04
Options		
RS232 Computer communication kit	0.5 (1.0)	9699851
P2 output mating connector	0.5 (1.0)	9699852
Rack adapter for controller	2.0 (4.0)	9699191
Controller to pump extension cable (5 m extension)	1.0 (2.0)	9699950L500

Turbo-V 70 and 301 Navigator Controllers

Outline Drawings



Dimensions: millimeters (inches)

The Turbo-V 70 and 301 Navigator controllers are microprocessor-controlled frequency converters, fully controllable through PC software, with self-diagnostic and protection features that ensure the highest degree of reliability.

They can be mounted on board, either on the bottom or on the side of the pump, offering outstanding flexibility and simplicity.

Technical Specifications

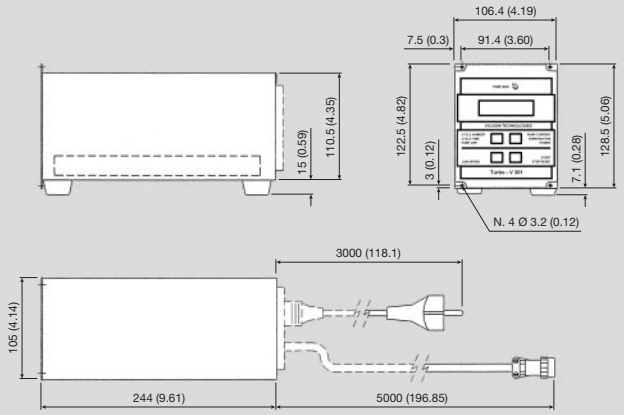
	Turbo-V 70	Turbo-V 301
Input voltages:		
Navigator controller, 24 Vdc	24 Vdc ± 10%	24 Vdc ± 10%
Navigator controller, 120/220 Vac	100/120/220/ 240 Volt, 1 phase, 50/60 Hz	100/120/220/ 240 Volt, 1 phase, 50/60 Hz
Maximum input power:		
Navigator controller, 24 Vdc	100 W	200 W
Navigator controller, 120/220 Vac	200 VA	300 VA
Output poltage	54 Vac, 3 phase	75 Vac, 3 phase
Output frequency	1250 Hz	933 Hz
Nominal power	75 W	150 W
Start-up power	100W	150 W
Operating temperature	0°C to +40°C	0°C to +40°C
Storage temperature	-20°C to +70°C	-20°C to +70°C

Ordering Informations

Description	Weight kg (lbs)	Part Number
Controllers		
Turbo-V 70 Navigator controller, 24 Vdc	1.0 (2.2)	9698970
Turbo-V 70 Navigator controller, 120/220 Vac	1.0 (2.2)	9698971
Turbo-V 301 Navigator controller, 24 Vdc	1.0 (2.2)	9698972
Turbo-V 301 Navigator controller, 120/220 Vac	1.0 (2.2)	9698973
Accessories		
Mains cable NEMA plug, 3m long	0.5 (1.0)	9699958
Mains cable European plug, 3m long	0.5 (1.0)	9699957
Serial cable and Navigator software	0.5 (1.0)	9699883

Turbo-V 301 Rack Controller

Outline Drawings



Dimensions: millimeters (inches)

The Turbo-V 301 Rack controller is a microprocessor-controlled frequency converter with self-diagnostic and protection features that ensure the highest degree of reliability.
The compact, 1/4 rack unit has a multifunction alphanumeric display for pump status and error code diagnostics. The front panel has a two-line dot matrix LCD display with back lighting.
It displays rotational speed as the pump starts up and indicates when full speed is reached. At any time during the operation of the pump, the speed, current, power, and bearing temperature can be displayed. Additionally, the microprocessor acts as a pump cycle log, and can display the number of vacuum cycles, the cycle time for the current cycle, and the total operating hours on the pump. Remote operation can be accomplished with logic level contact closures or the optional RS 232 line.

Technical Specifications

Input voltages:	
Rack controller, 220 Vac	220/240 Volt, 1 phase, 50/60 Hz (Line voltage change over)
Rack controller, 120 Vac	100/120 Volt, 1 phase, 50/60 Hz (Line voltage change over)
Maximum input power	350 VA
Output voltage	75 Vac, 3 phases
Output frequency	933 Hz
Nominal power	150 W
Start-up power	150 W
Operating temperature	0 °C to +40 °C
Storage temperature	-20 °C to +70 °C

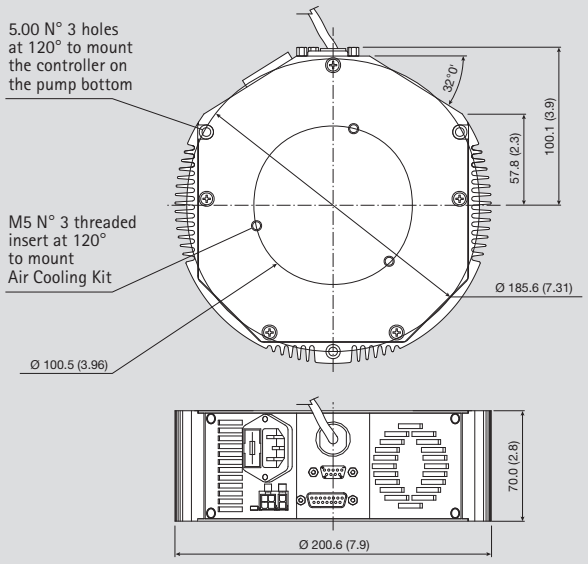
Ordering Informations

Description	Weight kg (lbs)	Part Number
Controllers		
Turbo-V 301 1/4 Rack controller, 220 V	4.5 (10.0)	9699437
Turbo-V 301 1/4 Rack controller, 110 V	4.5 (10.0)	9699537
Accessories		
J1 input mating connector	0.5 (1.0)	9699853
P7 mating plug	0.5 (1.0)	9699854
Mains cable (European plug, 3 m long)	1.0 (2.0)	03.660441-03
Mains cable (American plug, 120 V, 3 m long)	1.0 (2.0)	03.660441-04
Options		
RS 232 Computer communication kit	0.5 (1.0)	9699851
P2 output mating connector	0.5 (1.0)	9699852
Controller to pump extension cable (5 m extension)	1.0 (2.0)	9699950L500

Turbo-V 551 and 701 Navigator Controllers

The Turbo-V 551 and 701 Navigator controllers are microprocessor-controlled frequency converters, fully controllable through PC software, with self-diagnostic and protection features that ensure the highest degree of reliability. They can be mounted on board, either on the bottom or on the side of the pump, offering outstanding flexibility and simplicity.

Outline Drawings



Dimensions: millimeters (inches)

Technical Specifications

Input voltages	100/120/220/240 VAC 50/60 Hz, 1 ph
Maximum input power	600 VA
Output voltage	56 VAC, 3 ph
Output frequency	714 Hz
Maximum output power*	325 W (for 551 Navigator controller) 350 W (for 701 Navigator controller)
Startup power	370 W
Operating temperature	0 °C to +40 °C
Storage temperature	–20 °C to +70 °C

* *Data valid for Nitrogen*

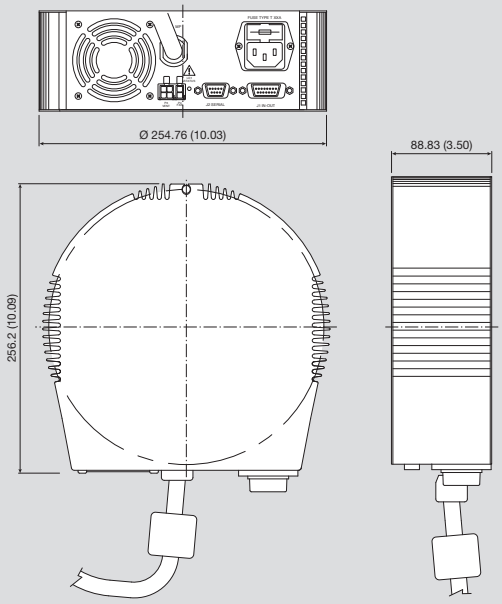
Ordering Informations

Description	Weight kg (lbs)	Part Number
Controllers		
Turbo-V551 Navigator controller 120/220 V - 50/60 Hz	3.0 (6.0)	9698974
Turbo-V701 Navigator controller 120/220 V - 50/60 Hz	3.0 (6.0)	9698975
Accessories		
Mains cable NEMA plug, 3 m long	0.5 (1.0)	9699958
Mains cable European plug, 3 m long	0.5 (1.0)	9699957
Serial cable and Navigator software	0.5 (1.0)	9699883

Turbo-V 1001 Navigator Controller

The Turbo-V 1001 Navigator controller is a microprocessor-controlled frequency converter, fully controllable through PC software, with self-diagnostic and protection features that ensure the highest degree of reliability. They can be mounted on board, either on the bottom or on the side of the pump, offering outstanding flexibility and simplicity.

Outline Drawings



Dimensions: millimeters (inches)

Technical Specifications

Input voltages	100/120/220/240 VAC 50/60 Hz, 1 ph
Maximum input power	850 VA
Output voltage	54 VAC, 3 ph
Output frequency	640 Hz
Operating temperature	0 °C to +40 °C
Storage temperature	–20 °C to +70 °C

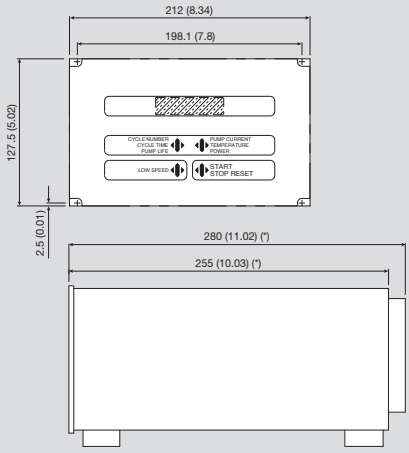
Ordering Informations

Description	Weight kg (lbs)	Part Number
Controllers		
Turbo-V1001 Navigator controller 120/220 V - 50/60 Hz	5.4 (12.0)	9698978
Accessories		
Mains cable NEMA plug, 3 m long	0.5 (1.0)	9699958
Mains cable European plug, 3 m long	0.5 (1.0)	9699957
Serial cable and Navigator software	0.5 (1.0)	9699883

Turbo-V 550, 700HT, 1000HT and 2000HT Rack Controllers

These controllers are microprocessor-controlled frequency converters with self diagnostic and protection features that ensure the highest degree of reliability. The compact, 1/2 rack unit has a multifunction alphanumeric display for pump status and error code diagnostics. The front panel has a two-line dot matrix LCD display with back lighting. It displays rotational speed as the pump starts up and indicates when full speed is reached. At any time during the operation of the pump, the speed, current, power, and bearing temperature can be displayed. Additionally, the microprocessor acts as a pump cycle log, and can display the number of vacuum cycles, the cycle time for the current cycle, and the total operating hours on the pump. Remote operation can be accomplished with logic level contact closures and with optional computer interfaces.
PCB controllers are available. Please contact Varian for details.

Outline Drawings



* For V 2000HT Controller quotes are:
430 (16.95)
405 (15.95)

Dimensions: millimeters (inches)

Technical Specifications

	V 550	V 700 HT	V 1000 HT	V 2000 HT
Input voltages	100/120/220/240 V 1 ph, 50/60 Hz	100/120/220/240 V 1 ph, 50/60 Hz	100/120/220/240 V 1 ph, 50/60 Hz	100/120/220/240V 1 ph, 50/60 Hz
Maximum input power	600 VA	600 VA	700 VA	1100 VA
Output voltage	56 VAC, 3 ph	56 VAC, 3 ph	56 VAC, 3 ph	120 VAC, 3 ph
Output frequency	700 Hz	700 Hz	633 Hz	550 Hz
Maximum output power*	325 W	350 W	450 W	700 W
Startup power	420 W	420 W	430 W	700 W
Operating temperature	0 °C to +40 °C	0 °C to +40 °C	0 °C to +40 °C	0 °C to +40 °C
Storage temperature	–20 °C to +70 °C	–20 °C to +70 °C	–20 °C to +70 °C	–20 °C to +70 °C

* *Data valid for nitrogen.*

Ordering Informations

Description	Weight kg (lbs)	Part Number
Controllers		
Controller for Turbo-V550 pump, 120 V	15.7 (35.0)	9699544
Controller for Turbo-V550 pump, 220 V	15.7 (35.0)	9699444
Controller for Turbo-V700HT pump, 120 V	15.7 (35.0)	9699545
Controller for Turbo-V700HT pump, 220 V	15.7 (35.0)	9699445
Controller for Turbo-V1000HT pump, 120 V	15.7 (35.0)	9699554
Controller for Turbo-V1000HT pump, 220 V	15.7 (35.0)	9699454
Controller for Turbo-V2000HT pump, 120 V	19.0 (42.0)	9699562
Controller for Turbo-V2000HT pump, 220 V	19.0 (42.0)	9699462
Accessories		
J1 input mating connector	0.5 (1.0)	9699853
P6 and P7 mating plug	0.5 (1.0)	9699854
Mains cable (European plug, 3 m long)	1.0 (2.0)	03.660441-03
Mains cable (American plug, 120 V, 3 m long)	1.0 (2.0)	03.660441-04

Description	Weight kg (lbs)	Part Number
Options		
RS485 Computer communication kit	5.0 (1.0)	9699856
RS232 Computer communication kit	5.0 (1.0)	9699857
RS422 Computer communication kit	5.0 (1.0)	9699858
P2 output mating connector	5.0 (1.0)	9699852
Rack adapter for controller	2.0 (4.0)	9699191
Controller to pump extension cable (5 m extension) for Turbo-V 550, 700HT, 1000HT	1.0 (2.0)	9699951L0500
Controller to pump extension cable (10 m extension) for Turbo-V 550, 700HT, 1000HT	2.0 (4.0)	9699951L1000
Controller to pump extension cable (5 m extension) for Turbo-V 2000HT	1.0 (2.0)	9699953

Turbo-V 6000 Rack Controller

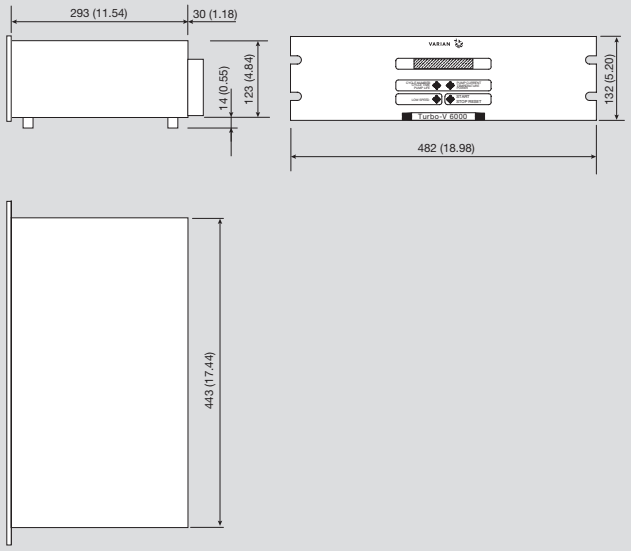
The Turbo-V 6000 controller is a 19" rack mountable unit. This controller provides the following features:

Remote Operation with System Controller
The Turbo-V controller can accept remote commands with either TTL-compatible logic level signals or with permanent contact closures.
A signal (logic level) indicates that the pump is operating and has achieved normal speed. Also available is the indication of overload due to high-temperature or high-current levels.

System Diagnostics
Front panel LED bar graph displays the controller output frequency and the power drawn by the pump. An overload condition is also indicated and an hour counter monitors the operating hours on the pump to help adhere to the recommended maintenance intervals.

Control of other System Components
The Turbo-V controller can power the mechanical pump contactor to provide a one-switch control of both Turbo-V and mechanical pump startup. Simultaneous starting of the Turbo-V and mechanical pump is recommended for most applications where no high-vacuum valve is required.

Outline Drawings



Dimensions: millimeters (inches)

The Turbo-V controller provides power to a turbo vent valve, if used.
A starting interlock is available that can be used for delayed starting of the Turbo-V with a contact closure from a vacuum gauge set point. The interlock could also be integrated to a water-flow switch to provide an early warning of interrupted cooling of the pump.

High-pressure Operation
The controller's ability to adjust the Turbo-V pump's rotational speed under high gas load conditions extends the operating range of the Turbo-V pumps into the 10^{-1} mbar range.

RPM Display
Digital display of nominal pump speed.

Technical Specifications

Input voltage	120/220 V, 1 ph, 50/60 Hz
Maximum input power	3,000 VA
Output voltage	100 VAC, 3 ph
Output frequency	233 Hz
Maximum output power*	1,500 W
Startup power	2,200 W
Operating temperature	0 °C to +40 °C
Storage temperature	–20 °C to +70 °C

* *Data valid for nitrogen*

Ordering Informations

Description	Weight kg (lbs)	Part Number
Controllers		
Controller for Turbo-V6000 pump, 220 V	50.0 (110.0)	9699491
Controller for Turbo-V6000 pump, 120 V	50.0 (110.0)	9699591